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The World of 3D Printing : A Test of Applicability of Amending RA 8293 on Patent Infringement

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Abstract:

Technology has been constantly evolving throughout the years, inventions are made to simplify one's everyday life and achieve things that people in the past centuries can only dream of. One of those inventions is the 3D printer, a printer that prints out tangible objects from various materials and Computer Aided Design with a few calibrations. This research is about 3D printing and its Intellectual Property complications. We wanted to question how 3D printing would impact the Intellectual Property perspective and challenges specifically on patent infringement. Through dedicated research and interviews, we have gathered and summarized data on the relation of 3D printing and the R.A. 8293 also known as Intellectual Property Code of the Philippines. 3D printing has yet to fully develop in our country as compared to other international countries. Comparing the laws, policies & the initiatives implemented within Asia such as in Hong Kong and Singapore, Philippines is in need of a comprehensive and strong framework for 3D Printing. Even the World Intellectual Property Organization (WIPO) – the global head of intellectual property, raised the issue of how 3D Printing can give rise to a number of intellectual property problems. We tried to adapt the framework and formulate a proper backbone for the 3D printing to prosper and continue its growth.

Key Words: Intellectual Property, 3D printing, Patent Infringement, 3D printing in the Philippines, Additive Manufacturing

1. Research Background

The world of 3D printing has changed throughout the years. What was once shown in films and video clips of science fiction as an impossible feature has been realized in the 20th Century. With a 3D printer, one can now push on a button and an item is created. Just a design and a concept and you can print anything and any object you prefer. It is now possible to 3D print a physical, three-dimensional object. It may currently have its limitations on what it may print, but as technology evolves so too will 3D printing. It all starts with the virtual design of what you want to print. To create the virtual design one can either 3D scan an existing object, use a 3D modeling platform or software. These virtual designs are called Computer Aided Design

(CAD) file. A 3D printer needs to process a Computer Aided Design (CAD) file before it can print. It can be viewed as the blueprints for the item because it uses the variables and components of the Computer Aided Design (CAD) file to fully layer out the item. This invention brings limitless amounts of possibilities to humanity as a whole.. As according to Rick Smith (2015), "***Industrial 3D printing has reached its tipping point, and is about to go mainstream in a way that will revolutionize the economy.***" He emphasized the idea that with the development of 3D printing it is not far off before 3D printing will be adopted as a regular and normal business tactic or strategy to lessen costs and hasten production of items.

With these possibilities brought about by



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3D printing it is an obvious fact that it is very beneficial to us. However while it brings advantages to the table, it also has its disadvantages. In the legal aspect and legal perspective, 3D printing brings a lot of variables and elements not currently addressed in our laws. Take for instance in Intellectual Property, the owner of a 3D printer may simply 3D scan or 3D model a patented item, print it out, and sell the patented item without the patent owner even knowing. To sue or enforce infringement the patent owner has to find the one who printed his patent. It would be almost impossible for patent owner to find the one who infringe on his patent rights every time a person prints it. Every single one of the printed copies of his patented invention would be a lost potential sale or profit to the patent owner. As according to Gartner (2013), ***“By 2018, 3D printing will result in the loss of at least \$100 billion per year in intellectual property globally.”*** He emphasizes the loss that 3D printing will create in Intellectual Property due to it bypassing current laws.

2. METHODOLOGY

Convenience sampling is used for the **experiential interviews** but with set of qualifications like the respondents had to be in the 3D printing business either as the one who owns the 3D printing business, customers patronizing this industry or people expose or working in this kind of business. The respondents also should have prior knowledge to the concepts of 3D printing in their companies as well as awareness of certain protocols and processes regarding these. Interviewees can be either male or female with no age limit. The interview will also be limited to an estimate of 10 questions and at most 5 respondents since 3D printing industry in the Philippines are scattered and the research is done only for a short period of time.” Thus, using online survey and interviews researchers can assess if the issue to be solved is of great significance to the society and can address the needs of the time.

Furthermore, the adaptation of the **“mix method approach”** where in it is a mixture of gathering and analyzing both qualitative and quantitative data is another method we will use. The interview answers are subject to the method called “sentiment analysis” or the so called “opinion mining” in order to examine whether or not the answers and experiences of the interviewees are in congruence with what other people and key players think years back. Also, in doing this sentiment analysis and in analyzing the gathered opinions and interviews but not to focus on the opinions alone but rather to separate subjective ideas from objective ones. We modified the framework that instead of relying more on the subjective points we will take into account objective points that can help enrich more our conclusion and recommendation later on without any biases.

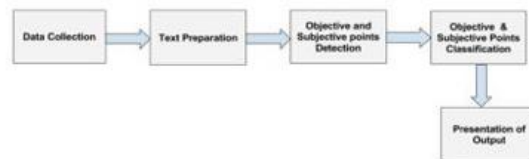


Fig. 4 Modified Sentiment Analysis Framework

On the other hand, as the study aims to delve deeper into the legal matters specifically the laws about Intellectual Property and patent infringement which is very evident in the 3D Printing businesses; a comparative study will be conducted between the laws of other countries have and the laws that the other countries developing the art of 3D printing such as Hong Kong and Singapore have in relation to the Philippine Laws related to patent infringement in the 3D printing business. Hantrais (1995) highlighted in his article that the use of comparative study on researches is used long before to “identify, analyze and similarities and differences among different cultures” which can also be applied among countries.”

3. RESULTS AND DISCUSSIONS



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Around the world, 3D printing is a rapidly emerging and developing industry that impacts numerous sectors of the society. As it continues to develop itself as an important industry, it is an evident fact that 3D Printing industry has big potential in bringing new opportunities and items that were never sought out and used before. However, while 3D printing brings opportunities, it also can pose a threat in various aspects of our society, especially around intellectual property. It constitutes as a patent infringement when it violates the rights of the owner for the protected invention. In the Intellectual Property Code of the Philippines, patent infringement is a civil liability if done once, and criminal if it is repeated. These are governed by the provisions of RA 8393 or the Intellectual Property Code of the Philippines specifically Section 76 and Section 84. To make a clearer picture as to what instances infringement takes place in the 3D Printing setting, certain scenarios were given:

SCENARIO 1 and 2

Jefferson developed an idea of a type of underwater equipment that automatically attaches bait to the hook and helps bait more fish underwater. Wanting to 3D print the underwater equipment, Jefferson asked Yoko to create a CAD file of the idea. Leaving Yoko to configure the specifications of the length, width and size, Jefferson gathered the materials needed to print the underwater equipment and Jefferson's patented invention was registered as a patent.

Angelica registers her patent for a car floatation device. Pleased with her work, she then manufactures it. Wilson seeing the invention and how it could generate profit for him deviously copies it, creates a CAD file and sells it. To add insult to injury he also publishes it on the Internet. All these acts without the permission and consent of Angelica. Now suppose Maya, an unknowing 3D printer owner, sees Angelica car floatation device and its CAD file while browsing the Internet. Maya believing it to be a free and open file, downloads it off the Internet, calibrates her 3D printer for the leg

brace and prints it.

Questions:

1. Is Jefferson the only owner of the 3D printed underwater equipment or partner or co-owner? If someone else created a CAD file of a fishing gear, would it classify as infringement towards Jefferson? Then, did Wilson infringe on the Angelica's car floatation device and would it be fair to Maya despite not knowing it was stolen?

Whether or not one becomes liable for Patent infringement under R.A. 8293 in regards to 3D printing by creating a Computer Aided Design (CAD) file of a protected invention?

Regarding matters concerning patents, it is very unsure as to whether just by creating a Computer Aided Design file (CAD) file one is liable for infringement. In the present law, it is just the making, selling, using of the patent that makes one liable for infringement. However, a CAD file is not making, selling or using the patent. It is simply a three-dimensional design file. A CAD file created for the sole purpose to copy an existing patent and be used to 3D print it would still not be liable for infringement. It is a computerized data of matching specifications for the instructions or blueprints to the 3D printer.

Whether or not the extent of the liability of a patent infringement under RA 8293 should be only to those who act in bad faith?

In scenario 1, Jefferson visualized the concept of a underwater equipment, but asked the help of Yoko to configure the specifications for the 3D printer to be able. In this case there would be two owners, Jefferson the one who visualized and conceptualized the idea and Yoko the one who modified its specifications so that the 3D printer could print it. If for example, Jefferson paid Yoko to create the CAD file or Yoko was an employee of Jefferson and it was part of his job. Then Jefferson would hold all rights over it but he did not, so in this case there are two owners. If a third party did not ask permission and created a CAD file of Jefferson's fishing gear, they would be held liable. In the scenario 2, we want to emphasize why the extent of the



liability should be on those only in bad faith, or in cases where they claim the patent, copyright or infringement as their own despite it being an invention of another person. Those in good faith or without any knowledge should not be held liable if circumstances as the example given, Maya should not be liable for not knowing in terms of awarding statutory damages. Negligence in copyright is a defense, however it may not be the case on patents and trademarks. That is why to ensure that no innocent civilian is negatively affected, only those in bad faith should be penalized in valid and reasonable circumstances.

Whether or not there is a need to amend the law, RA 8293 to cover infringement in the case of 3D printing as to patents?

Yes, in an interview we conducted with Mr. Jefferson Ferrer of Bengzon, Negre and Untalan Intellectual Property Attorneys Law Firm expressed that “*The IP Code is too broad to cover the topic of 3D printing in terms of Intellectual property.*” He further emphasized that since the technology is new and developing, the law needs to meet the current demands of the time and adapt to the changes prevalent in the society. To summarize, almost all our interviewers have vouched and highlighted the fact that there must be an answer to these growing issues of Intellectual Property concerning 3D printing. To be able fully protect Intellectual Property Rights of the public, we must adapt to new technologies that come about. We need to answer to the needs and demand of this rising industry in order to promote the industry while at the same time, creating a strong and solid platform where it can efficiently utilize its potential. To cite In the Economic Research Working Paper No. 28 email by the WIPO, they concluded, “*It is an intricate relationship between innovation and Intellectual Property that must not hinder either side.*” The fact that the global head of Intellectual Property has expressed such difficulty and concern on the 3D printing industry and its challenges just shows how vital and challenging facing these problems are.

As an overview of 3D Printing in our country, we will present a comparative analysis between the Asian countries that are considered as “IP Hubs” within Asia, specifically Singapore and Hong Kong, and the Philippines. This analysis aims to give the readers a more vivid idea as to what is lacking in our present law and address how these two countries developed legal frameworks and laws that would be able to cater to the needs in 3D printing technology.

Table 1. Important Highlights of Similarities and Differences between Philippines, Hong Kong and Singapore

Factors to be Considered	Philippines	Hong Kong	Singapore
1. Laws specifically pertaining to 3D Printing (Patent Infringement)	NONE General Provisions of infringement in RA 8293 (IP Code) applies Sec. 76 Civil Action for Infringement Sec. 84. Criminal Action for Repetition of Infringement	Patent Ordinance (Cap 514) Trademark Ordinance (Cap 559) Copyright Ordinance (CAP 528)	Singapore Registered Design Act Patents Act Trademarks Act Copyrights Act
2. Government Agency	None specifically for 3D Printing Industry and technology Intellectual Property Office of the Philippines Few Programs are from DOST, TESDA and DTI	Hong Kong Productivity Council (HKPC) Hong Kong Plastics Industry Council Intellectual Property Office	SPRING Singapore under Ministry of Trade & Industry Print and Media Association IPOS (Intellectual Property Office of Singapore)
3. Government Support	None Specifically on 3D Printing industry and businesses	Series of Training programs for innovators and continuous review of IP Laws and policies of the country	Singapore Economic Development Board Funded \$500 Million Dollars for the 5 year development plan on 3D Printing Industry Singapore's National Research Foundation funding Nanyang Technology University \$42 Million for 3D printing studies and operations
4. 3D Printing Regulatory Framework	NO	YES	YES
5. Penalties specifically for crimes committed using 3D printing	SECTION 84. Criminal Action for Repetition of Infringement with regards patent infringement (general provision only)	2 Remedies for Patent Infringement in 3D Printing : Injunction Awarding of Damages Awarding of damages of mainly a matter of the amount and degree of loss of the patent holder	Possession of dangerous and harmful 3D Printing products such as 3D Printed guns, knives and sharp objects are illegal with a highest degree of penalty : Death Arms and Explosives Act for anyone to use a 3D printer to manufacture any arms or any component part of any arms without a license.
6. Non Government Agencies promoting 3D printing	Groups of Young 3D Printing Entrepreneurs	Hong Kong 3D Association Hong Kong Plastics Manufacturers Association	Establishment of National Additive Manufacturing Innovation Cluster
7. Initiatives and Programs for 3D Printing	3D Printing Seminars conducted by several IP lawyers and law firms TESDA Courses on Computer Aided Designs, AutoCad designs and CAD Drafting only on 4 places (within Luzon)	Establishment of 3D Printing Centre and Hubs in various cities Promotion of 3D Printing companies nationwide and partnership with various universities for research and development Hosting and Participation on 3D Printing Conferences (Local & International)	Universities funding 3D Printing technology for further research and development Establishment of a “3D Center” in the top University in the country. Hosting and Participation on 3D Printing Conferences (Local & International)



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4. CONCLUSIONS

The current Intellectual Property law the Philippines has which is RA 8293 needs to be amended and updated in order to cater the legal issues that may arise in 3D printing cases such as infringement. There is an evident gap on the regulatory framework or policies in the Philippines that specifically involves 3D Printing technology. There are only few initiatives that the government is implementing in support of this industry. It has a stagnant effect and impact in terms of development.

5. RECOMMENDATIONS

A. Outcome Recommendations in the Field of Law

We as the researches of this will recommend in the Field of Law to analyze the rising 3D printing industry in order to be able to fully utilize its potential.. We recommend that in the field of law there should be new and updated laws that will comply and work along with the 3D printing industry.

B. Formulation and Implementation of initiatives and Programs about 3D Printing

We also would like to recommend to formulate initiatives that would be able to help them know more about this booming industry. In our goal to strengthen further legal standing of 3D printing in the Philippines, we came up of an idea of having as OPLAN 3D-KNOWLEDGE wherein it comprises of 3 stages the government agencies concerning intellectual property can implement or follow to address the pressing concerns of the 3D printing industry in the country.

OPLAN 3D-KNOWLEDGE

1st Project phase will be called **“Info Exploration”** specific government agencies such as Intellectual Property Office of the Philippines with the help of several agencies promoting IP rights in the country form a “technical working group” that will materializes the first phase. It includes series of fieldwork and research about the current status of 3D printing industry in the country. 3D printing companies and businesses’ assembly or forum

can be organized so that they can express their sentiments, recent development or even future plans to further elevate the progress of this industry. This can be until 6 months to be able for the committees study well the industry and its vital details.

2nd Project Phase will be the **“ Strategic Planning And Data Analysis - SPADA”**.All the data gathered will be classified based on degree of importance. The data consolidated will be subject to two tools of analysis: Comparative analysis and SWOT Analysis(Strengths, Weaknesses, Opportunities & Threats). Afterwards the committee will also establish 3D Printing Technology Core Committee that would serve as representative for the said industry.The technical working group should formulate a specific standard in choosing the core committee members that could possibly meet quarterly depending on the specific protocols established.

3rd Project Phase is the **“Framework Formation and Feedback (3F)”**. The core committee with the help of the technical working group will establish a regulatory legal framework or draft of the certain legal rules that can be made. This can serves as a guide for the legislators to see the need for amending the law or formulating a policy that would assist the industry as they develop further as well as protection from possible infringement. Feedback is a means as to what are the end results of the two initial project phases. This serves as an evaluation phase that will determine what are lacking, what’s more to add and the likes. After the implementation of the project, the amendment in the law if possible can be the next thing to do.

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