Intellectual Property Protection

"Launching a new prototype into the market"

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Scenario

A European company developed a new prototype for compressing audio files, called **.mp25**. The new format is able to compress an audio file *25 times* more than the popular .mp3. The quality of sound is maintained at the same exact levels and moreover the mp25 is reproducible from any mp3 hardware. This prototype is considered to be of an extremely high-value for the company, since it will be an enormous profitable source and a step for changing the worldwide music exchange. The company intends to release its design into *Europe*, *United States* and *China*. As a result of this and in order for the company to protect its rights, a number of actions must be taken beforehand. The company needs to identify, analyze and comply with the legislation of each market, in a way which will guarantee unique representation for its hybrid technology.

1 Introduction

As the digital world rapidly evolves and new technological innovations are introduced, a need for protecting *Intellectual Property Rights (IPR)* appears. The development of hybrid software is one of the categories which falls under special treatment and most of the time it is extremely difficult to be classified under a unique legislation. If we consider also the fact that usually software is marketed into several different countries on which legislation significantly varies, then the task of intellectual property protection becomes even more vague.

In reality, IPR are framed from a number of law acts which come under separate legislation aspects. *Trade Secrets*, *Patents*, *Copyright* and *Trademarks* constitute only the most important parts of the involved legislative mechanisms. All these mechanisms enclose a number of established laws, which are the ones that will grant or not, the needed exclusive rights for an original idea.

This paper aims to identify and present all the actions and measures that should be taken before the release of a hybrid prototype. An imaginary scenario for a non-existing audio compression format is analyzed and all the details for a successful distribution of this software into *Europe*, *United States* and *China*, are discussed. In practice, the main objective of this document is to enlighten the reader on the requirements that should be met, in order to ensure the *intellectual property protection* of a pioneer software product. Even though the *.mp25* scenario is not real, the decisions and the matters that will be discussed could easily constitute the base

for any similar and realistic case. Therefore, the results of the performed survey acquire a valid meaning and the document maintains a broader sense for future reference.

Section 2 performs an introduction to the existing legislations and gives an overview of the several variations and definitions. In Section 3 the differences on the legal status of the three most important worldwide markets for software are studied and a brief comparison based on the law acts, is made. In Section 4 a statement is formulated with respect to the ways that **.mp25** could be successfully released under each market, but without neglecting at the same time the requirements for legal fortification and unique representation. Finally, the paper concludes about the existing legal status with respect *Intellectual Property Rights* around the world and briefly discusses its current effectiveness.

2 Legislations & Variations

Usually, every legislation aims to define laws and acts for specific situations. The laws that will be presented in this paper are most of the time unavoidable co-related to each other and in some situations, their combined enforcement is necessary. In our case, the scenario of .mp25 involves a number of bonded legal issues, which definitely must not be overlooked. However, before we further proceed with a detailed analysis of the *.mp25 scenario*, it is considered appropriate to present an overview of the legal definitions and terms that will be discussed in this paper.

The following sections provide all the necessary knowledge, with respect to the protection of *Intellectual Property* and every other *independent* or *complementary* legal perspective. This information will offer the minimum general background needed and in this way, will allow the reader to comprehend better the content of this document.

2.1 Intellectual Property Rights (IPR)

Intellectual Property Rights (IPR), refer to any rights that arise from relevant fields of law and have as a main goal to protect distinct types of intellectual accomplishments. More precisely, the term of *Intellectual Property (IP)* encloses any creation of the mind that derives from individual work and which could be classified into a broad variety of *artistic*, *scientific* or *commercial* areas.

In order for the owners to be granted certain exclusive rights for these intangible assets, a number of intellectual property laws have been formulated. In 1970, *World Intellectual Property Organization (WIPO)* began to operate in an effort to promote worldwide protection and in practice, it divided IP into two main categories, *industrial property* and *copyrighted material*. Inventions, patents, trademarks, industrial designs and geographic indications of source are classified into the industrial property and literary or artistic works, such as novels, poems, plays, films, music, drawings, paintings, photographs, sculptures and architectural designs are classified into copyrighted material. [5]

Today, the *World Trade Organization (WTO)* requires all of its members to establish and enforce minimum levels of *copyright*, *patent*, and *trademark* protection within their jurisdictions. In particular, with respect to the *Information Technology* field, hardware and software releases fall under the copyrighted material. However, depending every time on the situation, the algorithms used within the hardware and software may also be patentable.

In order to decide how a hybrid software product should be legally classified, further investigation is needed. *Intellectual Property Rights* provide only the general guidelines under which several different pathways could be followed. Thus, the priorities for protection (e.g. cost, time) which the owners of the idea will set, in combination with the necessities that arise from each

individual scenario, will define the entire policy for legal fortification. Usually, there are more than one factors to be examined before any actions take place. These factors might not be so straightforward from a legal perspective, but they could certainly have a major impact to the business side. *Time*, *Cost* and *Secret Disclosure* are only a few of the possible pre-requirements, that may be questionable before granting exclusive rights.

The scenery of the IP protection completely changes when we refer to different countries. Imagine, that especially when we deal with software inventions, the owners should ensure that their inventions comply with legislation of each individual country and that they will be able to defend their rights, equally. In the last two decades and after the extreme explosion of the Internet, software distribution became faster and easier. However, this brought into the surface several new issues, such as the *non-compatible* legal systems around the world and the appearance of illegal phenomenons such as *software piracy*, which are still looking for treatment.

2.2 Trade Secrets

"Trade Secrets, is any confidential business information which provides an enterprise competitive edge and usually encompass manufacturing, industrial or commercial secrets."

World Intellectual Property Organization (WIPO)

In a more abstract level, *trade secrets* can be seen as any confidential information, which has extremely high commercial value. In reality, the economic rationale for protecting trade secrets remains relevant with the general form of intellectual property. However, the main difference lies in the fact that trade secrets aim mainly to exclude others from using the produced knowledge. The returns of any kind of innovation should be protected by remaining *undisclosed* to the public. The agreement on *Trade-Related Aspects of Intellectual Property Rights (TRIPS)* addresses this issue in detail. TRIPS agreement lies under the *World Trade Organization (WTO)* and it is one of the existing enacted acts, with which each WTO member should comply. More precisely, the TRIPS agreement ensures that trade secrets are protected against unauthorized disclosure, acquisition, or use that is contrary to honest commercial practices. [3, 4]

However, the agreement does not extend its validity to the use of protected information by third parties, who obtained the information by means of honest commercial practices. *Reverse engineering*, *independent research* and *development activities*, are qualified as such honest commercial practices, for which TRIPS agreement fails to provide protection. As any other form of IP, *trade secrets* involve an important trade off between *innovation* and *competition* that should be successfully balanced. In practice, the possibility of reverse engineering limits the exclusivity enjoyed by the owner of a trade secret and in comparison to the patents, encourages *economical* races. [3]

By looking closer at the trade secret features, we realize that they are distinguishable from the traditional IP rights. Trade secrets can exist without any broader official approval and there is no scheme that implies a need for a registration. Moreover, the level of *innovation* or *originality* does not have to meet high-standards and the general requirements for novelty are normal. The ultimate goal is to preserve the secrecy of acquired knowledge and this becomes even more valuable if we consider also the fact that trade secrets have limited protection. In practice, trade secrets do not afford exclusive rights to the owners, are vulnerable to accidental disclosures and thus, they obtain an extremely confidential nature.

Legal systems around the world vary with respect to the protection of trade secrets. For example, China and Germany classify trade secrets under the general concept of protection against *unfair competition*. On the other hand, United Kingdom treats trade secrets under the

laws of confidentiality and Unites States under the fundamental rights of *privacy*. Thus, the protection of trade secrets in multiple geographies, might need different legal actions.

2.3 Patents

"A patent is an exclusive right granted for an invention, which is a product or a process that provides a new way of doing something, or offers a new technical solution to a problem."

World Intellectual Property Organization (WIPO)

Patents describe inventions and they are fortified through an official legal registration. These inventions may be related to a *process* or a *product* and they can only be *manufactured*, *used*, *sold* or *imported* with the legal consent of the owner. Usually, patents are referred also as *"monopolies"*, since they exclude rights from all the other parties, except the holders of the invention. Furthermore, a patent is limited in time and generally protection is granted for a number of pre-defined decades.

As it is mentioned in [5], in many countries inventions are also protectable under the name of *utility model* or *short-term patent*. The basic difference on these two forms of registration lies on the requirements. In practice, they are less strict compared to the requirements for patents. In particular, the inventiveness needed is more loose, the payable fee in order to register an invention is lower and the duration of protection is shorter. However, in any other sense, the rights under these two alternative legal paths, remain similar to patents.

In order for an invention to be eligible for a patent, several conditions should be met. *Industrial applicability*, *novelty*, *disclosure of the invention* and *inventive step*, are just some of the vital requirements. With the term industrial applicability, we refer to the mandatory condition for the invention to be practical and not purely theoretical. Novelty refers to the fundamental requirement for an invention to present production of non-existing knowledge. However, novelty is not measurable and most of the time only its absence can be proved. Disclosure of the invention is the need for a clear and sufficient publication of the information related to the patent, in such a way that could be completely understandable to the relevant experts in the field. Finally, inventive step is considered to be one of the most difficult criteria and it mainly refers to the determination of the existence or not, of a non-obvious solution.

After the successful registration of a patent, the owner acquires the right to decide who shall and who shall not exploit his invention. More precisely, the owner retains two main rights, the *protection against infringement* and the possibility of *assigning* or *licensing* the right, in part or in whole. However, here we must mention that the owner is responsible for detecting the infringements and bringing them into the infringer's attention. [2, 5] At this point we should also clarify that the cost for preparing a patent application is not insignificant and the process is quite time consuming and lengthy. Thus, if the expected commercial life of an invention is short , it may not be worthwhile to obtain a patent.

Basically, there are two common ways that the inventor could use to put his idea into production. The owner could *sell* or *license* his product idea to a company equipped to manufacture it or he could become a manufacturer himself. It is quite common for individuals with unsolicited ideas to approach companies, seeking for funding. After all, as patent legislation requires, the inventions described in patents fall into the public domain after the expiration of their term and they can be freely used by anyone without obtaining the permission of the patent's owner. Moreover, a time limit of *three* to *four* years is a minimum time limit, before a patent is able to be used in each country. This recognizes that the owner of a patent will have to wait a significant amount of time, in order to use his invention under the obtained protection. Thus,

serious consideration is needed, before the owner of an invention decides to proceed into the expensive process of patent registration.

2.4 Copyright

"Copyright aims to protect the rights of authors, performers, producers and broadcasters and contribute to the cultural and economic development of nations."

World Intellectual Property Organization (WIPO)

Copyright law is a part of the general law which formulates the rights of intellectual creators. More precisely, copyrights refer to particular forms of creativity and are able to protect only the way that ideas are expressed and not the concept on which these ideas are based on. *Copyright protection* constitutes an essential element in the development process and includes every production in *literary*, *scientific* and *artistic* domain, irrespective from the kind of *mode* or *form* of expression. In general, copyrights have as a main purpose to encourage a dynamic creative culture and provide a widespread, affordable access to content for the public. [5]

Under the general *copyright legislation* there are additional laws which have been formulated, in order to specifically cover the area of *software copyrights*. Even if the legal aspects which concern the software are relatively new, significant efforts have been made in the last decades. The *Digital Millennium Copyright Act (DMCA)* in United States and the *European Union Copyright Directive (EUCD)* in Europe, constitute the two most important legal acts, which aim to protect copyrights. DMCA implements a number of treaties of the *World Intellectual Property Organization (WIPO)* and EUCD addresses the same issues that DMCA includes. However, in some particular cases of EUCD, there is a need for separate legislation within each of the Union's member states.

The most significant right under any copyright law, is the right of the owner of the copyrighted material to prevent others from making copies of his work. In the case of software copyright protection, usually the concept of *proprietary software* is the solution. The term proprietary software describes any software which is neither *free* nor *open source* and it is protected from unauthorized use, without the consent of the owner. In order to enforce restrictions on proprietary software, either *legal* or *technical* means are enforced and sometimes both. On of the most common technical restriction is the *closed source* release of a program, which in practice is closely connected to trade secrets. The reason is that the human-readable source code can remain undisclosed, by releasing to the public only the copyrighted binary files of the software.

The owner of copyright is generally the person who created the work, namely the *author* of the work. However, there can be exceptions which are regulated by the national law. A classic example is the one on which a work is created by an author who is employed by a company and at the end the company and not the author, is the owner of the copyright of the work. According to [5], in many countries copyright may be assigned. This means that the owner of the copyright transfers his rights to another person or entity, who becomes the new owner of the copyright. However, an assignment of copyright is not legally possible to every country. In some occasions, direct assignment of the copyright rights is not feasible. Nevertheless, nearly the same practical effect can be achieved by *licensing*, which is the legal authorization that a copyright owner can grant to someone, in order to exercise all or some of his rights.

Similar to every other form of intellectual property, *copyright* protection encloses also a number of limitations. More precisely, copyright does not continue indefinitely and the law usually provides a period of time, during which the rights of the copyright owner are retained. This period most of the time starts with creation of the work and ends some time after the

death of the author. Furthermore, in some countries works are excluded from protection if they are not fixed in some material form. Finally, geographical restrictions exist, in a sense that a work is protected by the law of a country against acts restricted by copyright, which are enacted only in that country. For copyright protection of such acts in another country, the owner of the copyright work must refer to the law of that other country. In occasions, on which both countries are members of one of the international conventions of copyright, the practical problems arising from this geographical limitation are not so severe.

2.5 Trademarks

"A trademark is any sign that individualizes the good of a given enterprise and distinguishes them from the goods if its competitors."

World Intellectual Property Organization (WIPO)

In general, *trademarks* is one of the most common ways to individualize a product for the consumers. A trademark is indicative for the source of a creation and allows a person to recognize a product between other similar products. The requirements which a sign must fulfill in order to serve as a *trademark*, are reasonably standard through the world and in reality, there are two main requirements.

The first requirement relates to the basic function of a trademark , namely, it is the function to distinguish the products or services of one enterprise, from the products or services of other enterprises. As a consequence, it follows that a trademark must be absolutely distinguishable among different products. The other requirement relates to possible harmful effect of a trademark if it has a *misleading character* or if it *violates public order* or *morality*. Today, both requirements exist in almost all national trademark laws. A trademark can be protected on the basis of either *use* or *registration*. As it is mentioned in [5], *Paris Convention* places contracting countries under the obligation to provide registration for a trademark and at the moment, more than 150 countries have adhered to this convention. Thus, nearly all countries today provide full trademark protection if a trademark has been properly registered.

Of course, a trademark owner should wait for a period of time, before registration comes into effect. Even in their own countries companies may need several years before they can properly launch a newly-developed trademark product on the market. Most of the time, the period needed for establishing and registering a trademark is three years , but it is quite often five years to be the usual expected time frame. Furthermore, in order for the trademark owners to avoid any possible loopholes, they are advised to register their new trademarks in all countries of potential future use. [5]

Usually, a trademark owner licenses third parties to use his trademark and exercise their own business. Such license agreements are very often between partners from different countries and in reality, they include also licensing of *patents*, *trademarks*, *know-how* and possibly other intellectual property rights. In order for the owner of the trademark to safeguard the original function of the trademark, it is necessary and sufficient to exercise control over the use of the mark by the licensee. In particular, the quality of the goods and the conditions under on which the product is marketed, constitute the fundamental issues for assessment. In 2000, WIPO in co-opertion with the Paris Union adopted a *Joint Recommendation Concerning Trademark Licenses*, which contains a international model form for licensing trademarks. As any other form of intellectual property mechanism, *trademarks* aim to protect and legally fortify owners' rights and they must be used in cases which are suitable. However, it is important to keep in mind that trademarks are directly related to the intellectual property laws which have been discussed in the previous sections. Thus, their enforcement is possible to have a useful meaning

only after the involvement of additional intellectual property laws, such as *patent* and *copyright laws*.

3 Legal Status in Europe, United States and China

There is a number of individual laws to protect intellectual property rights, and usually, each country enforces different laws for protecting *Intellectual Property Rights*. However, today most of the countries have complied their legislation with the general guidelines and laws that are defined under *World Intellectual Property Organization (WIPO)* and its agreements. This section aims to bring these matters into the surface and discuss the main principles that should be followed in the legal systems of *Europe*, *United States* and *China*. The intention is to present parts from each legal system and in this way, give to the reader the general information for structuring a valid plan for releasing a new prototype, such as *.mp25*.

3.1 Europe

The *European Union (EU)* possesses two important bodies to carry out the mission of *Intellectual Property Protection*. The *Office for Harmonisation in the Internal Market (OHIM)*, which is responsible for the registration of trademarks and designs, and the *European Patent Organization (EPO)*, which grant patents in Europe under the *European Patent Convention*. All *27 EU member states* are members of the *World Trade Organization WTO* and the *Word Intellectual Property Organization (WIPO)* and they must comply also with these laws.

However, each country member of EU maintains also separate national laws that apply to intellectual property rights and in some occasions they might be different. A relevant example is the *EU Copyright Directive (EUCD)* which makes software copyright infringement illegal, but even if the general guidelines are declared inside the EUCD, many important details are not specified. As a result, EU members have significant freedom in certain aspects on the software copyright protection. However, this should not be the case and a global policy should be defined.

In order for someone to overcome and exclude any potential leakage through national laws, further investigation must be done into the laws of each targeted country. The implementation of *EU Directive* into national law is still an ongoing process in a number of member countries (e.g. Germany, France) and thus, it becomes obvious that an owner of a product should verify legal compliance and registration, beyond the general acts that the global organizations offer. [3, 5]

3.2 United States

United States (U.S.) provide a wide range of protection for intellectual property through the *federal registration* of trademarks, patents and copyright protection and it offers protection of trade secrets under *state laws*. Federal protections extend only throughout the United States and for fortification that targets other countries, the general measures of WIPO agreements should be followed.

In the U.S. a patent is granted by the *U.S. Patent and Trademark Office (USPTO)* and only protects the owner of the patent inside the country. However, the *Patent Cooperation Treaty (PCT)* streamlines the process for U.S. inventors and businesses wishing to obtain patent protection in other countries. By filing an international patent application at the USPTO, an applicant could request protection in up to 115 countries. Nevertheless, it is demanded first to obtain a foreign filing license from the USPTO, and only then the process of granting the patent abroad can be started.

The trademark law of U.S. was protected only under *state laws*, however the last few years the adoption of *Federal Trademark Dilution Act* brought trademark protection at federal level. Trademarks rights, service marks, and other marks are acquired through *use*, *registration*, or *prior foreign registration*. The United States is not a member of any agreement under which a single filing will provide international protection and thus, for acquiring protection into other countries additional actions are required.

Finally, copyright law in the U.S. is part of federal law, and is authorized by the *U.S. Constitution*. The enacted *Digital Millennium Copyright Act (DMCA)* secured the exclusive rights of the owners and gave them the right to *reproduce*, *prepare derivative works*, *distribute copies*, *perform* or *display* the work publicly. Moreover, DMCA was one of the first acts world-widely, that included *Digital Rights Management(DRM)* under copyright protection. U.S. is also complying with international copyright treaties and conventions, such as the *Berne Convention* and the *TRIPs agreement*, in an effort for a unified international copyright policy.

3.3 China

The *IP protection* in China remained undefined and obscured for several years. An unlawful environment was evolved and most of the companies were discouraged to make any business actions for releasing software into the Chinese market. The lack of truly independent enforcement authorities led to an non-existing prosecution system, which was weak and ineffective in most parts of China.

In 2001 and in an attempt to overcome the major problems that China was facing with respect to *Intellectual Property Rights*, China joined the *World Trade Organization (WTO)*. In order to access the WTO, it was forced to amend its *Patent*, *Trademark* and *Copyright Laws* and in practice adopted a new legal status in line with TRIPS agreement of the WTO. Although today, China is a member of the majority of international agreements that aim to protect intellectual property rights (e.g. *WIPO*, *Paris Convention*), a company must register its *patents* and *trademarks* with the appropriate Chinese agencies and authorities for those rights to be enforceable in China. On the other hand, *copyrights* do not need to be registered, but registration may be helpful in enforcement actions. [1, 6]

In 1998, China established the *State Intellectual Property Office (SIPO)*, with the vision that it would coordinate the entire IP enforcement efforts under one authority. However, this never occurred. Today, SIPO is responsible for granting patents, registering semiconductor layout designs, enforcing patents, as well as coordinating domestic foreign related IPR issues involving *copyrights*, *trademarks* and *patents*. [6]

The existing Chinese *patent law* complies with TRIPs agreement. In comparison to other legislations, China follows a *"first to file"* system for patents, which means that patents are granted to those that file first, even if the filers are not the original inventors. This system is unlike the United States, which recognizes the *"first to invent"* rule, but is consistent with the practice in other parts of the world, including the European Union. Moreover, under China's patent law, a foreign patent application file by a *person* or *firm* without a business office in China must apply through an authorized patent agent, while initial preparation may be done by anyone. In particular, patents should be filed with China's *State Intellectual Property Office (SIPO)* in Beijing, which will be responsible to ensure the administrative enforcement. [6]

With respect the *trademark laws*, China extended registration to collective marks, certification marks and three-dimensional symbols, as required by *TRIPs agreement*. China has a *"first-to register"* system that requires no evidence of prior use or ownership, leaving registration of popular foreign marks open to third parties. However, the *Chinese Trademark Office* has canceled the trademarks that were unfairly registered by local *Chinese agents* or *customers*

of foreign companies. In practice, anyone who seeks to distribute products in China is advised to register its *marks* and *logos* with the *Trademark Office*. Furthermore, any Chinese language translations and appropriate Internet domains must also be registered. As with patent registration, foreign parties must use the services of approved Chinese agents when submitting the trademark application, however *foreign attorneys* or *the Chinese agents* may prepare the application. Recent amendments to the implementing regulations of the trademark law, allow local branches or subsidiaries of foreign companies to register trademarks directly without use of a Chinese agent. [6]

Finally, China's copyright law was transformed in 2002. Unlike the *patent* and *trademark protection*, *copyrighted works* do not require registration for protection. Protection is granted to individuals from countries belonging to the *copyright international conventions* or *bilateral agreements* of which China is a member. However, copyright owners may wish to voluntarily register with China's *National Copyright Administration (NCA)* to establish evidence of ownership.

4 Releasing the `.mp25` prototype

The release of *.mp25 encoding audio format*, into Europe, United State and China could follow several different pathways. Even if there is not an actual product and there is no existence of this format we could still argue about its potential marketing and discuss the optimal ways for a legal fortification and protection. However, before we proceed to our personal analysis, it is worth to have a brief flashback to the legal actions that were made in the case of the popular *.mp3* audio format.

In 1987, the *Fraunhofer Institute* in Germany began research in a project called *EUREKA*, which was meant to have as an output the *.mp3 audio encoding*. Two yeas later, Fraunhofer received a German patent for the invention of *.mp3*. After the standardization of *Moving Picture Experts Group (MPEG)* by the *International Standards Organization (ISO)*, the *.mp3* audio encoding algorithm was integrated into the *MPEG-1* standard, which was published in 1993. The *.mp3* encoding was registered as United States patent in 1996 and two years later the owners start to enforce their patent rights. In practice, they forced all developers of *MP3 encoders*, *rippers*, *decoders* and *players* to pay a license fee to Fraunhofer. However, the key factor for marketing was based on fact that no licensing fees were required to use an MP3 player. That was the actual reason that made *.mp3* so popular and help it spread out in the digital world.

Coming back to the case of the imaginary *.mp25*, it is obvious that it could be a breakthrough innovation and if it existed could definitely become the substitute of *.mp3*. Granting exclusive rights for such technology, has many alternatives and different possible legal directions. By deciding to adopt a similar legal approach to the one that the owners of *.mp3* technology followed, we have to take a closer look at the *patent laws* of our targeting markets, namely Europe, United States and China. As it was presented in the earlier sections, in order for a creation to be a candidate for a patent, it should fulfill a number of requirements, such as innovativeness. At this point, we suppose that *.mp25* fulfills all the needed requirements and we are in position to proceed with the formulation of a legal frame.

Assume that a research team invented the *.mp25*, but no legal actions have been taken until now. The algorithm and all the details are only known to the team members and there are access restrictions to the relevant material. From a legal perspective, this is consider to be *team's point zero*, since there is not any legal fortification. According to the team's decision for the way that the invention will be released, a number of specific legal steps should be taken. At first, independently from the future intentions of the team, it is considered sensible to *protect*

and *treat* the idea of *.mp25*, as a trade secret. Even if *.mp25* has not be released yet and it is unknown to the public, it would be preventive to require from every involved member of the team to sign an contractual agreement, which will clearly state that *.mp25* is a product of team effort and it will remain undisclosed until every member consent to a *unified business* and *legal* direction.

After the legal plan for all future actions is defined by the team, a process for registering the patent in the national law of the country on which *.mp25* was invented, could be started. As we already discussed, this will mean also the disclosure of all the information that are related to *.mp25* invention, in such a way that all experts on the area would be able to understand. Therefore, a single pre-defined plan for registering the idea into *Europe*, *United States* and *China* must be followed in parallel. In practice, the idea must be registered as a patent to the *European Protection Organization (EPO)*, especially if the country of invention is not a member of the *European Union* or of the *World Intellectual Property Organization (WIPO)*, which means that the national law does not probably comply with the global international patent laws. In this way, the owners of *.mp25* will ensure a broader fortification inside Europe and to every other country that follows the international patent legislation. Of course, the team must contact the *State Intellectual Property Office (SIPO)* in Beijing, and start all the necessary steps for registering *.mp25* patent in China. The fact that the *Chinese Legal System* for patents treats registration in a *"first to file"* base, leaves space for potential leakage issues and thus, these issues should be eliminated the soonest possible. For registering *.mp25* as a patent in United States, is advised to contact the *U.S. Patent and Trademark Office (USPTO* and start the application process needed. Even though that Europe, United States and China are constitute members of the *World Intellectual Property Organization (WIPO)* and therefore comply with the international agreements, it would be wiser to register the invention individually in each legislation. The *utility model* and *short-term patent* could constitute an alternative option, however in the case of *.mp25* they are not attractive, since they are refer to a registration limited to a short time period and usually there are not available in every legislation.

Proceeding to a patent registration would be extremely time consuming and especially, when this has to be done in three different countries. Moreover, the cost for granting the exclusive rights which a patent offers, are quite expensive and they have a limit of life approximately 20 years. However, the scenario of *.mp25* is considered one of the few cases that requires and worth to be classified in the legal category of patents. As the patent laws give the opportunity to grant rights to the invention, by licensing it to interested third parties, the owners will be able to earn the maximum profit from their idea without selling it.

By looking also to the mechanisms of *Copyright* and *Trademark* protection, there are still additional legal issues that could be covered by these two laws. Even if they will not constitute the main priority for the scenario of *.mp25*, they could offer protection and guarantees at different levels. *Copyright laws*, is advised to be applied in order to ensure the form on which the algorithm implemented by *.mp25*, will be *used* or *processed* by third parties. However, in this area there are several pathways since the idea will be anyway disclosed and thus, maybe *open source* copyright licensing, might be useful in order to promote further research. The *proprietary software* is probably not suitable and only if the owners release a specific software based on *.mp25* which is meant to be undisclosed, such legal actions obtain a meaning. On the other hand, *trademark laws* can be applied in order to register successfully a worldwide trademark for the *.mp25*. As it was already mentioned in 2.5, nearly all countries today provide full trademark protection and therefore, the only action needed is to properly register the trademark in each targeting country. In conclusion, we can say that *patent registration* seems to be the appropriate legal action for the case of *.mp25* and also the most profitable way to use this invention. Even if it is time consuming and expensive to grant exclusive patent rights,

todays legal systems would be able to provide protection and fortification for patent rights in a worldwide scale and thus such action would be more than beneficial.

5 Conclusions

This paper presented and discussed several significant aspects of intellectual property protection and performed an analysis based on an imaginary scenario of an audio encoding format, called *.mp25*. It covered most of the general legal actions that must be followed in order someone to fortify this invention into *Europe*, *United States* and *China*. The major differences were highlighted among the legal systems of each geographical location and the needed steps for a unique representation were determined.

Of course, it was not feasible to include every different situation and several other cases exist which could have different treatment in comparison to *.mp25*. Usually, *trade secrets* and *proprietary software* are the legal means with which the large IT companies protect their assets. Even though that are cases on which enforcement of patent law is sensible, *Copyright* and *Trade Secrets laws* are usually preferred, since they are able to provide secrecy at *lower cost* and relevant *short-time* period.

So, we could say that in the last decade an enormous effort has been made in order to standardize and unify the intellectual property laws, under international organizations such as the *World Intellectual Property Organization (WIPO)*. The established *Trade-Related Aspects of Intellectual Property Rights (TRIPS)* agreement, promotes the idea of a world-widely IP protection and tries to adopt the national laws of each member to the international needs. That does not mean that there are no problems or difficulties that have to be faced. The task of a global and unified IP protection is definitely not easy, especially for software products. Additional efforts are needed and actions that will minimize or eliminate phenomenons such as *piracy* or *unfair competition*. However, all the indications are promising and it is believed that in the upcoming years, *worldwide intellectual property protection* will be more effective and accurate.

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