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PATENT LICENSING TECHNOLOGY COMMERCIALISATION INNOVATION MARKETING

Part 2

LICENSING INTELLECTUAL PROPERTY

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About half, probably more, of all patented inventions in the United States are never commercially exploited.

Many of these undeveloped inventions are commercially worthless yet for several reasons, the patent “underdevelopment” problem arguably applies to a large share of potentially valuable inventions. First, patent law encourages inventors to file for patents early in the innovation process. At this stage, especially for modern technologies, an invention is usually not in the form of a finished product ready for sale, and its commercial success is highly uncertain. Instead, the inventor must undertake costly and risky development and testing to transform the invention into a commercially viable product. This uncertainty encourages inventors to delay commercialization in the hopes of reducing risk by taking advantage of emerging complementary technologies that may lower production costs more than any forgone profits. Indeed, many of the twentieth century’s greatest inventions, including the television, radio, radar, and penicillin, were not commercialized until decades after they were invented. In some instances, the uncertainty is so great that the commercialization of a worthwhile invention never occurs.

Patents and Technology

A patent license is a contract by which the patent holder authorizes another party to use its invention under certain conditions (notably financial). A market for technology refers to transactions for the use, diffusion and creation of technology. This includes transactions involving patents and other intellectual property rights (IPR), know-how and patent licensing. It also includes transactions involving knowledge that is not patentable or not patented (e.g. software, or the many non-patented designs and innovations). Patent licensing plays a central role in technology markets. It frequently constitutes the pillar for knowledge exchange as patents can work as “*credible hostages*” when non-protected, complementary know-how and services are provided.

Licensing is a complex decision to take since it implies the sharing of rents of innovation with the licensee. For companies, a main worry constitutes the risk of imitation by the partner. In addition, contracting on technology is complex and costly. Writing and executing a reliable contract for the use of technology requires adequate specification of IPR and their use, monitoring, and enforcement of contractual terms, which are not straightforward tasks. Other transaction costs include the search of partners, the drafting of contracts, legal assistance, etc.

The difficulties in technology transactions have been attributed to a number of factors: the cognitive nature of the good (knowledge) which is difficult to articulate or transfer across contexts, the characteristics of the industry or market affected by the technology in question (i.e. maturity, product life cycles, etc.), and the characteristics of the parties

involved in transactions, etc.. The problems of *appropriability* and *indivisibility* of knowledge, and uncertainty on the value of the technology make contracts incomplete. These aspects introduce moral hazard and information asymmetries which increase the risk of opportunism by partners. Transactions in technology are also affected by the difficulties in exchanging tacit knowledge, which is difficult to define in a contract. On the contrary, knowledge that is codified (articulated following a model or methodology, scientific principles, etc.) and general is easier to transfer.

Valuation of Intellectual Property

The valuation of intellectual property tends to be very complex, since the task of valuation involves determining the present value against a future technology or product. Various methods have been developed that use greater or lesser amounts of economic theory. In the end, as the value will usually be a negotiated figure, what is most important is to find a method that both parties agree will produce a value they can accept. The most common method of valuation is a process of discounted cash flow, which calculates the present value of future revenues. Present value reflects the price a purchaser of the intellectual property is willing to pay now, in order to receive anticipated cash from future sales of the product.

Different variables and factors can be built into this, such as the risk of the technology not delivering promised returns, but obviously it is hard to accurately estimate the future cash flows from intellectual property or from an undeveloped, untested technology. The closer one comes to a final product, the more realistic will be the estimate of future cash flow. Waiting until near the end of product development to negotiate royalties can, however, give rise to serious problems in reaching a negotiated settlement.

Most valuation models rely on market data, which, at best, can provide only a range of probable values. For a revolutionary new product, direct market data is often unavailable and proxies (or existing products on the market) are used as substitutes. The complexity of valuation arises from the challenge of identifying useful, appropriate proxies. The more appropriate data one uses, the more accurate the valuation will be.

Furthermore, the individual and specific value of assets will vary widely. Understanding how these specific values are statistically distributed will greatly help estimating value, since including a probability of receiving a specified return aids decision making. Wherever an individual component has a range of possible values, knowing the statistical distribution over this range can make the overall valuation more accurate and also allow one to estimate the probability that this value will actually be achieved.

The following sections identify several valuation approaches and provide a short explanation of each. To illustrate this, each approach is explained with reference to a fictional, ongoing negotiation, between a University and Car company, over a

commercial-use license for battery technology developed at the university. The battery based on a patented cathode has been developed by Faculty under a government grant program, which the car company intends to use in its new electric car.

1. Cost approach

The cost approach is based on covering costs of developing a new product. Using this approach, the University would seek to charge a one-time fee to cover all research and possible patenting costs for developing the cathode and producing at lab scale a battery incorporating the patented cathode. While this approach is a highly relevant one for pricing an article produced for sale, the approach is rarely used to assign a value to a piece of intellectual property, because the cost to develop something is not usually related to the value of any intellectual property it contains. One version of the approach is to calculate anticipated future costs of developing similar technologies. This approach, however, is highly subjective and difficult to justify.

Still, knowing the cost of development of a particular technology is often useful and relevant when calculating the relative inputs of parties into a joint venture. If, instead of licensing a technology, an institution enters into a joint venture to develop a product, initial investments into the joint venture often control the share assigned to each party. A university or research institution may not have adequate financial resources to develop a product from a technology, but the institution could justifiably claim a share of a joint venture based on the investment in the project up to that point, as well as the product's potential value.

2. Income approach

A pure income approach is carried out by discounting future anticipated revenues (cash flows) several years into the future. In our scenario, this approach is used when the University asks car company how much it would be willing to pay now for a certain return in the future (for example, US\$10 million in 10 years time). The big drawback to this approach is that there may be no sales, market, or cost data from which to predict future revenues. Furthermore, the method relies heavily on allocation of risk: determining what the chances are of a disappointing return (or even of no return at all) and who should take this risk, the university or the company? Risk estimates are crucial for determining whether to invest in a new technology, but they are too often based on little more than gut feeling.

3. Market approach

The market approach requires finding a similar or comparable technology to the one evaluated. In our scenario, the University would look for other electric cars on the market and determine how much users are paying for the battery. So, the valuation would rely on finding sufficient data about similar transactions to arrive at an accurate

estimate of the value of the new product. The inherent weakness of this approach is the difficulty of obtaining data for a truly novel product.

4. *Hybrid approaches*

The more common approach is to use a hybrid of income and market methods of valuation. This combines the benefits of market comparability and the business community's familiarity with the income approach. In our example, car company would use its experience with similar products to estimate what users would pay and how quickly the market for the electric vehicle would grow to produce the estimated income. This method is usually applicable where there is prior experience and sufficient information. Where products are being developed in-house, calculating the net present value of a new product is based on this hybrid method. Decisions on funding products are made by estimating a certain minimum net present value.

5. *Royalty rate method*

Because royalties give the inventor a return on sales of the final product, royalties are often used to share the risk between the inventor and the developer. Parties often use a royalty rate that has been agreed upon in the past for similar technologies; that rate is then applied to anticipated revenue streams. Because of the risk-sharing nature of this method (if the product does not become a success, the royalty amount is low), this is a common approach to licensing technology. But the approach does not always result in a valuation of the technology itself. Indeed, royalty rates are often determined arbitrarily, with little or no relation to the added value the technology may give to the product. For example, in our scenario, if an initial collaborative research agreement between the University and car company limits the university to a maximum royalty of 5% of gross revenues, then, if the technology increases the value of car company products by more than that, the university loses. Another problem with arbitrarily applying royalty rates, in this case, is that if car company were to combine several other new technologies in one car, then the company might be unable to afford to pay 5% royalties to each technology provider if the combined added value was insufficient.

Whatever is perception of value, price of Technology depends:

- Negotiation power of both the parties
- Economic benefits
- Demand of the technology
- Scalability of the technology
- Life cycle position, longevity
- Number of competitors

Economic motivations to licensing

The motivations to license technology are diverse.

- Firms license if they are less able (or unable) to exploit the innovation than the potential licensees,
- They aim at establishing their technology as a de facto standard, for instance when network externalities are important.
- Licensing can be used strategically to influence competition and stimulate market demand. Licensing can induce quality competition within providers and expand supply through licensing; which in turn, increases industry demand.
- Licensing is also motivated by the “choosing competitors” motivation, that is, to choose rivals after the patent expires and extend a dominant position (ex. generics in pharmaceuticals),
- To deter new entrants from inventing competing products by offering them a license which is less costly than doing R&D?
- To leverage economic value from unused inventions, or expand the range of uses (markets) of a particular invention.
- For “fabless firms”, specialized in R&D, licensing constitutes a major instrument to generate revenue from intellectual assets.
- It is also used as a tool for exchanging knowledge and to solve conflicts in intellectual property rights (IPR). Cross-licensing is helpful to overcome patent thickets and the problem of components that arises when multiple patent holders can block each other’s market products.
- Licensing also occurs in the context of cumulative innovations where multiple patents are at play for the forward development of technology.
- Constrained licensing is implemented by companies that credibly threaten to sue as they can deal with litigation costs and their chances of winning the dispute are higher.

Propensity to license to non-affiliated parties

Protection of IPR is a major element in the incentives to commercialize technology as it permits to deal with the *appropriability* problem. The strength of patent protection may positively influence the decision to license technologies. Stronger protection reduces the risk of opportunistic behavior by the licensee and reinforces the licensor’s bargaining power, which enables him to appropriate a larger share of the total surplus generated by the licensing deal. In the empirical literature there is evidence that stronger patents reduce transaction costs in technology licensing contracts and favor vertical specialization.

In industries where IPR are important, licensing of patents tends to be higher (chemicals and pharmaceuticals). Strong intellectual protection in the primary line of business of the licensor has a positive impact on his/her propensity to engage in licensing agreements. Probability of licensing is more frequent when patents offer a greater protection (the breadth of a patent approximated by the number of granted claims and technical classes).

Also the effect of the degree of patent protection on the propensity to license is affected by the existence of downstream capabilities. Effectiveness of patent protection enhances licensing propensity only when few or no complementary assets are necessary to bring the technology to market. Indeed, the control and distribution of downstream co-specialized assets (e.g. distribution and manufacturing capabilities or a brand-name reputation) affect directly the share of revenue that can be derived from licensing innovations. Firms lacking these competences are the first to opt for commercialization of technology (licensing-out) as it represents the least costly strategy.

U-shaped relationship between size and licensing propensity

In the case of licensing out to non-affiliated companies, a U-shaped relationship between size and share of involved companies appears. A higher share of licensing out among small firms has been already found in various surveys. It is probably related to the fact that there are small companies with no manufacturing or commercial facilities, which are then not in a position to exploit their inventions themselves. Hence it makes sense for such small companies to license out their inventions instead of practicing themselves. Their applications fall outside the range of competences of the firm, and this is more likely to happen if the firm is small and little diversified. In that case the inventing firm might choose to give access to the invention to third parties in a better position to exploit it at least on markets from which the firm is absent.

On the other hand, for the largest companies (10 000 employees and more), there is first a statistical explanation: due to their size, they are involved in a greater variety of activities than other firms, and licensing out is one of these activities. There are economic explanations as well. Larger firms often play the role of technology integrator; their products are made of many different inventions. In order to secure access to all these inventions, which it cannot all produce itself, the large company has to enter into licensing in deals with other inventors, some of these deals involving cross-licensing as competitors want access to the firm's technology. A larger share of large firms involved in cross-licensing would be consistent with this explanation. Another explanation for the higher share of large firms licensing out their patents involves market strategy. Large firms are reported to have set up "patent thickets" in certain fields like semi-conductors. That gives them more market power that they can better leverage by granting licenses to others: by doing that they mitigate anti-trust concerns, they deter competitive R&D

and they increase revenue. In addition, licensing out can be more or less constrained, as the licensor pressures an alleged patent infringer to license in the invention, under a threat of going to court. Such pressure is obviously easier to exercise for large firms, endowed with a larger legal department, than for small ones.

Obstacles to licensing

Licensing markets are still underdeveloped compared to their potential. An important number of patented inventions could be commercialized and exploited by third parties but their owners have not succeeded in licensing them out.

- The reasons for this have to do with the difficulty in finding partners and concluding licensing deals:
- Existence of transaction costs, how to go about seeking potential partners, lack of experience in drafting contracts, disagreements on exploitation conditions such as geographical or exclusivity restrictions or payment conditions (royalties, lump sum, etc.).
- Many of these difficulties are due to the particular nature of knowledge as an economic good. Notably, pieces of knowledge being all different from each other, there is little standardization, making it difficult to have references such as common price or standard contracts. The potential user of a given piece of knowledge can remain unknown to the seller, who thus cannot contact him/her. This increases the difficulty in negotiating deals, generating potential market failures.

Long tail of university research

With limited resources, high transaction costs, and sometimes pressure to be a university profit center, most Technology Transfer offices are driven to focus on the innovations considered potential hits. Innovations that have merit, but aren't regarded as big hit material, may not be marketed actively at all. In the past, untold thousands of technologies have gotten little or no attention. Many are "research tools," useful mainly to other scientists. These include items like special purpose software that you may never want for your home PC, but that can be used to run experiments or analyze results or biomedical compounds that will not be the next wonder drugs but might help to produce them.

Just getting more innovations of this type into use could give a significant boost to scientific research and, eventually, to society and the economy. Also, there may be some hits hidden in this long tail, innovations that could reach the mass market if they were noticed more widely and developed further.

Professor Linda Restifo, a neurobiologist at the University of Arizona, is doing research that hasn't yet made headlines but someday could. The goal is the discovery of drugs for treating intellectual disability. Although the work is early-stage, Restifo and her team have created a research tool that could accelerate it greatly.

The tool is a software program called NeuronMetrics. In disabilities like Down's or fetal alcohol syndrome, neurons in the brain fail to develop properly. To see how neurons grow wrong, and how they might respond to various treatments, experimenters can study samples of brain tissue from fruit flies, our genetic cousins. But the photo images of the results are so complex that they are hard to analyze. Neurons have long, intricate branches for exchanging signals with their neighbors. Trying to assess the state (and thus the health) of tangled webs of "neurite arbors" can be time-consuming with only a modest number of images, and prohibitive with many.

NeuronMetrics is image-analysis software that automates much of the task. Developed by Restifo's team with the help of computer scientists at the University of Arizona, it was posted on the iBridgeSm Web site early in 2007. As of May 2008, sixty-five other research teams had licensed and downloaded the software, with more than 200 expressing interest in or asking for materials on NeuronMetrics. That is a very good dissemination rate for such a technology—which, by the way, can have uses beyond the study of intellectual disability.

(Source: iBridgenetwork)

Patent Licensing

License is a commonly used term for a document representing a written authorization or the act of authorization. Licensing, in the context of patents is an act of granting or obtaining the written authorization to use the patented technology for performing a specified act, in a specified market and for a specified period of time. A patent license is an agreement between a first party ("licensor") and a second party ("licensee"). This agreement authorizes the second party to exercise certain rights and privileges held by the first party. The scope of such an agreement depends on the terms and conditions proposed in the patent license.

A patent holder has the exclusive rights to exclude others from manufacturing, using, offering for sale or selling or importing the invention protected by the patent. The term patent holder refers to an individual inventor or a patent holding company that manages, maintains, and licenses patents or enforces patent rights.

No individual or company other than the patent holder may have these rights without the permission of the patent holder. The patent holder grants a license to others for practicing the patent holder's invention. The process of granting a license for a patent is known as "*out-licensing*" and the process of obtaining a license for a patent is called "*in-licensing*". A patent license is negotiated between the licensee and the licensor. Thereafter, the licensee and the licensor agree on a license fee and, terms and conditions. The payment mode for the license may be a "*paid-up license*" or a "*royalty*"

license". In a paid-up license agreement, the agreed license fee (lumpsum) is paid-up during the agreement. In case of a royalty license agreement, the license fee is decided as a share of licensee's revenue generated as a result of commercialization of the patented technology.

Types of Patent Licenses

The types of patent licenses that may be obtained by a licensee from a licensor may be:

- Exclusive License
- Non-Exclusive License
- Sole License
- Cross License

Exclusive license is a patent license provided to the licensee by the licensor granting all the rights and privileges exclusively to the licensee. The licensor retains no rights or privileges to practice the invention covered by the patent. The licensee has the exclusive rights to the invention. Therefore, the licenses are termed as exclusive licenses. Further, the rights and privileges granted to the licensee may be within a scope or field. The scope or field refers to a geographical area, technological application, method of production, or production of a specific product, a market. Licenses having the rights within the same scope or field of the exclusive license cannot be granted to other licensees. So, licensor can grant licenses with rights of different scope or field to various licensees.

Non-Exclusive license is a patent license that can be granted by a licensor to multiple licensees. The multiple licensees will have the rights and privileges to practice the invention within the same scope or field of the license. Moreover, in this case the licensor is also allowed to practice the invention. Therefore, such licenses are termed as non-exclusive licenses.

Sole license is a patent license that defines the rights and privileges to practice the invention granted to a single licensee by a licensor. In this case the licensor is also allowed to practice the invention. However, the licensor is not allowed to grant licenses to others.

Cross license is patent license that facilitates a licensor and licensee to have rights and privileges to practice each other's inventions. Further, cross licensing may involve more than two parties granting a license to each other for exploiting an invention having its aspects covered in multiple patents owned by different parties. Such cross licensing is also called patent pooling. Thus, a product having its features covered in various

patents may be developed and marketed by each party entering into a cross license. The parties entering into the cross license may not pay royalties to each other.

Licensing-out and Licensing-in

As discussed before, patent licenses may be granted by patent holders to an interested party. The process of granting a license for a patent by a patent holder is called "out-licensing" or "licensing-out", whereas the process of obtaining a license for a patent from a patent holder is called "in-licensing" or "licensing-in".

Licensing-out

In several situations, it may be beneficial for both, companies as well as individuals to license-out patents. Often, for individuals, translating an invention into a useful product involves huge costs and large amount of resources. Therefore, individual inventors, especially in the pharmaceuticals or biotechnology industry tend to license-out their patented invention to a company that has the capability and the desire to develop the technology for commercialization. There are several methods of identifying potential parties that may be interested to obtain a patent license. A landscape analysis may be performed in the domain of interest to identify research activities conducted by large and small players.

Other methods to determine potential licensees include browsing trade publications, visiting tradeshow, innovation fairs or browsing internet databases, such as Kompass and the Thomas Register of American Manufacturers. Sometimes, even companies holding patents license their patents to third parties based on a license agreement. Several companies across the globe generate large amounts of revenue via patent licensing. Companies such as IBM and Microsoft® are known to license their technology via patent licensing. In the year 1990, patent licensing generated \$15 billion in the United States. In 1998, the figure rose to nearly \$100 billion and in 2005, to about \$500 billion. A large number of companies including Microsoft®, Lucent, Google™, Intel® and Dell have been generating income consistently via patent royalties. IBM, which received 3125 U.S. patents from the USPTO in the year 2007, collects more than \$1 billion every year as patent royalties. Even universities, including New York University and Stanford University license their patents. New York University earned an amount of \$157 million from patent licensing in 2006 while Stanford University generated \$61 million via patent licensing.

Licensing -in

Licensing-in of patents, as discussed previously, is the process of obtaining a license for incorporating a desired technology into one or more of the company's products. There are several factors for licensing-in patents. Some of the factors are as follows:

- To improve on the company's competitiveness in its technical domain of operation;
- To bring external innovation to the company in addition to company-owned innovation; and
- To save on in-house R&D if the estimated cost of the in-house R&D exceeds the cost of procuring the state of art technology.

Patent Licensing Agreements

Patent License agreement a partnership between an intellectual property rights owner (licensor) and another who is authorized to use such rights (licensee) in exchange for an agreed payment (fee or royalty).

Patent licensing agreement generally covers following points,

- Term (agreement length)
- Rights to modify and combine with other products, if any
- Prohibited uses
- Transfer and sublicense rights
- Rights to source code
- Acceptance, testing and training procedures
- Warranties
- Limitations on the licensor's liability
- Support and maintenance services
- Nondisclosure of confidential information
- Indemnity for infringement
- Enforcement of remedies
- Contract termination.

Google takes license from Stanford

Effective as of October 13, 2003 ("Effective Date"), THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY, a body having corporate powers under the laws of the State of California ("STANFORD"), and Google Inc., a Delaware corporation having a principal place of business at 2400 Bayshore Parkway, Mountain View, CA 94043 ("GOOGLE"), agree as follows:

1. BACKGROUND

1.1 STANFORD and Google Inc., a California corporation and predecessor in interest to GOOGLE, are parties to a License Agreement effective December 1, 1998 ("Original Agreement") and an Amendment effective May 1, 2000 ("Amendment"). It is the intention of the parties that this Agreement will amend and restate the Original Agreement and Amendment in its entirety.

1.2 STANFORD has an assignment of "Improved text searching in hypertext systems" developed by Lawrence Page ("Invention[s]"), as described in Stanford Docket S96-213, and any Licensed Patent(s), as hereinafter defined, which may issue to such Invention(s).

1.4 STANFORD desires to have the Technology, Software, and Invention(s) perfected and marketed at the earliest possible time in order that products resulting therefrom may be available for public use and benefit.

1.5 GOOGLE desires a license under said Technology, Software, Invention(s), and Licensed Patent(s) to develop, manufacture, use, market, and sell Licensed Product(s) and Licensed Program(s) in the field of use of internet search applications.

1.6 The Technology, Software, and Invention(s) were made in the course of research supported in part by the U.S. Government.

2. DEFINITIONS

2.1 "Licensed Patent(s)" means

(a) STANFORD's U.S. Patent 6,285,999 filed January 9, 1998 and issued September 4, 2001, any foreign patents corresponding thereto, and/or any divisions, continuations, or reissue thereof.

2.2 "Technology" means existing non-patented and non-copyrighted ideas, technical data and information generally described in Appendix A. Technology excludes Software.

2.3 "Software" means the Google source code, including any other material relating to Google source code which will be provided to GOOGLE pursuant to this Agreement.

2.4 "Licensed Product(s)" means any product or part thereof in the Licensed Field of Use, the manufacture, use, or sale of which:

a) Is covered by a valid claim of an issued, unexpired Licensed Patent(s) directed to the Invention(s). A claim of an issued, unexpired Licensed Patent(s) shall be presumed to be valid unless and until it has been held to be invalid by a final judgment of a court of competent jurisdiction from which no appeal can be or is taken; or

(b) Is covered by any claim being prosecuted in a pending application directed to the Invention(s).

2.5 "Licensed Program(s)" means those computer programs developed by GOOGLE in the Licensed Field of Use, including manuals and related documentation, which include a material portion of, or which are derived from, Software.

2.6 "Licensed Field of Use" means internet search applications.

2.7 "Use Sublicense(s)" means any agreement or arrangement between GOOGLE and any customer for the use of Licensed Program(s).

2.8 "Exclusive" means that, subject to Article 5, STANFORD shall not grant further licenses in the Licensed Field of Use.

2.9 "Patent Sublicense" means any sublicense of a Licensed Patent granted by GOOGLE to a third party to allow that third party to make, have made, use, sell, offer for sale, and import its own Licensed Products without GOOGLE providing products or services.

2.10 "Stanford Indemnitees" means STANFORD and Stanford Hospitals and Clinics, and their respective trustees, officers, employees, students, and agents.

3. GRANT

3.1 STANFORD hereby grants and GOOGLE hereby accepts a worldwide license in the Licensed Field of Use to make, have made, use, sell, offer for sale, and import Licensed Product(s).

3.2 The above license in Paragraph 3.1 is Exclusive for each Licensed Patent, including the right to grant Patent Sublicenses under Article 14, in the Licensed Field of Use for a term commencing as of December 1, 1998 and ending on 10 years from its issuance date. Thereafter, said license shall be nonexclusive until its expiration date. For example, the Exclusive period for U.S. Patent 6,285,999 expires on September 4, 2011.

3.3 STANFORD grants, and GOOGLE accepts

- (a) A worldwide license to use, copy, modify, enhance, make derivative works, and distribute Software as part of the development of Licensed Program(s);
- (b) A worldwide license to grant Use Sublicense(s) to Software as part of Licensed Program(s) solely in the Licensed Field of Use and to grant such sublicenses through multiple tiers of sublicenses;
- (c) A worldwide license to allow others to use the Licensed Program(s) for internet searching.

3.4 The above licenses in Paragraph 3.3 are Exclusive in the Licensed Field of Use for a term commencing as of December 1, 1998 and ending on September 4, 2011. Thereafter, said license shall be nonexclusive until expiration of the Software's copyright.

3.5 GOOGLE agrees:

- (a) To maintain the quality of Software;
- (b) To affix an appropriate notice of copyright to all copyrightable materials licensed under Paragraph 3.3 hereof, and to do such things as are reasonable to protect and preserve STANFORD's rights in such copyrights;
- (c) To exercise due care in protecting Software from disclosure to third parties, at least to the degree it exercises care in protecting its own proprietary information; and
- (d) To take appropriate action with its employees, consultants, and sublicensee(s) to satisfy its obligation under this Agreement with respect to maintaining the above degree of protection for Software.

However, GOOGLE shall have no confidentiality obligations with respect to any information if the same or similar information is or becomes within the public domain through no act of GOOGLE in breach of this Agreement, is independently developed by GOOGLE, or is received unrestricted from another source who was not under an obligation of confidentiality to STANFORD.

3.6 GOOGLE agrees that the source code embodied in the Software is for internal use only and that when sublicensing only object code in binary form will be distributed, except as provided under reasonable source code escrow arrangements.

3.7 STANFORD hereby grants and GOOGLE hereby accepts a worldwide, nonexclusive license to use, enhance and modify the Technology to develop, make, have made, use, market, sell, and otherwise distribute any products and/or services in the Licensed Field of Use.

3.8 The above license in Paragraph 3.7 shall remain in effect unless terminated in accordance with Article 16 hereof. STANFORD retains all rights in tangible and intangible property provided to GOOGLE.

3.9 STANFORD shall have the right to practice the Invention(s) and use the Technology and Software for its own bona fide uses, including sponsored research and collaborations. STANFORD shall have the right to publish any information included in Technology, Software, and Licensed Patent(s).

4. PATENT PROSECUTION

4.1 The filing, prosecution, and maintenance of all Licensed Patent(s) shall be the primary responsibility of GOOGLE; provided, however, STANFORD will have final approval before proceeding with any substantive actions, including pre-approve or pre-disapprove the abandonment of any Licensed Patent or claims. GOOGLE's patent counsel will concurrently provide STANFORD and GOOGLE with copies of all material correspondence related to said prosecution. GOOGLE's patent counsel will use its best efforts to incorporate STANFORD's reasonable suggestions regarding the prosecution. GOOGLE is responsible for the payment of all charges and fees by GOOGLE's patent counsel related to the filing, prosecution, and maintenance of the Licensed Patents. In

the event that a conflict arises with respect to the Licensed Patents, GOOGLE and STANFORD agree to meet and discuss, but STANFORD will still have final approval.

4.2 GOOGLE may request that patent applications corresponding to the Invention(s) be filed in foreign countries in addition to those selected by STANFORD. Should GOOGLE elect to abandon any patent or patent application in any country, it shall give timely notice to STANFORD, who may continue prosecution or maintenance, at its sole expense and GOOGLE shall have no further rights with respect to such patent application or patent in such country.

5. GOVERNMENT RIGHTS

6. ENHANCEMENTS BY GOOGLE

GOOGLE shall own all right, title and interest in any enhancements made by GOOGLE and all intellectual property rights related thereto. During the period of this Agreement, subject to mutually agreeable terms, STANFORD may obtain from GOOGLE, any enhancements made by GOOGLE to Software. STANFORD agrees not to further distribute such enhancements without the prior written consent of GOOGLE.

7. DILIGENCE

7.1 As an inducement to STANFORD to enter into this Agreement, GOOGLE agrees to use all reasonable efforts and diligence to proceed with the development, manufacture, and sale or lease of Licensed Product(s) and to diligently develop markets for the Licensed Product(s). STANFORD may convert the licenses in Paragraphs 3.1 and 3.3 to nonexclusive if GOOGLE does not meet the following conditions:

7.2 GOOGLE also agrees to use all reasonable efforts and diligence to proceed with the development, manufacture, and sublicensing of Licensed Program(s) and to diligently develop markets for the Licensed Program(s).

8. ROYALTIES

8.1 Pursuant to the Original Agreement, GOOGLE agreed to pay to STANFORD a noncreditable, nonrefundable license issue royalty of [***] upon signing the Original Agreement. In addition, GOOGLE agreed to issue to STANFORD shares of GOOGLE stock equivalent to [***]% equity of issued shares after the round of investor financing which resulted in a Eight Million Dollars (\$8,000,000) post-money valuation. On April 14, 1999, GOOGLE issued [***] shares (as adjusted for stock splits effected August 1999, February 2003, and June 2003) of Series A Preferred Stock to STANFORD. On April 17, 2000, STANFORD transferred [***]% of all shares granted to STANFORD to the inventors: Lawrence Page [***] shares and Sergey Brin [***] shares, with STANFORD retaining [***] shares (in each case as adjusted for stock splits). STANFORD acknowledges the receipt of the [***] license issue royalty and the issuance of the aforementioned shares of Series A Preferred Stock in satisfaction of GOOGLE's obligations under this Paragraph 8.1.

8.2 Beginning December 1, 1999 and each December 1 thereafter, GOOGLE also shall pay to STANFORD a yearly advance royalty as set forth below. Said yearly royalty payments are nonrefundable and noncreditable.

8.3 Royalty payments to STANFORD shall be in U.S. Dollars. All non-U.S. taxes related to royalty payments shall be paid by GOOGLE and are not deductible from the payments due STANFORD.

9. NEGATION OF WARRANTIES

13. INFRINGEMENT BY OTHERS: PROTECTION OF PATENTS

13.1 Infringement Procedure. GOOGLE will promptly notify STANFORD if it believes a third party infringes a Licensed Patent. During the Licensed Patent's Exclusive period of this Agreement only, GOOGLE may have the right to institute a suit against this third party as provided in Sections 13.1 –13.6.

13.2 Stanford Suit. STANFORD has the first right to institute suit, and may name GOOGLE as a party for standing purposes. If STANFORD decides to institute suit, it will notify GOOGLE in writing. [***]

13.3 Joint Suit. If STANFORD and GOOGLE so agree, they may institute suit jointly. If so, they will:

13.4 Licensee Suit. If neither Section 13.2 nor 13.3 apply, GOOGLE may institute and prosecute a suit so long as it conforms with the requirements of this Section. [***]

13.5 Recovery. [***]

13.6 Abandonment of Suit. If either STANFORD or GOOGLE commences a suit and then wants to abandon the suit, it will give timely notice to the other party. The other party may continue prosecution of the suit after STANFORD and GOOGLE agree on the sharing of expenses and any recovery in the suit.

14. PATENT SUBLICENSE(S)

14.1 Permitted Sublicensing. GOOGLE may grant Patent Sublicenses in the Licensed Field of Use only during the Licensed Patent's Exclusive period and only if GOOGLE is developing or selling Licensed Products.

14.3 Sublicense Requirements. Any Patent Sublicense:

- (A) is subject to this Agreement;
- (B) will reflect that any sublicensee will not further sublicense;
- (C) will expressly include the provisions of Articles 9 and 10 for the benefit of STANFORD; and
- (D) will require the transfer of all obligations, including the payment of royalties specified in the sublicense, to STANFORD or its designee, if this Agreement is terminated.

14.4 Copy of Sublicenses. GOOGLE will submit to STANFORD a copy of any Patent Sublicense granted pursuant to this Article 14.

14.5 Sharing of Sublicensing Income. Prior to issuing any Patent Sublicense, GOOGLE agrees to negotiate with STANFORD to reach a mutually satisfactory agreement and reasonable sharing of Patent Sublicensing income payable to STANFORD for any such Patent Sublicense executed during the Licensed Patent's Exclusive period.

15. USE SUBLICENSE(S)

15.1 Each Use Sublicense(s) shall maintain that the Use Sublicensee(s)'s rights in Software and Licensed Program(s) shall not be transferable and shall not be sold, or further licensed.

15.2 Upon request by STANFORD, GOOGLE agrees to provide to STANFORD the general terms and conditions used in sublicensing the Licensed Program(s).

15.3 It is understood that the Use Sublicense(s) entered into by GOOGLE during the term of this Agreement may have a duration extending beyond the expiration of this Agreement.

15.4 After termination of this Agreement, for whatever reason, GOOGLE retains the right to use Software internally to service its existing sublicensee(s).

16. TERMINATION

17. EXPORT

18. ASSIGNMENT

19. ARBITRATION

Strategy in Trade Secrets

When protecting innovations through patents, firms face a trade-off between disclosing information and obtaining a temporary monopoly for commercializing their inventions. Since disclosing information may help competitors to develop competing innovations based on a similar technological approach, firms may opt to keep their inventions secret. Theoretical studies show that the choice between patenting and secrecy depends on a variety of factors, including the strength of the protection instrument, the nature of the innovation and the ease of imitation, as well as market structure, firm capabilities and competitor strategies. Empirical studies frequently find that firms favor secrecy over patenting and consider the former to be more effective than patenting.

While many theoretical studies treat patenting and secrecy as substitutes for one another, firm practices rather suggest that both protection methods are used simultaneously. At a firm level, provided that the two methods are employed for different innovations, this is straight forward. But firms may also choose to mix both strategies at the level of individual innovations by protecting some elements of a technology through patents and keeping others secret. For example, if innovations involve both codified and tacit knowledge, firms may patent the codified knowledge and keep the tacit knowledge secret. Firms may also combine patenting and secrecy in a way that enables them to keep the codified part of an invention secret, whilst maintaining the option of later patenting the invention

Mannheim's Centre for European Economic Research (ZEW) research published in 2016 examined the impacts of German firms protecting innovation via trade secrets and patents. The Study found that Innovating firms use both patents and trade secrets.

- Use of trade secrets is higher than patents in most types of companies in all EU Member States - the weighted average of 24 Member States had trade secrets preferred at 52.3% to patents' 31.7%. Larger companies prefer trade secrets 69.1% compared to 52.8% with patents (the figures are 51.2% and 30.4% for SMEs).
- Italian innovating firms use trade secrets a third more than those in Croatia. The smallest gap between patents and trade secrets was in Belgium and the UK, with the largest differences in Finland, Hungary, Lithuania and the Netherlands.
- They are both likely to be used in companies with high R&D spend and when the innovation is art changing.
- Trade secrets are preferred where the innovation is new to the firm.
- Trade secrets use is very high in engineering/technical testing and computer programming and related activities sectors, as compared with patents.
- Patents are more likely used when the product is a good (and subject to reverse engineering), rather than a service.
- Trade secrets are more likely used to maintain a competitive edge.

- Trade secrets are preferred in markets with strong price competition (commodity-type markets where differentiation is rare and margins are only enhanced with cost/process innovation).
- Both are used in markets with strong quality competition.

Firms combine secrecy and patenting when the strength of patent protection in their sector is high, when technological uncertainty is high and when their innovation has a higher degree of novelty and requires significant financial investment. In addition, innovators that co-operate with research bodies (universities and other research organisations) are more likely to rely on both secrecy and patenting. Young firms, as well as larger firms have a higher propensity to follow this protection strategy. Based on Germany data, financing constraints do not significantly affect the choice made between secrecy and patenting.

The more frequent method of combining trade secrets and patents in order to protect the new to-market innovations of single innovators, translates into higher sales with this type of innovation when compared with other protection strategies. While single innovators with new-to-market innovations are also more likely to only use patents, but not secrecy as protection strategy, this strategy leads to higher sales only in the short run while a combined strategy seems to produce a longer lasting increase in innovation output. With respect to firm profitability, combining secrecy and patenting does not yield higher profit margins.

Both secrecy and patenting tend to play a more important role as the level of innovation increases, where patent protection is stronger and if technological uncertainty is high. The main difference relates to process innovators who are more likely to rely on secrecy rather than patenting. While both protection methods trigger innovation output (compared to innovators using neither of the two instruments), secrecy is more effective with respect to obtaining higher cost reductions from process innovation, whilst patenting is more effective for new-to-market innovations. Firm profitability tends to be higher for innovators relying on secrecy, while patenting does not show a significant impact on the profitability of innovators.

Patent Pools

Patent pools can be defined as an agreement between two or more patent owners to license one or more of their patents to one another or to third parties. Often, patent pools are associated with complex technologies that require complementary patents in order to provide efficient technical solutions. Generally, these patent pools cover mature

technologies. In a patent pool, patent rights are aggregated amongst multiple patent holders. Then, the pooled patents are made available to member and non-member licensees and typically the pool allocates a portion of the licensing fees it collects to each member in proportion to each patent's value. A patent pool may take the form of a joint venture, created by two or more patent holders for the purpose of sharing their intellectual property rights.

They can be categorized as (i) complementary or (ii) substitutes and, in a standard setting environment, as (iii) essential or (iv) non-essential. These categories are important for assessing the impact on competition and are analyzed below.

Substitute Patents and Complementary Patents

Two patents are considered substitutes if they cover alternative technologies and are non-blocking. The technologies covered by substitute patents can be used in parallel without infringing the other patent. They are therefore potentially competing with each other. From a technological point of view, complementary patents must be used together to produce a specific output and are not substitutes for each other. Thus, from a technical point of view it is necessary to use complementary patents together in the production process. Therefore, it is required to either be the owner or a licensee of the complementary patents to produce the desired output. In addition, two mutually blocking patents are complementary from a legal point of view. Mutually blocking patents can be described as two patents that infringe on each other. Hence, patent licensing agreements are necessary to produce the desired output to avoid patent infringement claims. It is also possible that patents are one-way blocking, meaning that one patent infringes another patent while the latter doesn't necessarily infringe the first patent. Mutually blocking patent rights are the result of cumulative innovation, where no technological component can be marketed individually without the technological complements protected by patent rights of different companies.

Differentiating between complementary and substitute (or competing) patents is important when assessing the effects of patent pools on competition. Substitute patents compete with each other and should therefore, from a competition point of view, not be bundled in a pool because, as a result, competition between such substitute technologies would be eliminated. In general, this concern does not apply to complementary patents because actual or potential competition is not lessened. In line with these considerations, antitrust recommendations in both the U.S and Europe state that pooling complementary patents is generally pro-competitive.

Essential and Non-Essential Patents

In the context of standardization, essential patents are those required in order to comply with a technical standard. As a consequence, essential patents are by nature also

complementary because they are standard-essential. Patents can also be commercially necessary based on consumers' demand. Hence, they should also be regarded as 'essential' when assessing the potential threats on competition by the creation of a pool. Patents are non-essential if there are substitutes to the covered technology. Given that essential patents are always complementary, patent pools comprising of essential patents are less likely to lead to competitive concerns while patent pools comprising of non-essential patents are more problematic under a competition point of view.

Standardization and Patent Pools

A technical standard is an established norm or requirement about a technical system that establishes uniform engineering or technical criteria, methods, process and practices. Standardization and patent pools are interconnected because many standards are based on complementary technology, often developed by different firms. Standards can be important for the wide adoption of new technologies in the marketplace. Thus, standards serve an important function. However, they also entail risks as adopting a standard will create a barrier to entry to the relevant market as switching from one standard to another is oftentimes not possible or only with unreasonable efforts.

A patent pool can address the need for standardization if the patents relevant to the standard are owned by more than one entity. Typically, a standardization patent pool enables participating patentees to use the pooled patents, provides a standard license in respect of the pooled patents for licensees who are not members of the pool, and allocates to each member of the pool a portion of the licensing fees in accordance with the agreement.

Many standardization cases have been scrutinized by competition authorities and most have been found not to violate antitrust rules. The most prominent cases concern the MPEG-standard as well as two patent pools relating to DVD standards. In these three cases, the US Department of Justice (DOJ) issued business review letters and found that none of the patent pools posed significant antitrust concerns.

Standard Setting and F/RAND Terms

The current discussion regarding standard setting organizations focuses particularly on the terms of the licensing practices of technologies that are covered by a patent pool and are deemed standard-essential. This discussion has been furthered by increased litigation in several countries over the infringement of standard-essential patents. The increased amount of patent litigation generally focuses on declaring the covered technology (i.e., the patent) void and challenging the classification of a particular technology as (still) standard-essential. As described above, standards are important to enhance the development of technology and ensure interoperability. Companies are

generally keen to have their technologies identified as standard-essential because identifying a technology as standard-essential will likely lead to increased demand. The competitive risk that standard-essential technologies are licensed for prices that do not reflect the market value because they benefit from being recognized as standard-essential is being addressed by the requirement to license under FRAND (fair, reasonable and non-discriminatory) or RAND terms. By requiring F/RAND terms, a balance is achieved because patent owners benefit from the promotion of their technologies due to the classification as standard essential which potentially leads to higher licensing revenues, and licensees benefit from F/RAND terms.

In a joint policy statement, the DOJ and the USPTO pointed out the importance of a careful use of injunctive relief based on a patent owner's claim to cease the use of a technology by an alleged patent infringer that is deemed standard essential in a given market. The DOJ and the USPTO suggest that, depending on the circumstances of the case at hand, an injunctive relief should not be granted if the alleged infringer is acting within the scope of the patent holder's F/RAND commitment and is willing, and has not refused, to enter into a licensing agreement under F/RAND terms.

The European Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements (Horizontal Guidelines) provide some insight into the European Commission's view of F/RAND terms in the context of standard settings. Section 287 of the Horizontal Guidelines reads as follows: "FRAND commitments are designed to ensure that essential IPR protected technology incorporated in a standard is accessible to the users of that standard on fair, reasonable and non-discriminatory terms and conditions. In particular, FRAND commitments can prevent IPR holders from making the implementation of a standard difficult by refusing to license or by requesting unfair or unreasonable fees (in other words, excessive fees), after the industry has been locked-in to the standard or by charging discriminatory royalty fees."

Non practicing entities (NPEs)

Traditional players in the patent market consist predominantly of operating companies that trade patented technologies for manufacturing end-products. However, due to the development of the patent system and advancement of technologies, the quantity of patents generated has increased exponentially, resulting in unprecedented flourishing of patent trading. Consequently, the evolution of the patent market has given rise to the emergence of various new market players, of which NPEs are the most prominent in recent decades.

Distinct from the traditional players in the patent market, NPEs do "*not practice their inventions in products or services*", but instead, "*derive the majority of their income from the enforcement of patent rights*". NPEs are firms that do not commercialize their patented inventions and perform little to no R &D, often termed "patent trolls," because

they tend to exploit litigation and licensing market defects to extract unwarranted rents from commercializers, usually on patents that the commercializer was completely unaware of before the NPE's demand for payment. Indeed, many of the so-called "patent pools" are not mechanisms to provide new technology to commercializers, but are merely "patent thickets" that already-commercializing entities need to navigate, often with large payments, to continue making and selling their products.

The impact of NPEs on the patent market

The activities of NPEs primarily include patent generation (by self-generation or acquisition from others) and patent monetization (such as licensing or litigation). The controversies of NPEs' activities are often due to their alleged aggregation of legally meritless patents (e.g. overly broad patents, invalid patents, software patents, business method patents) and excessive use of litigation for patent monetization (e.g. damage, settlement and litigation-facilitated licensing agreements). Due to these alleged controversial activities that are not commonly observed in traditional patent market players, many view NPEs as a destructive force that abuses the patent system and erodes the foundation of the innovation economy. However, others argue that NPEs' activities actually facilitate the trade and exploitation of patents and therefore could contribute to the dynamics of the patent market in a positive or neutral manner.

Despite the controversies/debates caused by NPEs and the slew of administrative measures and judicial decisions put in place to curtail their activities, NPEs have nevertheless continued to make headlines, and rapidly accelerated to be a notable market player, creating either benefits or problems, depending on the view one takes. Whether one likes it or not, NPEs appeared to be here to stay. It is therefore critical to further comprehend the business nature of NPEs, and to continue to assess their growing impacts on patent market dynamics.

Revenue model of Non-Practicing Entities

NPEs generate revenues through licensing agreements or damages awarded by a court. Licensing agreements can include up-front license fees, milestone payments contingent upon achieving certain goals, and royalty revenue from the commercialization of the licensed technology. Damages are awarded on the basis of how much value the defendant is obtaining as a result of its infringing activity.

Activities performed by Non-Practicing Entities

All NPEs have to manage their patent portfolios, and identifying existing or potential application areas. Independent of being a single inventor, a university or a patent holding company, activities also involve finding potential licensees, negotiating terms and conditions and collecting license fees. Most NPEs also have internal research and development and patent filing and maintenance activities. There is a continuum from organizations that are doing substantial investments in R&D to generate inventions and patents, and organizations focusing on acquiring and aggregating others' patents.

The good guys and the bad guys

The business model of Non-Practicing Entities is widely debated and there are firms with dubious motifs. Companies that do not manufacture or intend to manufacture anything are often seen as profiting from others in a negative way (at least in the media). At the same time companies outsource or move production to low cost countries, leaving the western world to be “the innovators” where the output is innovation and intellectual property.

Good guys can be found in both ends of the scale, providing valuable inventions, knowledge, data, instructions or knowhow to manufacturing companies, or just aggregating and providing the rights reducing the time and cost for manufacturing companies to find all relevant patents covering a technology area. Without the existence of entities willing to buy patents as a last resort there's no credible threat a single inventor can make towards a large company. A rational defendant will simply carry on knowing the patent can't be successfully enforced, and inventors at the margins may not undertake their research in the first place.

Licensing Copyrighted material

A licence is a contractual agreement between the copyright owner and user which sets out what the user can do with a work. Any licence agreed can relate to one or more of the rights granted by copyright and can also be limited in time or any other way. An exclusive licence could be granted, but remember that this enables the licensee to use the copyright work in the manner specified by the licence to the exclusion of all others, including the copyright owner.

Can a Monkey Own Copy right?

Naruto, an Indonesian macaque monkey. Naruto, whose appeal is pending, snatched the camera from a British photographer in 2011 and in the process took a few pictures of himself on the Tangkoko reserve on the Indonesian island of Sulawesi. The photographer, David Slater, published the photos in a book, *Wildlife Personalities*. Naruto and PETA sued him and the book's online publishing platform, Blurb, for copyright infringement. Naruto is represented by his self-appointed lawyers from the People for the Ethical Treatment of Animals.

An implied licence to use a copyright work might arise when there is nothing in writing granting the user a licence and a licence has not even been agreed verbally with the copyright owner. It is only possible to argue that an implied licence exists where all the circumstances suggest that the copyright owner expected the user to make use of the copyright material in the way they intend, even though this was never discussed and has not been written down anywhere. For example, this might occur where a person has commissioned the creation of a work (for example, a company logo or a corporate training video), but has not agreed a licence to use the work.

Licensing software

A software license is a legally binding agreement that specifies the terms of use for an application and defines the rights of the software producer and of the end-user. All software must be legally licensed before it may be installed. Proof of purchase (purchase orders, receipts, invoices or similar documentation are acceptable) must be maintained by individuals or departments for all non-ITS provided software that is

installed on a university-owned computer. Vendors may require proof of purchase during an audit, and technical support staff may ask for proof of purchase before software can be reinstalled on a computer that has been reimaged or rebuilt.

Software licensing can be a confusing subject. There are different types of licenses and licensing contracts, and different vendors may use different terms to describe their licenses. Here are some key terms to help you navigate through these murky waters.

Types of licenses

Proprietary license

Most software licenses are "proprietary" licenses, meaning the software publisher grants a license to **use** one or more copies of software, but that **ownership** of those copies remains with the software publisher. The user must accept the license before they are permitted to use the software.

GNU General Public License

These are agreements under which much "open source" software is licensed. End users may do things like change the source code, but any refinements of the software must also be made available under a GNU GPL license. Often referred to as "free, copyleft" licenses, the software may or may not be distributed for a fee - "free" refers to the ability of users to change and distribute modifications of the software, not to cost.

End User License Agreement (EULA)

Also called "clickwraps" or "shrinkwraps," EULAs indicate the terms under which the end-user may use the software. Agreements with organizations or companies often take the form of contracts between the organization and the software publisher or vendor, and specify the terms of use for all users from the organization, superseding any EULAs which may come with the software.

Workstation licenses

These are licenses that permit the installation of an application on a single computer. You may not install the software on more than one machine unless you purchase a license for each additional machine. Most workstation license agreements allow you to make a single backup copy of the software as long as that backup copy is used only to restore the software onto the same machine, or a separate machine if the software is removed from the original computer.

Concurrent use license

These are licenses that permit you to install the software onto multiple machines as long as the number of computers using the software at the same time does not exceed the number of licenses which you have purchased. Concurrent use licenses are usually used in conjunction with "license manager" software that prevents the number of licenses from being exceeded.

Site licenses

A site license permits the use of software on any computer at a specified site. Unlimited site licenses allow the installation of software on any number of computers as long as those computers are located at the specified site. Some site licenses permit the installation on computers owned by a particular entity (such as a university) regardless of the physical location. Some vendors refer to their licenses as site licenses but restrict

the number of computers on which the software may be installed. The only way to know for sure is to read the license specifics.

Perpetual licenses

These are licenses without expiration dates, which permit use of the software indefinitely, without requiring a recurring fee for continued use. Most software that individuals buy for use on their home computers are perpetual licenses.

Non-perpetual licenses

These are licenses that "lease" the software for use for a specified period of time, usually annually or sometimes bi-annually. Users are required to remove the software from their computer if they cease paying the license fee.

License with Maintenance

Some license agreements allow the user to purchase "maintenance" or "software assurance" along with the original license fee, which entitles the user to receive new versions of the software for one to two years until the maintenance agreement expires.

Open source software

The vast majority of commercially available software is what we can call 'closed source' software. In other words, under the proprietary i.e., closed source software model, most software developers withhold their source code from users. Since most business models of software development and sales rest on the notion of strong intellectual property protection and since source code is the core of any software product most major producers of commercial software tend to hide their source code from the public. Recently, however, 'open source' software – software that has its underlying source code freely available to evaluate, copy, and/or modify has been garnering considerable attention in both the computer/Internet industry and the 'mainstream' media. The most celebrated example of open source software is Linux – an open source version of the Unix operating system that can be run on most PC's.

Open source developers use intellectual property licensing through various types of 'open source licenses' – in order to maintain the integrity of the open source project. An 'open source software license' can be defined as a license that attempts to confer the kind of rights, privileges, and obligations associated with the definition of open source software. A license will have to meet the following conditions in order to qualify as an open source software license:

- (1) The license must keep the 'source code' 'open' and available.
- (2) a.) The license must maintain the integrity of the author's source code.
b.) Also, with a few exceptions, the license should acknowledge the authorship of the code.
- (3) "The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original [open source] software."
- (4) The license must allow 'free redistribution' of the open source software. This can mean that a licensee can make copies of the software and give it away. However, since

'free' in this context means 'freedom from constraint' rather than 'zero price,' the license should allow the licensee to sell the software.

(5) a.) "The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties."

b.) "The rights attached to the program must not depend on the program's being part of a particular software distribution. If the program is extracted from that distribution and used or distributed within the terms of the program's license, all parties to whom the program is redistributed should have the same rights as those that are granted in conjunction with the original software."

In other words, the terms and conditions of the open source software is distributed and/or redistributed along with the software. The terms of the license are effectively attached to the software and cannot be severed from the code.

Revenue from Open Source

Open-source compatible business approaches have gained prominence in recent years; notable examples include dual licensing, software as a service, not charging for the software but for services, freemium, donation-based funding, and crowdfunding. There are several different types of business models for making profit using open-source software (OSS) or funding the creation. Below are existing and legal commercial business approaches in context of open-source software and open-source licenses. The acceptance of these approaches varies; some of these approaches are recommended (like selling services), others are accepted, while still others are considered controversial or even unethical by the open-source community. The underlying objective of these business models is to harness the size and international scope of the open-source community for a sustainable commercial venture.

Dual-licensing

Dual licensing offers the software under an open-source license but also under separate proprietary license terms. The proprietary version can be sold to finance the continued development of the free open-source version. Customers can be attracted to a no-cost and open-source edition, then be part of an up-sell to a commercial enterprise edition. Further, customers will learn of open-source software in a company's portfolio and offerings but generate business in other proprietary products and solutions, including commercial technical support contracts and services. A popular example is Oracle's MySQL database which is dual-licensed under a commercial proprietary license as also under the GPLv2.

Selling professional services

The financial return of costs on open-source software can also come from selling services, such as training, technical support, or consulting, rather than the software itself. Another possibility is offering open-source software in source code form only, while providing executable binaries to paying customers only, offering the

commercial service of compiling and packaging of the software. Also, providing goods like physical installation media(e.g., DVDs) can be a commercial service.

Open-source companies using this business model successfully are for instance RedHat and IBM; a more specialized example is that of Revolution Analytics.

Selling of branded merchandise

Some open-source organizations such as the Mozilla Foundation and the Wikimedia Foundation sell branded merchandise articles like t-shirts and coffee mugs. This can be also seen as an additional service provided to the user community.

Selling of certificates and trademark use

Another financing approach is innovated by Moodle, an open source learning management system and community platform. The business model revolves around a network of commercial partners who are certificated and therefore authorised to use the Moodle name and logo, and in turn provide a proportion of revenue to the Moodle Trust, which funds core development.

Selling software as a service

Selling subscriptions for online accounts and server access to customers is a way of making profit based on open-source software. Also combining desktop software with a service, called software plus services. Providing cloud computing services or software as a service(SaaS) without the release of the open-source software itself, neither in binary nor in source form, conforms with most open-source licenses.

Licensing games

Since the launch of the first mainstream game console by Nintendo in 1985, video games have become a global industry worth an estimated US\$65 billion. It is the fastest growing sector of the entertainment industry and an important driver of economic growth, creating millions of jobs, generating much-needed tax revenues and offering exciting opportunities for talented creators and engineers from all corners of the globe.

The core legal issues facing all entities involved in the video game ecosystem - developers, financiers, publishers and distributors - focus on ensuring that appropriate legal arrangements are in place to enable the development, financing and distribution of games. While questions of privacy and data security, content regulation and monetization are key considerations , developing a proactive IP strategy to secure appropriate IP rights is essential to the success of a developer's enterprise.

IP is the lifeblood of the industry. IP rights are associated both with the tools used to develop games and the content included in a game. For example, copyright safeguards the creative and artistic expression that goes into the software (the code), the artwork and the sound (and music) of a game. If developers want to create a new work on the

basis of an existing copyrighted work, a so-called derivative, then they must first secure the appropriate licenses from the copyright holders. An example of a derivative work is Shrek the game which was based on Shrek the film. The process can also work the other way. When filmmakers want to develop a film on the basis of the story line of a successful game they too must secure rights from the right holders of the original work, for example, Doom the movie was based on Doom the game.

Trademarks protect the names and logos associated with a game and its characters and can be used to set a company and its games apart from others in the minds of consumers; patents protect the next generation hardware or technical solutions as well as the inventive game play or design elements; and trade secrets can be used to safeguard a company's competitive advantage by protecting confidential business information, such as contacts or subscriber mailing list data, or an in-house development tool. Without the appropriate rights and licensing agreements in place, developers may find their game cannot be distributed; they may be unable to fully leverage the value of their work. What developers own is IP; what they sell (through licensing deals) is IP. In fact, all they have is IP, so they need to protect it.

Licensing IP for games

Throughout the evolution of the gaming industry, developers have incorporated licenses in their games to help distinguish their games and hopefully attract a wider audience with recognizable brands and more realistic game play. Typically, developers will either develop games based on wholly owned, original intellectual property created by the developer or obtain content owned by other parties such as movie studios, sports leagues, authors, comic books, and toy manufacturers through license agreements. Usually, a developer or publisher may want to incorporate licensed property into their game under a number of different scenarios including: (1) basing their game on another party's intellectual property (i.e., a game based on a movie or book or a toy); and/or (2) incorporating into their game intellectual property owned or controlled by another party to provide more realism for the game player.

In the event that the licensee decides it wants to include a licensed property in a game and it is determined that a license is required, then it will need to enter into an agreement which will spell out at the very least the rights granted, the length of the time to exploit the rights, the way in which the rights can be exploited, the costs involved in securing a license including possible advances, guarantees, and royalties; approvals, representations and warranties, and indemnification.

Depending on the use that the licensee wants to make of the licensed intellectual property, the terms and conditions of the agreement will vary. For example, if the game is based on a license such as a movie, then the movie owner will demand a lot more

control over the exploitation of the game and seek higher advances and royalties as compared to the use of a trademark that appears in a game, but does not play a major factor in the game.

Licensed Property

It is very important that the parties clearly define the property since the licensor may want to limit the definition as much as possible while the licensee will want it to be as broad as possible. Any rights not spelled out in the agreement will be reserved by the licensor and if later sought by the licensee will most likely cost the licensee additional fees.

In licensing rights to a book or a comic book, the licensee, at the very least, will want the rights to the title, logos, story, images, characters and the ability to use the author's name in publicizing the video game. When dealing with items such as toys, planes or cars, the licensee must also obtain the rights to use the 'look' of the item in the game including the designs and marks associated specifically with the item.

Licensing opportunities for movies are usually more complicated to negotiate because of the possibility of a number of parties associated with the property. A licensee interested in a movie property at a minimum would want to make a game based on the story while incorporating the title and logo, characters (including voice and likeness of the actors if possible), themes, images, settings as well as the right to use the music from the movie. Unfortunately, the rights to actors, music, and actual film footage, perhaps from a previous movie, may result in additional costs for the licensee because video game rights may not have been secured by the licensor. Usually, a licensor will ask for these rights when negotiating deals with the talent but it's possible, because of additional costs, that the licensor may not have secured these rights.

Sometimes, these additional costs may not be worth the licensee's investment and therefore a game may not have an actor's likeness or recorded voice although consumers expect that elements in a movie will become part of a video game. In addition, in most situations, the licensee may require specific voice-over for the game and therefore would probably have to enter into a separate agreement with the actor to obtain those services and accompanying rights. Furthermore, in the event that the actor is a member of a guild, the licensee must be careful about how to proceed, since entering into a deal with a union actor in the United States may result in consequences for the licensee involving not only the game being developed but also for future projects.

Sports leagues are somewhat unique because while the licensee could develop a team sports game without a license, the success factor would probably be extremely low since most fans want licenses attached to a sports game so a consumer can play their favorite team and control their favorite players. To do so, a licensee would need to

obtain a license from both the sports league which controls the rights to team names, logos, uniforms, and league logos, and the players associations which represents the players and licenses the use of their names and likeness. As a result, the licensee would need to negotiate two separate agreements; each with different guarantees and royalty rates. However, the potential returns can be extremely lucrative: games such as EA's FIFA series of soccer games or the Madden series of American football games (both of which feature extensive licensing from their respective sports) are amongst the most profitable in the entire video game industry.

Augmented Reality

Augmented Reality is *"Using digital technology to enhance our perception of the physical world."* To "augment" something means to make something greater by adding to it. "Reality," in this context, is what we humans experience with our five senses. "Augmented reality," therefore, is technology that adds digital content to our experience of the physical world. Another apt and more colloquial description is that AR makes the world "clickable," inserting digital hyperlinks into physical space.

A few examples will help make the concept more tangible. There are projects underway dedicated to augmenting each of the five senses. Several groups are doing interesting work in "haptic" technology, which augments the sense of touch. The Finnish company Senseg, for example, is working on turning touchscreens into "feel" screens, able to digitally mimic any number of textures by means of touch pixels, or Tixels™. A Dutch scientist is developing a device that would turn sound waves into synthetic vision for the blind. There are also those working on digitally enhancing the senses of taste and smell.

When people talk about AR today, however, they are almost always referring to enhancing the sense of sight. And with good reason, the primary and fastest way we humans gather information is by visual means. Software designers and hardware engineers are hard at work on a number of different ways to digitally augment our fields of vision. The most abundant examples are the hundreds of currently available mobile apps that overlay digital games, tourist information, advertisements, and more on top of what we see through our device's video camera.

Where there is commercial activity and rapid innovation, there will be intellectual property disputes galore.

Patent on Virtual Try on Technology

Non-practicing entity Lennon Image Technologies LLC. It has targeted a number of retailers with websites featuring "virtual try-on" technology. This form of AR uses a computer's webcam to recognize a customer's hand, arm, face, or entire body, and superimpose on it such apparel as rings, watches, eyeglasses, and dresses. This technique had been spurring a lot of interest from retailers and customers alike—until Lennon got involved.

Lennon owns a patent issued in 2003 entitled “Customer Image Capture and Use Thereof in a Retailing System.” The patent’s abstract describes a method of capturing a customer’s image “at [a] retailer’s place of business” and blending it with prerecorded “models wearing apparel items” to allow the customer “to virtually assess the selected merchandise without actually having to try on the apparel.” The several obvious gaps between this description and the AR websites did not deter Lennon from filing six identical infringement lawsuits in 2012, followed by another seven in March 2013. Among the targets were well-known brands such as Mattel, Macy’s, Bloomingdale’s, Luxottica, and Tacori.

Each targeted retailer immediately removed the feature from its website, and many have since quietly settled. But the damage to the industry remains. This sort of virtual try-on technology was the primary business model for several AR startups. Even those that were not forced to indemnify their customers from these suits—itsself a potential death sentence to a fragile startup—still face the daunting challenge of convincing new potential customers to experiment with the technology and risk liability.

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Virtual Reality

With Oculus Rift, HTC Vive and Sony’s PS VR set to battle it out for supremacy and a good line-up of serious VR titles in development, it finally looks like VR is a reality.

How VR hardware can be protected?

Firstly, the VR kit itself. This typically consists of the headset, hand held controllers and the positional tracking system which tracks the movement of the head or body. The tech design and development of these hardware items in whole or in parts can potentially be protected as a patent, if new and inventive and if not falling within any of the exclusions set out under the Copyright Designs and Patents Act i.e. a computer program will be excluded per se. The design of the VR kit may also be protected as unregistered and registered design and copyright can protect some of the 3D aspects if aesthetic.

How to protect VR software

VR software (object and source code) like other software is primarily protected under copyright. But database rights may also be available. It is more than likely that the middleware and game software engine will need to be licensed.

Can the VR user interface and gameplay be protected?

By user interface we are talking about screen displays, icons, graphics, on-screen text and databases. Again the answer is yes. If the icon design is ‘new’ and of ‘sufficient individual character’ to differ from other icons, then it may be protected as a Registered Design. In addition, it may be capable of being registered as trade mark or protected

under passing off. User interfaces may also be protectable as literary and artistic copyright.

Assuming Users own IP they create in VR, and want to assert rights to that IP in the real world, it is likely that copyright and trademark laws will apply in a manner similar to how they apply to IP created in the real world, with a few twists. One twist under trademark law is whether a User creating virtual products, such as virtual apparel, could satisfy the "use in commerce" requirement for trademark registration and obtain trademark protection for such virtual apparel. It remains unclear whether a trademark used on such apparel could qualify for real world classification as a good. If the apparel is not used as apparel in the real world, the User may be limited to seeking classification as a service, which could limit the User's ability to compete and protect against real world apparel that is similar to the virtual goods the User controls. Another twist relates to copyright. Copyright law protects original works of authorship, and it's questionable what is original and capable of copyright protection in VR if some of the work is based on real world IP.

Trademark Assignment & Licensing

The term used for the transferring of an owner's rights, title, and interest in a trademark or service mark to another party is "trademark assignment." In a trademark assignment, the transferring party (the "assignor") transfers its property rights in the mark to the receiving party (the "assignee"). An assignment of trademark rights can be either outright, in that it results in the total transfer of ownership of such rights from one entity to another, or (in some jurisdictions) partial, resulting in the transfer of only a portion of the trademark rights of a person or entity. Depending on the jurisdiction, partial assignments may be for a portion of the territory covered by the registration, or for only some of the goods and/or services covered by the registration.

You can allow another party to use your trademark in commerce, while still retaining ownership of the mark, by entering into a license agreement with that person or entity. A trademark license is an agreement between the trademark owner (the "licensor") and another party (the "licensee"), in which the licensor permits the licensee to use the licensor's trademark. In other words, a license gives permission to do something that would otherwise be prohibited without the consent of the trademark owner.

The licensing of trademarks facilitates merchandising, franchising, and distribution agreements, playing an important role in the way goods and services are distributed, marketed, and sold, both domestically and internationally. Most licenses contain provisions governing the term (length) of the license agreement, the territory covered by the license, the royalty rate to be paid by the licensee to the licensor for use of the trademark, whether the license must be recorded, the jurisdictions covered by the

license, and whether the licensee has exclusive rights to use the trademark (and if so, in which jurisdictions).

Many license agreements will also have provisions permitting the licensor to control the quality of the goods or services produced or offered by the licensee under the licensed trademark, which are known as “quality control provisions.” In some countries (e.g., the United States and Canada), it is essential that the license agreement have quality control provisions, because without such provisions the trademark may be vulnerable to attack or even be deemed abandoned by the licensor. The rationale is that consumers tend to rely on a trademark’s reputation in terms of quality when purchasing goods or services, so the licensor is considered to have a duty to exercise control over the quality of the goods and/or services offered by the licensee. Exercising quality control can also be a good business practice for other reasons—for example, it can help maintain a high level of goodwill for the brand, and, in certain cases, reduce possible liability.

Brand valuation

Brand valuation is the process used to calculate the value of a brand or the amount of money another party is prepared to pay for it. A brand comprises tangible as well as intangible elements relating to the company's style, culture, positioning, messages, promises and value proposition. Brand Valuation, subsequently, is an estimate of the financial value of a brand. There is no universally accepted method for determining brand value. But, each company uses a different model. The main brand valuation methodologies are:

1. Income based brand valuation methods

Relief from royalty method: this brand valuation method is based on how much the brand owner would have to pay to use its brand if it licensed the brand from a third party. It uses discounted cash flow analysis (DCF) to capitalise future branded cash flows

Excess-earnings method: this brand valuation methodology calculates the earnings above the profits required to attract an investor – which uses the estimated rate of return based on the current value of the assets employed. These excess earnings are assumed to be attributable to the intellectual property, or brand.

Price premium method: this brand valuation method is based on a capitalisation of future profit stream premiums attributable to a business’ brand above the revenues of a generic business, without a brand.

Capitalisation of historic profits method: the brand valuation method is based on the capitalisation of profits earned by the brand.

2. Market based brand valuation methods

P/E ratios method: the P/E (price to earnings) brand valuation method multiplies the brand's profits by a multiple derived from similar transactions of profits to price paid based on the value of reported brand values.

Turnover multiples method: this brand valuation method multiplies the brand's turnover by a multiple derived from similar transactions.

3. Cost based brand valuation methods

Creation costs method: this brand valuation methodology estimates the amount that has been invested in creating the brand.

Replacement value method: this brand valuation method estimates the investment required to build a brand with a similar market position and share.

Franchising

For a company looking to expand, franchising and licensing are often appealing business models. In a franchising model, the franchisee uses another firm's successful business model and brand name to operate what is effectively an independent branch of the company. The franchiser maintains a considerable degree of control over the operations and processes used by the franchisee, but also helps with things like branding and marketing support that aid the franchise. The franchiser also typically ensures that branches do not cannibalize each other's revenues.

Under a licensing model, a company sells licenses to other (typically smaller) companies to use intellectual property (IP), brand, design or business programs. These licenses are usually non-exclusive, which means they can be sold to multiple competing companies serving the same market. In this arrangement, the licensing company may exercise control over how its IP is used but does not control the business operations of the licensee.

Both models require that the franchisee/licensee make payments to the original business that owns the brand or intellectual property. There are laws that govern the franchising model and define what constitutes franchising; some agreements end up being legally viewed as franchising even if they were originally drawn up as licensing agreements.

- In a franchising agreement, the franchisor also offers know-how and access to a business system in addition to branding and products offered by the franchisor.
- A franchisor usually has tighter operational controls and prescribes (with the use of an operations manual) how a franchisee operates their franchised business.

- Franchisor offers extensive training on operating of the business as a whole. Ongoing support is also offered and usually takes the form of a monthly visit from a franchisor representative.
- Initial and ongoing franchise fees payable which include Upfront franchise fee and Monthly management service fees.

GI Licensing

Geographical indications (GIs) identify a good as originating from a particular place. By contrast, a trademark identifies a good or service as originating from a particular company. A trademark often consists of a fanciful or arbitrary sign. In contrast, the name used as a geographical indication is usually predetermined by the name of a geographical area.

A trademark can be assigned or licensed to anyone, anywhere in the world, because it is linked to a specific company and not to a particular place. In contrast, a GI may be used by any persons in the area of origin, who produces the good according to specified standards, but because of its link with the place of origin, a GI cannot be assigned or licensed to someone outside that place or not belonging to the group of authorized producers.

The Montecristi straw hat

The Montecristi straw hat is made in the town of Montecristi in Manabi province, Ecuador, by expert weavers, and dates back to the 16th century. Its production involves a time-consuming and labor-intensive process that takes many steps – among others, these include harvesting the green leaves of the toquilla plant, boiling the fibers, the creation by expert weavers of intricate spiral patterns flowing outward from the center of the crown of each hat, the pounding of the rudimentary hats into their distinctive shape, and the addition of finishing touches that mean the hats do not have seams.

In 2005, a group of toquilla fiber artisans filed an application to register an appellation of origin with the Ecuadorian Institute of Intellectual Property. They claimed that the cooperative and other community members from Montecristi and its surrounding region should be the only parties allowed to use the label, and that other hat makers from Ecuador and other countries should be barred from using it. In 2008, the Montecristi straw hat was recognized as an appellation of origin in Ecuador.

Design licensing

A registered design right provides a legal monopoly right for the outward appearance of an article or a set of articles of manufacture to which the design is applied by any industrial process, provided the design(s) is novel or original (“of individual character”). Once a design is registered it may be bought and sold like any other property, provided the disposition is made in writing and signed by all parties to the transaction. A registered design may also be subject to a secured loan by way of a mortgage. A

registered design vests by operation of law in the same way as any other personal property. A registered design owned by a company subject to a winding-up order would belong to the liquidation estate. Similarly, a registered design owned by a bankrupt would vest in the trustee of a bankruptcy estate.

In the notable Apple v. Samsung smartphone IP war, Apple extracted roughly \$400 million dollars of damages based on three design patents. It was largely due to Apple's design patent on a single color image of their iPhone graphical user interface (GUI). The damages equated to the total profit on the sale of the accused Samsung phones, not just the profit related to the designs or ornamental aspects actually covered by the patents in question. Many different companies & industries invest in design patents as part of their IP strategy. Nike's FuelApp is protected by about 20 design patents. Apple filed their iPhone design patent with 193 different screen shots. The patent examiner made them pick one for the patent. The rest have to be refiled as separate patents. This is called a "restriction requirement". Apple picked the home screen image for this patent and is now getting separate design patents on the other screen shots. They have about 50 issued so far with more still pending.

Design patents typically represent the quickest & most cost effective way to obtain a "Patent Pending" mark on a product, which has many potential benefits. It demonstrates to prospective financiers, distributors or customers that an article is unique and differentiated. All U.S. design patent applications remain secret until the USPTO issues the granted patent. Thus, third parties will not be able to discern which aspect of the ornamental design is patent pending. This often discourages competitors who might otherwise seek ways to "invent around" a design and enter the marketplace with a competing product.

Traditional Knowledge licensing

Throughout the world, indigenous peoples and local communities have developed a wealth of traditional knowledge and traditional cultural expressions which they rightly wish to protect and promote. Yet few have used the intellectual property system to do so. And, unfortunately, their knowledge systems and cultural expressions have sometimes been used without their authorization and they have not shared in the benefits of such use. Traditional knowledge (TK) is generally understood to mean the know-how, skills, innovations and practices developed by indigenous peoples and local communities, while traditional cultural expressions (TCEs) are generally understood as the tangible and intangible forms in which traditional knowledge and cultures are expressed.

Traditional Knowledge cannot be patented. But derivatives based on traditional knowledge can be patented.

Case of Jeevani

Nestled in the tropical forests of the Agasthyamalai hills of the Western Ghats, a mountain range in Kerala state, India, live the indigenous Kani tribe, traditionally a nomadic people with a population of almost 25,000. In December 1987, Dr. Palpu Pushpangadan, then director of the Jawaharlal Nehru Tropical Botanical Garden and Research Institute (JNTBGRI) in Kerala, was leading a team from the All India Coordinated Research Project on Ethnobiology (AICRPE) on an ethnobotanical expedition to the Western Ghats.

Knowing that the Kani knew the area better than anyone, Dr. Pushpangadan employed some of them as guides. While traversing through the rough terrain, the team was surprised that after several hours their Kani guides did not feel tired, while they themselves were constantly feeling fatigued. Curious as to why, they observed their guides and saw them continuously munching black fruits of some plants. Seeing their exhaustion, the Kani guides offered some of the fruit to the AICRPE team. Upon eating the fruit, the team immediately felt full of energy and vitality.

The Kani have a rich tradition of using wild plants found in the region for health reasons, and their tribal physicians – known as Plathi – are the exclusive holders of the traditional medicinal knowledge of the tribe. According to Kani tribal customs, only the Plathi have the right to transfer and disseminate their traditional medicinal knowledge. Because of this, the Kani guides were reticent to share with the AICRPE team the source of the revitalizing fruit. However after a great deal of pressure, the Kani led the team to a plant known locally as “arogyapacha” (known scientifically as *trichopus zeylanicus* ssp. *Travancoricus*).

After seven years, JNTBGRI’s research isolated twelve active chemical compounds in the plant that yielded the effects they experienced. The traditional way in which the Kani used arogyapacha was to eat its fruit. JNTBGRI discovered that crushing the plant’s leaves was the most effective way to get to the twelve compounds. These chemicals were then combined with three other plants and TBGRI produced a scientifically verified and standardized herbal formulation for its reproduction. JNTBGRI named this formulation “Jeevani,” which means “giver of life.” The product comes in granules and is mixed with hot water or milk.

With a standardized formulation in hand, JNTBGRI continued its research and development (R&D) program on Jeevani, particularly through clinical trials in which it was administered orally to one hundred human subjects in studies involving either healthy or unhealthy individuals. The research focused on determining the ability of these people to withstand adverse conditions (such as an increased work load), the quality of work completed under stress, athletic performance, any increase in mental alertness and overall work output.

Therefore, after successfully finishing R&D and further refining Jeevani, in cooperation with the Council of Scientific and Industrial Research (CSIR), a premier Indian R&D organization, JNTBGRI decided to make a patent application in 1994 with the Office of the Controller General of Patents, Designs & Trademarks of India (IP India) for the manufacturing process of an herbal

sports medicine based on the compounds isolated from arogyapacha. The patent application (No. 2319/DEL/2008) was published in 2010.

JNTBGRI established a committee to determine which organization would be most suitable for licensing. The committee chose Arya Vaidya Pharmacy Ltd. (AVP) of Coimbatore, one of the largest herbal pharmacies in India, to be the primary manufacturer, and in 1995 AVP signed a seven year licensing agreement with JNTBGRI and paid a US\$50,000 licensing fee. Under the terms of the agreement, JNTBGRI would receive two percent royalties on any sales of Jeevani products.

NTBGRI was willing to pay the Kani people money for the seeds necessary for the cultivation of the plant and would subsequently buy the leaves harvested. This was not only a sustainable solution, but the sale of the leaves would give the Kani an additional, stable source of income. Fifty families were given approximately US\$ 40 each for cultivating the plant. JNTBGRI was to buy five tons of the leaves per month and supply them to AVP for the production of Jeevani. This scheme was a resounding success, through which many Kani people secured employment and training in cultivation and harvesting, which provided them with stable income and new skills they could use for sustainable cultivation of other natural resources in the region.

TBGRI decided to share half of these returns with the Kanis. Since the community did not have a formal set-up to receive its share, the Kerala Kani Samudaya Kshema Trust was formed in 1997. Mallan was made its president and Kuttimathan the secretary. In 1999, TBGRI transferred Rs 5 lakh to the trust as fixed deposit. "The Rs 5 lakh deposited in the trust fund was the money we scientists decided to forego," says Rajasekharan. Apart from this, the trust received Rs 1.5 lakh annually as royalty till 2008, Rs 1.5 lakh from Pushpangadan's award (\$30,000) and interests on the fixed deposit. Mallan and Kuttimathan got Rs 20,000 each from the trust fund for providing key information. Eachan Kani got Rs 10,000. TBGRI had appointed Mallan and Kuttimathan consultants in 1993 for Rs 3,000 a month.

IP Audit as recommended by WIPO

Historically, the sources of strength of a business were its tangible assets such as land, buildings, machinery and equipment. Today, however, more and more businesses rely for their competitive strength on their intangible assets, especially on trademarks, inventions, trade secrets, copyright, designs, and the like. An IP Audit is a systematic review of the intellectual properties owned, used or acquired by a business so as to assess and manage risk, remedy problems and implement best practices in IP asset management. Nowadays, an IP Audit is an indispensable tool for successfully managing knowledge-driven business by aiding the process of creating or revising its IP strategy.

Type of IP Audit

Generally, there are three types of IP audits: General purpose IP audit, Event driven IP audit and Limited purpose focused IP audit.

(1) General purpose IP Audit

a. A general or broad IP audit is done in the following types of contexts:

- Before establishing a new company it is always important for a start-up company to be aware of intangible assets it owns or needs to protect.
- When a business is considering implementing new policies, standards, or procedures relating to IP.
- When a business is considering implementing a new marketing approach or direction, or is planning a major reorganization of the company.
- When a new person becomes responsible for IP management.

b. Once a comprehensive IP audit has been undertaken, a smaller effort and expense is needed at regular intervals, such as on an annual basis, so that IP assets are reviewed and appropriate decisions taken, depending on the current and emerging needs of a company.

(2) Event driven IP Audit

Event driven IP Audit is generally much narrower in scope than a broad or general purpose IP audit. Further, the nature and scope of such an audit is determined by the event in question, and the time and resources available for doing it.

a. What is it?

- Event driven IP audit is often called “IP due diligence” when done to assess, as objectively as possible, the value and risk of all or a part of a target company’s IP assets.
- IP due diligence is a part of a comprehensive due diligence audit that is done to assess the financial, commercial and legal benefits and risks linked to a target company’s IP portfolio, typically before it is bought or invested in.
- Before starting the IP due diligence process, a mutual non-disclosure agreement should be signed between (a) the potential acquirer, investor, or creditor and (b) the target company.
- When done properly, IP due diligence provides detailed information that may affect the price or other key elements of a proposed transaction or even aborting the further consideration of the proposed transaction.

b. Subject?

IP due diligence generally seeks to:

- Identify and locate IP assets, and then assess the nature and scope of the IP to evaluate their benefits and allocate risks associated with the ownership or use of the relevant IP assets; in particular, it seeks to determine whether the relevant IP is free of encumbrances for its intended business use(s).
- Identify problems in and barriers to the transfer, hypothecation or securitization of the IP assets under consideration.
- Identify and apportion between the two parties the expenses incident to the transfer of IP assets under consideration.

c. When is it done?

IP due diligence is done in the following types of contexts:

- Merger & Acquisition or Joint Venture.

An IP audit provides a basis for assessing the risk and value of relevant IP assets in a proposed acquisition or sale of intellectual property, as for example, prior to entering

into any serious negotiations for a possible merger or acquisition, divestiture, or a joint venture arrangement. It could lead to a significant increase in the value of the acquired company or the resulting merged entity. On the other hand, such an exercise may significantly reduce the acquisition cost or lead to a cancellation of the acquisition process if the due diligence process reveals major IP risks or IP problems in the target company.

- Financial transactions.

IP due diligence is important before entering into a financial transaction involving IP, such as before an initial public offering or private placement of stock, or significant stock purchase, or before taking of a security interest in IP, as all of these have an impact on the ownership of IP. Through an IP audit, a potential lender will be able to more meaningfully assess a structured IP portfolio as part of its overall analysis of the credit worthiness of a target company.

- Buying or selling a business division or IP transfer

Before a company buys or sells a division or a product line, a seller will generally make a series of representations and warranties as to the ownership, non-infringement and marketability of the IP assets linked to the transaction in the ensuing written agreement. Before a transfer or assignment of interest in IP, an IP due diligence should be done separately by both parties to ensure that the transfer or assignment meets both their respective business interests.

- Launching a new product or service

When a significant new product or service is being developed or about to be launched, risk of infringing IP rights of others might be especially high. An IP audit needs to be taken to address any possible infringement or freedom to operate issues linked to new product development and launch of such a product on the market. - IP licensing A potential licensor has to ensure, for example, that it actually owns the IP that is sought to be licensed to others. Also, it has to be sure that there are no existing licenses that would interfere with the proposed new license. A potential licensee has to ensure, for example, that the potential licensor has the necessary rights to the IP in question so as to legitimately transfer the rights and that scope and extent of the proposed license will duly serve its intended purpose. - Bankruptcy, layoffs, etc. An IP audit would also be appropriate as a planning tool in advance of any filings for bankruptcy, significant plans for employee layoffs, business closure, or elimination of significant lines of business.

(3) Limited purpose focused audits

a. A limited purpose audit is typically much narrower in scope than the other two types and is performed under much constrained time schedules. These audits tend to be situational in nature. They are typically used to justify a certain legal position or the valuation of a particular IP.

b. A limited purpose focused audit is done in the following types of contexts:

- Personnel turnover: Before a major personnel turnover of in-house research and development or marketing, especially if it involves disgruntled employees, an IP audit should be done to secure the status of a company's IP assets.

- Foreign IP filings: Before a company takes up an aggressive program of filing IP applications in other countries, that is, before entering a new market abroad (by way of, say, exporting, or expanding overseas through off-shoring/outsourcing some of its

activities, or by licensing, franchising or merchandising) an IP audit helps to sensitize the company to market-specific IP laws, rules, customs and practices affecting IP rights.

- Using the Internet for business purposes: Before having an Internet presence, doing an IP audit helps it to identify the needs of e-commerce and registration of appropriate domain names, etc.

- Significant changes in IP law and practice: Where there is a significant change or development in IP case law or statutory law in a relevant market it may necessitate review of existing products for possible infringement of the IP rights of others.

- Clean room procedures: The clean room procedure seeks to avoid infringement by ensuring that there is no “access” to copyrighted material of unrelated parties during software development project. Thus, an audit might be necessary to institute, or to review the adequacy of, clean room procedures used in the development of software products so as to reduce the risk of infringing third party copyright.

- Preparing for litigation: When considering or facing litigation, a company is required to show non-infringement and no access to the work, complete or confirm the chain of title of the underlying IP rights or otherwise complete the documentation of the relevant IP rights.