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A SUPPORT OF IMAGINATION TO BECOME REALITY: RELATION OF PATENT LAW AND SPACE LAW

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ABSTRACT

Human mankind has had a huge dream of leaving the Earth, and challenges himself in space. To achieve this dream, several legal issues came up. Some of them had already been solved before the technology got to the point to refer to it (mostly in the first 3 decades of space age). Though the advance of law, in last decades more and more legal issues are coming up. To support the dreams, legal background is to be ensured. One corner stone of these questions is related to intellectual property and more precisely to patents.

The aim of the paper is to present the basic conflict of patent law and space law. By studying the territoriality and legal monopoly of patent law and disclosure of sovereignty and non-appropriation in space law, the issues developments will be considered, though no definitive solutions are yet achieved.

As a conclusion to keep the space industry going on a less risky way, a kind of harmonization is needed in patent law. This paper wishes to propose some solutions (e.g. a global regulation through WIPO, or directly by a new and separate international organization), while keeping in mind, that the field of application is special, so the rules should adapt to the special conditions.

INTRODUCTION

In the beginning of Space Age the law was ahead of technological possibilities. The basis of space law, as part of international public law was settled rather soon after the first satellite was launched.

From that time many dreams in space technology have come true. Not only the state institutes and organizations are now actors of space industry, but private companies are also shown up with new aims and new solutions.

International cooperation in any level is stronger than ever before.

In this quickly changing and developing environment intellectual property becomes more and more a key issue, though its regulation and specification to outer space is still pending.

As in space the dominant intellectual property right is patent right, the present document will focus on the relation of patent law and space law. However the reader is encouraged to apply analogy between patent law and other intellectual property rights.

PATENT LAW

Patent represents a legal monopoly to get interested inventors to develop innovations. Patents are awarded by states and are

enforceable under the state's jurisdiction. The owner of patent right may own, use, licence or exploit by any other means the patented invention, and may forbid any third party from such an exploitation. Patent rights are different from traditional property rights (among others) in their limitation of territory and time.

During the last twenty years, many development were achieved in patent law and especially in harmonization of patent rights.

The main agreements to harmonize patent rights are the following:

- 1883: Paris Convention for the Protection of Industrial Property;
- 1967: Convention establishing the World Intellectual Property Organization (as a specialized organization of the United Nations) ("WIPO"), which has already 180 member States;
- 1970: Patent Cooperation Agreement (carried out by WIPO and was amended in 1979 and 2001);
- 1995: Trade Related Aspects of Intellectual Property Rights (signed in the framework of World Trade Organization as part of the General Agreements of Tariff and Trade) ("TRIPS");
- 2000: Patent Law Treaty (open for members of WIPO or the Paris Convention) it entered into in 2005 and has already 18 contracting members, while another 42 parties have already signed the agreement.

There are two main structures of patent rights according to the protection awarded. The more spread system is the first-to-file system, while the other solution is the first-to-invent system.

First-to-file

Most of the world follow the first-to-file system, which means that the basis to grant a patent is the first application filed to the competent authority. No further requirements are needed regarding the inventor or the place of the invention in this system.

First-to-invent

Though only two countries in the world follow the first-to-invent system, considering it is needed, one of them is a key actor of space industry. So considering these jurisdictions –the United States and the Philippines[1]– is rather important.

The person who can improve to be the first to invent has a right to the patent. In the US, one more provision interfered with international trends, namely the place of an invention, where the invention made abroad is not acknowledged for the time of an invention.

With signing the TRIPS agreement, latter clause is not any more applicable for other members of the agreement, but still in force for invention out of these States.

SPECIALITY OF SPACE LAW

A very young branch of international law was launched almost in the same time as the Sputnik reached successfully the outer space. Soon, in 1967, the first and still the most important international agreement entered into, which is the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies ("OST"). It declares main principles while using outer space, and among other states that no appropriation is possible in

[1] Meeting of consultants on inventions made or used in outer space, International Bureau of WIPO, Genova, 1997

outer space. The research, exploration and exploitation shell be conducted for the benefit of all mankind.
The other important international treaty from the point of view of patent law is the Convention on Registration of Objects Launched into Outer Space in 1975 ("Registry Convention").
The enforceability of the patent is usually depends on the jurisdiction of the spacecraft, which refers to the registration State. However, defining State of registry may be uncertain as any of the launching States can be the State of registry in the meantime.
OST is ratified by 98 States and another 27 State signed it[2], the global application may be pending. The first treaty to apply for outer space is become however stronger than a simple international agreement. It entered into custom law as well, which means that all of its principles are valid for all and any of the States (being member or not).
Some of the experts are considering all 5 main international agreements as part of custom law, although the other four (beside OST) are accepted by less and less States. While the Rescue Agreement[3] and the Liability Agreement[4] were ratified by many States, the Registry Convention is in force only in 51 States and another 4 States have signed it and further 2 accepted the obligations and duties rising from.
Accordingly the Registry Convention remains some doubts if it shall be considered as a custom law. Some of the States have not yet accepted it even if they may be considered as launching State (e.g.: Israel)

TYPOLOGY OF INVENTIONS

The inventions in question may be divided into three groups:

(1) Invention invented on Earth and used in outer space (too);
(2) Invention invented in outer space and used either in outer space or on Earth (or both);
(3) Invention, which is applicable only in outer space.

As of the first two types of invention, the first-to-file system allows all inventors, to file a patent application under the selected jurisdictions. Though awarded patents are providing protection on Earth, only the flagship principle enables patent protection in outer space on the board of a spacecraft. In other parts of outer space, no applicable patent protection is available.
In a first-to-invent system the patent application is obtainable with different basis. The place of invention was also part of this principle and it is still in force in the US against countries out of the TRIPS agreement. The importance is emphasized in the second case, when invention is carried out in outer space, and so the patentability according to the US legislation is only available on the board of US registered parts of spacecrafts (and now other TRIPS agreement members' parts of spacecraft are also considered as valid place of invention)
The third category of invention rises the most doubt since the invention is not applicable, owned and other was used on Earth and so not subject of enforcement under any jurisdiction.
The only State which however grants patent is the US for such an invention. US Space Bill and patent regulation are extended to outer space too.
The invention considered in this category are orbits for different purpose or frequencies

[2] http://www.unoosa.org/oosa/en/SpaceLaw/treaties.html (date of download: 30 August 2008)
3 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space
[4] Convention on International Liability for Damage Caused by Space Objects

able to transmit signals, but may be any solution, which are not applicable on Earth.

CONFLICTS OF PATENT LAW AND SPACE LAW

The two systems are difficult to use in the same time. The nature of patent law requires the ownership, the limitation in the territory and supports mostly the international private law. In the meantime space law forbids any appropriation in outer space, which means also that an orbit or frequency should not be appropriated. So the granted patent should not be valid according to space law.
Space law has no limitation in territory, while in traditional patent law the patent is applicable in a restricted territory (in the territory of the jurisdiction).
The enforceability of patent is attached to the jurisdiction, which granted the patent. All infringement of patent rights may be challenged at court. However the uncertainty of outer space jurisdiction or even more, the neutrality of outer space questions the possibility to enforce a patent (even if it is granted by one or another jurisdiction).
The patent by its nature ensures monopoly to the entitled of patent right. Monopoly is contrary with the main principles of space law, namely the Art. 2 of OST.

> *"Outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means."*

Outer space should used according to OST on an equal, non discriminatory basis, and to the benefit of all countries (irrespective whether the country managed to get out to outer space, or not)

JURISDICTION

As already mentioned above, as a main rule, there is no jurisdiction settled in outer space. However on board of spacecrafts a certain regulation is needed, for which the flagship principle is the most accepted. It means that the applicable law is that of the State of registry.
State of registry can be any of the launching States according to the Art. 1 of the Registry Convention:

> *"The term "launching State" means:*
> *(i) A State which launches or procures the launching of a space object;*
> *(ii) A State from whose territory or facility a space object is launched;"*

In the practice, more launching States are available for the same spacecraft, as such a mission is usually carried out by more nations. Accordingly the most favourable legal environment is chosen for a State of registry.

International Space Station

The International Space Station ("ISS") is nowadays biggest challenge regarding jurisdiction. The Intergovernmental Agreement ("IGA") was signed in 1998 and foresees the meaning of "intellectual property" as it is laid down in the Convention establishing the WIPO.
Patents and other intellectual property rights are regulated under Article 21 of IGA. As the US contributed an important value in the ISS, the applicable regulation is closer to US solution. The place of the activity is dominant when determining the jurisdiction to apply. Each element of ISS is registered separately and so the plurality of State of registry is at stake. In this aspect the word "international" in the name of the ISS

reflects less to the reality, as several jurisdictions are present in parallel.
The territoriality is applied to the crew as well. Even if an astronaut comes from a certain State, the applicable law remains that of the element of the ISS.

FUTURE TRENDS

Today the patent law's future is not decided in relation to space law. The conflicts are more likely to stay though some recent developments.
A close future challenge is waiting for patent law in space. The State of registry is not changeable at the moment, which means that even if a company purchases a satellite, the applicable law will not change at all.
In the Author's point of view, with the more and more intense presence of private sector, it will demand the change of registry according to their State.
On the other hand the State of registry will also want to change the registration, as the liability remains there, while the owner of the satellite is already placed in another State.
We can state that the Registry Convention arrives soon to the point to be changed.
Such a change will effect on the patent as well. If the State of registry is changed, the patent granted by the original State of registry will not be in force in the new one (unless the application was filed in the new State at the same time, or within a short time after filing the original patent.). So the patented invention becomes free for the satellite's new owner, as the documentation has to be handed over during the sale and purchase procedure.

SOLUTIONS

To maintain the enforceability of space law and to switch the patent law in space to a less contested form, a new solution or at least a certain level of harmonization is needed.

World without patent

As a first direction, according to OST, the total deny of patent law would be a simple solution. In that way no more questions would come up related to the non-appropriation clause or related to the extraterritoriality. As no jurisdiction would be necessary, the OST and other treaties related to outer space could be amended without effect on patent law in space.
Although this solution seems to be simple, probably it will not be supported by private sector and not even by State institutes, as the intellectual property and patent rights are more and more valuable and better and better recognized.

Harmonization

A certain level of harmonization would already help in application of patent law in space.
Recently many changes were carried out by WIPO and by some regional organizations (such as European Patent Office), which shows that even on the territories of Earth the harmonization is needed.
A patent law, which is unified in all countries would solve the most of the questions occurring in patent law in outer space. However the conflict with the principle of non-appropriation would certainly remain.

Braking the rules

The most difficult to carry out, but the most effective solution would be to work out a

new way of patentability in space. It would exclude appropriation in a first step.
As a second step, the inventions in space would be used on an equal and non-discriminatory basis, which means that even if a space patent is awarded a free of charge licence or a reasonable price licence would be transferred to any parties willing to use the invention in outer space.
This kind of protection would be effective in all countries and would be enforceable on the Earth according to the legislation of the State where it is applied or infringed.
Such a solution would break up with the elements of the traditional patent definition. It should be paired with an intergovernmental, independent organisation, which would register the patent and would follow up it. In case of infringement of such a patent, this organization would be competent to make a judgement.

CONCLUSION

Recently there were developments on patent law, but still some of the nations are extending their jurisdictions to space (e.g.: US and Germany), which is contradictory of space law.
In case we wish to stay inline with technical and economical development, new solutions are needed.
To obtain the best solution (which is durable as well), we need to define in a new manner the patent law in space. We should not be afraid of do so, but should refer to space law in global, as it was also a pioneer way of approach by rejecting territorial sense of regulations.
For new challenges new answers would provide the best solutions.

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