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ROLE OF IPR IN INDUSTRIAL GROWTH & TECHNOLOGY TRANSFER

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Abstract

Due to widespread competition, any organization needs innovation to have an edge in the market. This leads to the creation of Intellectual property and contributes towards attaining the goals of an organization. It acts as an asset for any organization and gives them benefits for a longer period. As the revenues of the company start to increase, innovations can be expanded to other geographical areas because of stronger Intellectual property protection. The paper has been divided into four parts, with an attempt to cover major areas relating to the topic. In the first part of the paper, an analysis of the role played by the IPR on the industrial revolution is analyzed and the claims are inclined to the effect it has on the overall economic growth of that country. Thereafter in the next part, we see the impact of IPR in economic development, through analysis of the various form of intellectual property and empirical study on several models. Then, in the third part, we see the importance of IPR for SMEs, it analyses the significant role played by innovation in their development. Also, a brief explanation of technology transfer that takes place through the patent regime is provided. Lastly, in conclusion, we will describe the results falling from the analysis which is inclined towards the positive impact of IPR on industrial and economic growth.

Keywords: *Technology Transfer, IPR, WIPO, Patents.*

INTRODUCTION

Intellectual property can be defined in simple words as the creation delving from the human mind and intelligence. As per the *World Intellectual Property Organization* (WIPO), Intellectual property Rights include the creations of the mind, i.e., trademarks, designs, copyright, literary and artistic works, symbols, names and images used in commerce.[2] Thus, we can clearly imply that Intellectual property is indirectly related to industrial growth and

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[2] *What is Intellectual Property?* WIPO < https://www.wipo.int/about-ip/en/> (last visited on Aug 10, 2021).

development.

To understand the role of Intellectual property in Industrial development we need to look at the significant role played by it in the industrial revolution. The industrial revolution is described as the time period between the 1760s to 1830s, where a transition was seen towards industrial production (completely mechanised and dominated by technology). It began in Britain and led to sweeping changes across the globe. It is important to note that this industrial development was supported by the development of laws relating to Intellectual property which were laid down in Britain as early as 1624.[3]

It is important to understand that patents act as an incentive for factory operators and helps an economy by increasing innovation and growth. Thus, a stronger patent helps in increasing research and development (R&D), which helps in improving the quality of output. This helps in attracting the investments, JW Goethe thereby mentioned that Britain patents transformed the assets into real inventions.

After the Industrial Revolution, it has been noted that the effectiveness of technology transfer from Britain eventually became the key indicator of national prosperity.[4] This made England enact a law that banned the migration of skilled labour and recruitment abroad. As per this law, the emigrants from England will have to return within six months, after which they may be warned by a British diplomat of that country. If an emigrant failed to comply with the requirements it will lead to loss of land rights and ownership of goods. Also, it will lead to the abrogation of citizenship.[5] This shows the intensive nature of technologically advanced countries in the early years of the Industrial revolution to restrict the abundance of development to themselves.

Lastly, it is important to mention the US-based National Centre for Inter-American free trade has claimed that the industrial countries that began as developing countries exhibit that Intellectual Property development has been the most powerful tool for economic development growth and technological diffusion.[6] This clearly stands to the claim that better

[3] Joel Mokyr*, Intellectual Property Rights, the Industrial Revolution, and the Beginnings of Modern Economic Growth*, 99 AEA papers & proceedings 349, 349 (2009).
[4] David S Landes, *The Unbound Prometheus – Technological Change and Industrial Development in Western Europe from 1750 to the Present*, 44 Cambridge University press 566, 582 (1969).
[5] HA-JOON CHANG, INTELLECTUAL PROPERTY RIGHTS AND ECONOMIC DEVELOPMENT – HISTORICAL LESSONS AND EMERGING ISSUES 10 (Third world Network, Malaysia 2001).
[6] *Strong Intellectual Property Protection Benefits the Developing Countries*, National law centre (Apr. 19, 1989). (Available at: http://natlaw.com/db_document/strong-intellectual-property-protection-benefits-the-developing-countries/) (last visited on Aug 10, 2021).

intellectual property protection leads to industrial development. However, it has restricted the growth of Britain by creating monopolies in the industrial world and lowering the pace of development. This just restricted the development to Britain and held it as the workshop of the globe until the later nineteenth century.[7]

IMPACT OF INTELLECTUAL PROPERTY ON ECONOMIC GROWTH

IPR has a significant and positive impact on the R&D investment and also conclude that stronger protection will help in innovation and technological progress, which impacts the upward growth. Further, economists have the tendency to put forward several systems depending upon the markets. Intellectual property rights in their varied forms operate in distinct forms. Therefore, it becomes important to analyse them specifically.

Firstly, Patents are provided for twenty years of the authorised creation of the technology. It provides the recognition to a claim that is novel and has industrial utility. Thus, it helps by establishing the protective market and technical knowledge. Thus, stronger patent protection clearly adds an incentive to a creator and helps in economic progress.

Secondly, a trademark protects the rights relating to goods and services through the protection of names, marks and symbols. It is crucial to ensure that there is enough uniqueness in any trademark so that the objective of distinction can be achieved. In countries where trademarks have not been protected another company can pass off their lower quality product. Thus, stronger trademark protection is essential to restrict the abuse of legitimate goods produced by a firm. It thereby helps in the establishment of a name and reputation leading to a competitive marketplace, which makes a country a better marketplace and leads to economic growth.

Thirdly, the protection given to any literary work or software is through the Copyright, which provides for the moral right of the artist and copyright of any of the derivative products. There are several exceptions to this concept and it is allowed to use the copyright works under fair use doctrine. Similarly, we have trade secrets, where protecting the trade secrets promote innovation and encourage learning through the legal route.

Lastly, there can be several other forms of intellectual creation like internet materials and databases that are not under the Copyright scope but are protected and it is essential for

[7] Ibid.

economic development. Overall, better protection for all of these will help in encouraging innovations, stimulating the economic growth of the country. These elements also need stronger enforcement in order to become effective which is ensured by legal expertise extensively.

Several empirical studies and researches have been taken out to find out the relevance of Intellectual Property Rights on the economic development of the country. Branstetter and Hu and Png have argued that IPR protection will help in enhancing industrial development.[8] This is seen specifically among the global multinational firms in technologically developed nations. Further, it was upheld that as a result of such reforms the production of goods shifts towards the reforming countries. Further, an important takeaway from this research is that a 10% increase in the percentage of FDI to GDP will lead to a 3% increase in growth.[9]

IMPACT OF IPR ON SMALL & MEDIUM ENTERPRISES

It is important to look at the topic from the lens of SMEs because they constitute approximately 95% of the business workforce. It has been noted that small and medium enterprises are using IPR to protect the research and their investments in the market. They are able to survive and generate funding by using IPR as a legal tool to block the competitors. There is no doubt to fact that effective management of IPR will provide more business opportunities.[10]

Further, we see that in recent times the technological advancements have led to the creation of several technologies like blockchain, Artificial intelligence etc. The organisation that is innovating in these niche areas are primarily the SMEs. Thus, to ensure that there is proper protection given to these organisations and the limitations are done away with. There are several limitations facing these enterprises, they include the high cost of patents, time period for the grant, limited years of protection, limited protection and lack of knowledge.

PATENT VIS-A-VIS TECHNOLOGY TRANSFER

A patent is a legal document that grants its holder the exclusive right to control the use of an invention, as defined by the claims of the patent, within a specific geographical area and time period by prohibiting others from, among other things, manufacturing, using, or selling the

[8] *THE ECONOMICS OF INTELLECTUAL PROPERTY*, WIPO https://www.wipo.int/edocs/pubdocs/en/economics/1012/wipo_pub_1012.pdf (last visited on Aug 11, 2021).
[9] *Foreign Direct Investment for Development*, OECD https://www.oecd.org/investment/investmentfordevelopment/1959815.pdf (last visited on Aug 11, 2021).
[10] Stephen Ezell and Nigel Cory , *The Way Forward for Intellectual Property Internationally*, ITIF <https://itif.org/publications/2019/04/25/way-forward-intellectual-property-internationally > (last visited on Aug 12, 2021).

innovation without the holder's consent.[11] Patents may be granted to guarantee that new inventions are protected, that they include an inventive improvement, and that they are suitable for contemporary uses. In addition, the patent owner has the authority to transfer the patent, licence the invention, and take action in the case of an infringement of his or her right to patent. A patent applicant also has some rights that begin to accrue even before the patent is issued to him or her. Increasing worldwide commerce as well as increased rivalry in international trade demonstrate that big and medium-sized businesses must safeguard their inventions, their goods, and whatever exploitable consequences of their operations may be obtained.

When a governmental actor or another private business transfers technology to an industrial actor, the process is called technology transfer (TT). The goal of technology transfer is most frequently to commercialise a technology. A procedure in which physical or intangible assets are transferred from one entity to another is known as a transfer of assets. TT has emerged as a critical component of open innovation because it enables businesses to reap the benefits of research conducted by partners, whether public or private, inside their own ecosystem. Put another way, technology transfer is the process through which discoveries arising from university or private research are formalised and made available to industry in order to commercialise them as new goods or services. Increasing the competitiveness of businesses via technology transfer is essential.[12]

In certain cases, the transfer may result in a financial transaction, which can manifest itself in a variety of ways (patent purchase, cooperation, recruitment or "hostile" methods). Organizations, whether they be commercial businesses or public organisations, are often the two most important partners. However, we can also consider that these are two distinct fields of application; in this case, the transfer of technology is analogous to the transposition of a concept, or an idea, from its typical application to a field that shares some characteristics with the original application, but for which this implementation represents a breakthrough. In all instances, the technology represents a breakthrough for the customer, despite the fact that the owner has previously mastered it.

For a variety of moral and political reasons, new technologies are still often transmitted, and only new technologies are transferred. As a result, given the fact that technology transfer was mainly institutionalised during the period 1980-1990, we must comprehend this area of activity in the context of innovation policies, with a particular emphasis on the Oslo Manual of the

[11] *What are the criteria for patenting my invention?* <https://www.government.nl/topics/intellectual-property/question-and-answer/what-are-the-criteria-for-patenting-my-invention > (last visited on Aug 5, 2021).
[12] Ibid.

OECD being used to assess this last.[13] In this environment, there is a significant emphasis placed on the significance of technology and the business as the only engine of the economy and, therefore, the sole engine of competitive advantage. It is widely agreed that teaching or studying a trade does not constitute a transfer of technology.

DOES THE TRANSFER OF TECHNOLOGY FOLLOW A WELL-DEFINED PROCESS?

"The diffusion and transfer of technologies is a major pillar that supports the patent system." This quote, taken from a text by WIPO (World Intellectual Property Organization), specifies the importance of the link between patents and technology transfers. The expressions technology license, licensing, transfer contract, express the various forms that the transfer of technology can take, more especially in the field of business, commerce and commercial industry. If one takes into consideration the meanings of the word "technology", it is very simplifying to understand by transfer of technology only a commercial agreement between the owner of a patent (or any other source of the property or commercial law) and a purchaser of all or part of this patent (or rights of use).

For academic research, technology transfer is an operation that consists of Transmitting the knowledge resulting from research, formalized or not in the form of a patent (s) or registered property rights, to another research centre, public or private, intended to pursue it for industrial development purposes; or transform research into industrial innovation, by selling its discoveries to a company governed by public or private law. In general, a technological research step is necessary before exploiting the technology in question. Technology transfer is a source of funding for scientific research. It is part of the valuation of research. It is considered that today around 10 to 15% of the research capacity of companies is bought from outside. Faced with the ever-increasing complexity of the technological environment, the TT helps manufacturers to diversify their innovations, share the risks of research, strengthen their internal expertise, accelerate the marketing of their products, etc.[14]

Both public and private actors have understood the importance of Technology Transfer in their development and growth. They have thus become better and better structured over the years to professionalize their approach. Many countries such as France have created dedicated structures and public authorities like SATT (Technology Transfer Acceleration Companies) or France Brevets, like the Tech Transfer structures existing in the United States for example.

[13] *STUDIES IN TECHNOLOGY TRANSFER*, UNCTAD https://unctad.org/system/files/official-document/dtlstict2013d7_en.pdf (last visited on Aug 10, 2021).
[14] Ibid.

Companies have better aligned their internal resources to accelerate the acquisition of outside technologies and bring them to market quickly. On the other hand, the ecosystem around the licensing of intellectual property rights has only grown stronger and dedicated digital platforms, powerful patent analysis tools (Patent Analytics), the emergence of intermediaries (brokers) has been established.

Although open innovation and TT are widespread and "trendy", it is a particularly complex activity with a high failure rate. Many factors come into play: cultural differences between partners, their strategies and individual visions, which are sometimes incompatible, their financial expectations, etc. It is therefore illusory that all situations obey the same codified process. However, some methodologies allow both protagonists (the one who buys the technology and the one who sells it) to build the confidence necessary to develop a strong, fair and sustainable transfer agreement. These methodologies will make it possible to analyze the technical, financial and legal aspects of the TT to optimize the chances of reaching an agreement.

Among these factors, we can cite the creation of industrial property, the time and cost of development or even the need to invest in a manufacturing unit. These are all factors that will considerably impact the valuation of the technology transferred and which, moreover, may change over time. For example, concerning the creation of industrial property, it is essential to know the chain of rights, that is to say, to know who owns the technology if it is possible to exploit it without having recourse to third party licenses, who will have the rights to the improvements made. There are practical tools that allow you to list and evaluate these different parameters and that help to set up a robust methodology allowing you to exchange and negotiate with your partner.

There are three main key elements of the Technology transfer process. The first element is trust, without trust, it is impossible to seal a lasting agreement. The second is transparency, associated with a clear strategy. Finally, the third is to take into account all the factors that will impact the value chain, from the moment the assets are transferred until the moment of their valuation (on the market for example). Professionals who work in the world of TT have the particularity of having very diverse profiles and training. In general, they combine their technical training with a good knowledge of patents, negotiation and contracts. There is no proper education in the licensing and TT sector.[15]

[15]*EXCHANGING VALUE NEGOTIATING TECHNOLOGY LICENSING AGREEMENTS,* WIPO <https://www.wipo.int/edocs/pubdocs/en/licensing/906/wipo_pub_906.pdf > (last visited on Aug 10, 2021).

TECHNOLOGY TRANSFER CONTRACTS

After years of being monopolised by a small number of nations, the sector has seen a significant expansion in recent years, with new capabilities and technology being introduced in a number of new countries. Instantaneously, the commercial connection is no longer confined to the transmission of a product but is instead characterised by contracts that culminate in the transfer of technology. Reforming practises was necessary since technology cannot be transmitted in the same manner to a client who has technical competence or does not possess technical competence.

It is quite typical for foreign companies seeking to join the world market or a specific country to engage in technology transfer activities as part of their expansion strategy. Technology transfer is often carried out within the context of a joint venture, in which the foreign business agrees to transfer a portion of its technology to the other company in exchange for the other company allowing the foreign company to sell its goods in the target market (for example- Indian market). Traditional contractual numbers are no longer adequate when we see a huge shift of resources to developing nations. We are also confronted with the reality that some of our partners do not have the currencies necessary to make purchases of products or supplies on our behalf. This leads to the deployment of commercial activities that are based on compensation agreements.

Like In India, the Reserve bank of India guides the programmed endorsement to all businesses for foreign innovation cooperation arrangements subject to - (a) The sum of an amount not surpassing the US $ 2 million; (b) Royalty was payable being restricted to 5 % for domestic deals and 8 % for international, subject to a complete installation of 8% on deals more than 10 years period. However, Payment of royalty up to 2 % for export and 1 % for domestic deals are permitted under the programmed course on the utilization of trademark and brand name of the foreign partner without technology transfer. Payment of royalties on account of TT includes payments of royalty for the use of the company's brand name as well as payments of royalty for the use of the foreign partner's brand name.[16] Payment of royalties to seaward parent organizations by wholly-owned auxiliary (WOS) of up to 8 per cent on foreign transactions and 5 per cent on domestic deals are allowed under the planned course, with no time restriction on the duration of royalty payments. In the event that there are any leftover proposals for foreign innovation agreements that do not meet the requirements for the

[16] *Trademark Licensing- Indian Context, Legal Services India*, <https://www.legalserviceindia.com/legal/article-4019-trademark-licensing-indian-context.html > (last visited on Aug 14, 2021).

scheduled endorsement, they are evaluated on their own merits by the Project Approval Board (PAB). The Secretary of the Department of Industrial Policy and Promotion is in charge of this.[17]

For the time being, let us consider the issue of the transmission of information that is subject to secrecy, particularly know-how. Transfer of patented technology is usually insufficient by itself to enable the development of a product or a commercial solution in the majority of circumstances. This technology transfer also often includes the simultaneous transmission of knowledge related to this technology, which in particular allows the assignee or licensee to comprehend how it works, thus increasing the likelihood of the cooperation project's success and reducing its failure. However, this know-how cannot be protected under intellectual property law, but it may be protected under the law of unfair competition in some circumstances if specific criteria are fulfilled. As a result, when it comes to the transfer of know-how, the design of the technology transfer contract must be given special care in order for the holder of the know-how to be able to apply the law of unfair competition in the case of a violation of the confidentiality agreement.

WHAT PRECAUTIONS SHOULD BE TAKEN WHEN DRAFTING A CONTRACT?

The need for a wide definition of know-how is essential in order to ensure that any private and valuable technical knowledge is appropriately included within the scope of the know-how as defined by the contract. Definitions included in the Joint Venture agreement and the technology transfer agreement must be compatible with one another. In addition, the transfer of know-how from the assignor to the assignee must be monitored and documented in order to be able to demonstrate, if necessary, that the technology transfer has really occurred, as described above. If the technology in question is especially strategic, the involvement of notaries may be suggested in order to acquire notarized evidence of the transfer of ownership. At the absolute least, the contract must specify the methods through which the parties will communicate knowledge amongst themselves, such as email addresses or IDs that will enable them to access databases, among other things. Additionally, individuals of the licensee's team who have the authority to get access to the know-how must be specified in the licencing agreement.

It is necessary to protect the confidentiality of the know-how in order to qualify for protection under the law of unfair competition. Reasonable measures include the creation of a database access code, the recording of download history, inserting confidentiality clauses in employment

[17] *The Role of the Department of Industrial Policy & Promotion*, <https://www.india-briefing.com/news/the-role-of-the-department-of-industrial-policy-promotion-11759.html/ > (last visited on Aug 15, 2021).

contracts or signing confidentiality agreements, drafting specific non-competition clauses for experienced engineers, and drafting specific non-competition clauses for new employees.

During a dispute involving the transfer of know-how, the courts will need evidence to qualify the transferred know-how information in order to resolve the issue. As a result, the applicant will be required to establish the existence of this know-how by demonstrating that the conditions specified above are met, namely that the information was protectable, unknown to the public, that it had a commercial value, and that the holder had taken appropriate confidentiality measures prior to filing the application. In response to this qualification, the defendant may demonstrate, for example, that the technology was widely recognised in the community. The court will make its judgement based on all of the information that has been presented. Because of the complexities of the attribution of property in the event of an improvement, it is essential for the parties to determine in advance the rules that will apply in the event of an improvement in know-how as well as the right to file a patent on that improvement. In order to protect the interests of the assignor or grantor, it is recommended that provisions be made for the requirement of obtaining his or her consent, or the consent of both parties, in the event that a patent application is filed by the partner or by the Joint Venture, particularly when it comes to an innovation resulting from the transferred know-how or technology.

In addition, technology transfer contracts often include the transferor providing consulting and training services to the transferee, as well as the other way around. In this situation, it is suggested that the fees or charges be differentiated according to the various objectives of the contract. This will make it feasible to recalculate the amount of technology transfer fees owed in the event of a patent being declared invalid. It is recommended that you do not rush the preparation and negotiation of a technology transfer agreement and that you foresee the need to supervise the transfer of knowledge to provide sufficient protection for the ceding business. Technology transfer contracts also presented substantial risks for international businesses, owing to certain laws that placed protective measures on local enterprises and invalidated provisions that provided for differing rules in various jurisdictions.[18]

CONCLUSION

[18] *Transfer of Technology*, UNCTAD, https://unctad.org/system/files/official-document/psiteiitd28.en.pdf (last visited on Aug 18, 2021).

It can be concluded from the analysis made above that there is a direct relation between IPR and industrial growth. The industries have consistently added to the intellectual property rights for reaping the benefits of their innovation. There must be the implementation of various components of Intellectual property among the industries. Proper protection of IPR elements will ensure an increase in tax revenues, welfare spending etc.

Also, there are several empirical studies that have been conducted to find the relation between economic development and IPR. Though the results have been divergent we can say that most of these studies find the net positive effect. Also, the positive impact of IPR protection outweighs the negative impacts. Globally, countries have the tendency to go through agreements protecting Intellectual rights. Some important agreements include the TRIPS, GATT (WTO) and WIPO. They have ensured at the global level that there is proper implementation and legal framework for IPR.

Since a stimulant for technological progress, patents play a critical role in the occurrence of technology transfer, as they are one of the most effective methods of protecting intellectual property. A vital role in the growth of the business sector, the introduction of innovation and technology, as well as the development of a country's economy as well as the development of its citizens, technology transfer and licencing have taken on an increasingly important significance. If we look at it from the Indian perspective, we can say that India, as a developing country, must deal with innovation improvement and technology transfer and must develop a structured procedure that includes the development of new workplaces associated with the transfer of technology and the education of young people about the benefits associated with the transfer, by establishing predetermined colleges and from zero to one hundred per cent employment opportunities.

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