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**The Essential Role of Intellectual Property Policies for
Educational and Research Institutions:
A Proposal to Implement Intellectual Property Policies in
Higher Education Institutions in the Republic of Armenia**

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LIST OF ABBREVIATIONS

WIPO: World Intellectual Property Organization

IP: Intellectual Property

PRIs: Public Research Institutions

OECD: Organization for Economic Co-operation and Development

R&D: Research & Discovery

AUTM: Association of University Technology Managers

EAPO: Eurasian Patent Office

EPO: European Patent Office

STEM: Science, technology, engineering and mathematics disciplines

ABSTRACT

Learning, research, and civil engagement are core missions of educational and research institutions. These institutions enforce the transfer of knowledge to those in society who can use the investigations and educational materials for public good, and continue to contribute to the development of these resources. Stephen A. Merrill, the author of *Managing University Intellectual Property in the Public Interest* states that, “[The] transfers occur through publications, training and education of students, employment of graduates, conferences, consultations, and collaboration...¹” This means that educational and research institutions have, unknowingly, contributed to the greater good of research and the evolution of educative measures without protecting their intellectual property.

Key Words: *Intellectual Property Policies, Intangible Assets, Universities, knowledge-based societies, intellectual capital*

¹ Stephen A. Merrill, *Managing university intellectual property in the public interest* (2011).

“This new importance of intellectual property in academia reflects a changing view of the relationships of research universities to the surrounding society.”

- Lita Nelsen
Director of the Technology Licensing Office
of the Massachusetts Institute of Technology

INTRODUCTION

As stated in the World Intellectual Property Organization (WIPO), “Intellectual property (IP) plays an essential role in both the research and teaching functions of universities and PRIs. This includes IP created by universities/PRIs and also third-party IP that they use in their work.²” Most educational institutions generate materials in forms of “inventions, scholarly publications, databases, new plant varieties, confidential information, computer programs, etc.”³ Additionally, teaching material also contribute to the public good and the development of scholarly resources. These resources include, but are not limited to: “print publications, theses, software, films, sound recordings, computer presentations and multimedia works.”⁴ Many of these works can be protected by IP, yet it is common for educational and research institutions to disregard, or not be aware of this branch of Intellectual Property law, and the importance of protecting the IP generated under their administration. With the evolution of the internet and other forms of modern technologies that foster greater access to information, it becomes almost impossible to control the access and dissemination of scholarly materials. Thus,

² Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Feb 12, 2020).

³ Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Feb 12, 2020).

⁴ Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Feb 12, 2020).

it is essential for universities and research institutions to adopt suitable IP policies to protect the ownership and use of teaching and research materials.

Armenian universities and research centers, have developed, in recent years, an increasing activity of productive research, obtaining important achievements in applied research projects, aimed at solving problems of the productive sector and offering technological solutions that contribute to the well-being and development of the Republic of Armenia. The research conducted in these institutions, speaks of the students, staff, and faculty's determined vocation to find effective responses to worldwide and national issues. It has, hence, become necessary to protect the results of research and the transfer of knowledge generated in the classrooms and laboratories. We may see such an issue in our own university, the American University of Armenia, where the research incubators such as: the Center of Business Research and Development, Center of Health Services and Development, and the Turpanjian Center for Policy Analysis, among others, have not taken the measure of adopting an IP policy. Implementing a solid IP policy, will result in "effective IP management and knowledge transfer, which provides structure, predictability, and a beneficial environment in which enterprise and researchers can access and share knowledge, technology and IP."⁵ As part of the Armenian community, it is crucial to consider the hard work, dedication, and problem-solving analysis that emerge from these universities and research centers, and analyze the possibilities of protection and commercialization of these developments.

This paper will focus on the importance of an eloquent IP policy and how Armenian universities and research centers, can promote the protection, management and knowledge transfer of IP material. Due to the limitations of the paper, it will not study the vast array of issues and possibilities of how an IP protection can ameliorate an educational institution, and implementing IP policies in universities and research centers in Armenia, but will give a comprehensive overview of the dispute and how to solve it. This research paper will touch on the preliminary findings in regards to IP in education and research institutions, discuss the role of IP in educational institutions and the need for protection of such works, and how academic knowledge is transferred from a

⁵ Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Feb 16, 2020).

university to the public good and the benefits of such diffusion in the economy. Furthermore, it will offer a brief explanation of the Bayh-Dole Act and its impact on universities' IP Policies, in addition to discussing the risks of not protecting such works. Finally, the implementation of an Institutional IP Policy, will be proposed. By introducing such a policy, it will enable Armenian institutions to promote an environment that ensures dissemination and expedited access to the knowledge generated by faculty and students; value the products that result from the research and development activity; and harmonize the interests of all who participate in the execution of projects.

To understand this area of IP law fully, it is essential to analyze a vast array of resources. The paper literature is based on a comprehensive study of the World Intellectual Property Organization (WIPO), of which the Republic of Armenia has been a part of since 1993. The WIPO website and documents contain IP analysis and policies focused on universities and research centers. The work of WIPO in "Frequently Asked Questions: IP Policies for Universities and Research Institutions" is cited throughout this research paper as it contains specific questions and answers in regards to IP in academia. The WIPO lays out the key issues and core concepts and answers questions such as: What is the role of IP in universities and public research institutions (PRIs)? Why do universities and PRIs need an IP policy? And how is academic knowledge and technology transferred and diffused? Among other important questions. In addition, the paper will reference several research articles, scholarly articles, IP presentations, and reputable books.

Among these books, is the work of Stephen A. Merrill *Managing University Intellectual Property in the Public Interest*, this book is an in-depth study on university intellectual property and an analysis on how to implement an efficient IP policy. Merrill states that: "Discovery, learning, and societal engagement are mutually supportive core missions of the research university. Transfer of knowledge to those in society who can make use of it for the general good contributes to each of these missions."⁶ implying that the research and academic works of universities and research centers are beneficial to society. The book studies major issues regarding IP policies in academia, the challenges

⁶ Stephen A. Merrill, *Managing university intellectual property in the public interest* (2011).

of implementing such policies in academic institutions, and the wide dissemination of university-generated research.

One of the most important documents that will be cited in this paper, is the Bayh-Dole Act of 1980 (P.L. 96-517, the Patent and Trademark Act Amendments of 1980), a United States legislation dealing with intellectual property. The Act is decentralized and is applied under the Department of Commerce of the United States. The Bayh-Dole Act nurtured a greater equality in the way IP policies were adopted, this allowed universities and research institutions to take title of most of their scholarly materials. Officials within the agency believed that “the universities and researchers were receiving greater benefits from their inventions and were transferring technology better than the government did...”⁷ Even though the Bayh-Dole Act ideals are firm, it has generated a great amount of debate in regards to its effectiveness.

This paper will propose a solution to how we can protect our community’s research and information, by applying an Institutional Intellectual Property Policy. By introducing such a policy, it will enable Armenian institutions to promote an environment that ensures dissemination and expedited access to the knowledge generated by faculty and students; value the products that result from the research and development activity; and harmonize the interests of all who participate in the execution of projects.

CHAPTER ONE

Intellectual Property in Universities and Research Institutions

Universities and public research institutions (PRIs) play an essential role in research and teaching functions, most importantly in the transfer of knowledge, and greatly contribute towards a country’s innovation and research. These institutions are particularly significant in emerging economies, where, not only is the academic material beneficial to society, but also generate a potential pool of talent whom originate largely from these educational institutions and PRIs. Since the 1980s, originating in the United States of America, and now more commonly seen in developing countries, governments and higher education institutions have been investing in enhancing the capacity in research commercialization and the protection of IP.

⁷ <https://www.gao.gov/archive/1998/rc98126.pdf>

A clear comprehension of intellectual property is important in today's dynamic world, especially with the development of the internet which facilitates open access to publications and works. The Organization for Economic Co-operation and Development (OECD) defines intellectual property as, "the assignment of property rights through patents, copyrights and trademarks. These property rights allow the holder to exercise a monopoly on the use of the item for a specified period."⁸ While it may be beneficial for some research outputs to allow open access to publications, others believe that these works should be protected so that they can be patented and developed commercially⁹.

The World Intellectual Property Organization, generates a crucial link between IP, research, and teaching. WIPO states that academic institutions and PRIs disseminate knowledge through their research and development activities, scholarly publications, data bases, and even teaching materials, among others. It is especially interesting to analyze that a university's teaching material may also be protected under IP policies, most specifically copyright laws, these include but are not limited to "print publications, theses, software, films, sound recordings, computer presentations and multimedia works"¹⁰. As mentioned earlier, the internet and the evolution of new technologies have nurtured the expansion of easy access to these materials, however, these positive advancements have caused countless struggles over the ownership and use of IP¹¹. Hence, universities and PRIs need to adopt eloquent IP policies to protect all sorts of materials.

Awareness of property rights is vital in academic establishments due to the fact that these institutions generate innovations and significant research. Accordingly, the academic community— students, faculty, or staff—should have reasonable protection of

⁸ OECD Statistics Directorate, INTELLECTUAL PROPERTY RIGHTS (IPRS) OECD Glossary of Statistical Terms - Intellectual property rights (IPRs) Definition, <https://stats.oecd.org/glossary/detail.asp?ID=3236> (last visited Mar 6, 2020).

⁹ Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Feb 16, 2020).

¹⁰ Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Feb 16, 2020).

¹¹ Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Feb 16, 2020).

their IP literacy. When mentioning IP protection, it is implied that the academic institution has, at least, policies and methods that allow the creators to have skills and tools to:

- a) Identify, in a timely manner, which creations can be protected and whether they are transferable for public good.
- b) Define ownership, requesting that universities` have clear policies protecting such rights.
- c) Decide on the protection or not of an intellectual creation by means of comprehensive protection strategies that have legal elements, technical, and commercial as well as,
- d) Value, negotiate, and transfer as shares, such as is the case of the State and public and private entities involved in research and development centers that work for the promotion and management of entrepreneurship and innovation.

Universities` and PRIs disseminate knowledge that benefit society as a whole, as these materials include investigations and educational resources which contribute to the development of a nation. The WIPO states that many of these institutions have done this contribution to society by “building close links with local industry and businesses as well as publishing the results of their research¹².” To have control over the dissemination of information, knowledge, and materials, universities and PRIs must adopt a lucrative IP system.

The Transfer of Knowledge

Universities and SPIs are inventors, dispersers, and users of academic knowledge and innovations, thus becoming important factors in the creation of IP. One of the most crucial factors of IP in universities and PRIs, is the wide dissemination of university-generated resources for public good. These materials created by the institutions, are transferred and used for “scientific, technical, socio-economic and commercial purposes¹³” Thus, the public good might include research, materials

¹² Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Feb 16, 2020).

¹³ Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Feb 16, 2020).

addressing societal needs, and even job opportunities, these are disseminated through a variety of channels. The WIPO considers some of these channels to be:

- Publications (technical journals, scientific magazines, etc.) ;
- Presentations and personal contacts (conferences, courses, professional organizations, etc.);
- Patent documents;
- Contract research, sponsored research and R&D collaborations with firms;
- Institution-industry staff exchange;
- Postgraduate projects
- Students entering the workforce;
- Consultancy work by university staff;
- Assignment and licensing of technology; and
- Spin-offs and start-ups.¹⁴

Even though, the transfer method may vary from university to university, and from PRI to PRI, depending on geo-location, history, and the structure of the institution, Stephen A. Merrill the author of *Managing University Intellectual Property in the Public Interest*, determines that the essential goal of the institution is the, "wide dissemination of discoveries and inventions [which] places IP-based technology transfer squarely within the research university's core missions of discovery, learning, and the promotion of social well-being."¹⁵ All of these mechanism, propose important contributions to the economy yet, the most important one for this investigation, is the assignment and licensing of IP. The licensing of IP is critical, although it is not the most important of all the mechanisms stated above, it is the most debated, measured, and quantified of them all and is the most significant mechanism in the scope of this research. Thus, encouraging universities and PRIs to upkeep the flow of ideas to the marketplace, benefiting society as it proposes new products, jobs, and the movement of ideas.¹⁶

¹⁴ Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Feb 16, 2020).

¹⁵ Stephen A. Merrill, *Managing university intellectual property in the public interest* (2011).

¹⁶ Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Feb 16, 2020).

In order to maximize the socio-economic impact of the research results, materials, and ideas, according to WIPO, institutions must ensure that they have disseminated and protected the IP materials meritoriously.¹⁷ In order to protect their material, these establishments must consider all types of dissemination and transfer, for example:

...(e.g. open access publication, licensing, spin-offs, start-ups and collaboration in R&D) and all possible commercialization partners (such as spin-offs, existing companies, investors, SMEs, other non-profit organizations, innovation support agencies, even governments)...

Advantages of Universities and PRIs in the "Knowledge Economy"

The so-called "Knowledge Economy" consists in the transition from the relevance of the factors of production to the development of knowledge and innovation.¹⁹ Its emergence has increased the importance of issues related to existence, protection, costs and benefits of intellectual property. Among the criticisms of the existence of intellectual property rights, the most recurring is that it limits competition and the use of information. Indeed, exclusivity related to intellectual property is a barrier that in some cases prevents society from adapting or using products during a certain period. However, the nations and markets benefit from the existence of innovative goods and services, and high value added. Without these rights, investment in their creation would cease.

The drug research industry is a good example. A pharmaceutical research company invests millions of dollars and between 10 and 15 years²⁰ in the creation and production of an innovative medicine, which must go through different phases study before it proves successful and can hit the market. If due to demand of the new drug their property rights are violated, and a version is marketed illegal of said medicine, the pharmaceutical company has the risk of not recovering the investment. If this happens

¹⁷ Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Feb 16, 2020).

¹⁸ Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Feb 16, 2020).

¹⁹ Stern, S., & Porter, M. E. (2001). National Innovative Capacity. Global Competitiveness Report.

²⁰ Grobmann, M. U. (1995). The Dynamics of Research and Development in the Pharmaceutical Industry. System Dynamics , II, 553-562

frequently, this situation could put at risk the development of new and better medicines. The same is true for other industries, such as academia. Without these rights, companies that are dedicated to developing new products and ideas, would remain with no incentives for research and development of innovations; society would run the risk of seeing the increasing supply in these areas diminished or closed.

Despite the fact that society can be indifferent to the goods and services of innovators and imitators, in the short and long run, only the former guarantee the creation of more and better products. Eliminating innovators through imitation reduce the well-being generated by the creations. As a matter of fact, universities and PRIs are a major contributor to this focus, and have multiple advantages over knowledge production, such as:

- Continuous movement of information and knowledge: discussions of current and fresh topics in classrooms, updating knowledge and events in the preparation of courses, updated state of specific knowledge through seminars and events of an academic nature, research, contacts and networks with other national and international educational institutes, teachers in permanent information.
- In universities, knowledge is disseminated more widely: the university communicates it to its public, and these, in turn, expand it and become reproducers of the knowledge learned.
- The versatility of knowledge agents: universities prepare professionals who go out to the field of society.

Furthermore, in a world where knowledge is regenerated every six years, universities must be protagonists of the technological and information revolution. However, the first step that universities must visualize, it is that they possess intangible assets with great potential in their estates that must be transferable and generate value for themselves.

CHAPTER TWO

The Bayh-Dole Act

In the mid-1970s, the United States Congress began to worry about the lack of use of federal property patents to encourage the development of innovative products of

research and discovery created by universities and PRIs. At that time, only 5% of the 28,000 patents retained by the US government had been authorized for use, while 25% to 30% of industry patents were being applied.²¹ These circumstances led Congress to oversee how the state investigation would be transformed using innovative material created academic institutions. Congress concluded that the barriers were too big and the incentives too small for the academic world or the private sector to develop the technology of patents produced with government support on the research. At that time, there was no discussion about the public sector participation in successive activities.

It was believed, that the main barrier to the use of government patents for IP, resided in the reluctance of agencies responsible for granting these licenses for companies to use and invest in product development. An exclusive license allows a company to have a 'monopoly' on the invention, as an incentive to develop and try the product. Most companies criticized that the process of obtaining exclusive licenses for their IP were slow, that federal agencies imposed too many requisites and that the process was too expensive. For Congress, it was clear that private companies would not accept the risk and cost of developing materials for the open market without obtaining some exclusive rights, and without an easier and simpler way of getting patents for their materials through the designated agencies.²²

On December 12, 1980, Congress adopted the Bayh-Dole Act (P.L. 96-517, Dec. 12, 1980), or the Patent and Trademark Law Amendments Act, a legislation that would essentially boost the economic impact of research and discovery.²³ The Act is decentralized and works under the Department of Commerce of the United States. The Bayh-Dole Act allowed universities and small businesses contracted by the government to receive ownership on inventions derived from their activities. The Act also allowed the creators and contractors to license the technology developed under these patents, for use by small businesses and the private industry. The Bayh-Dole law affirms the intention of "ensuring that the Government obtains the rights in federally supported

²¹ Anthony D So et al., Is Bayh-Dole good for developing countries? Lessons from the US experience PLoS biology (2008), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2573936/> (last visited Mar 28, 2020).

²² US General Accounting Office. 1998. Technology Transfer, Administration of the Bayh-Dole Act by Research Universities. RCED 98-126, Washington, DC. p. 3.

²³ US General Accounting Office. 1998. Technology Transfer, Administration of the Bayh-Dole Act by Research Universities. RCED 98-126, Washington, DC. p. 3.

inventions to meet the needs of the government and protect the public against no use or unreasonable use of inventions.²⁴ its aim is also detailed in *Technology Transfer, Administration of the Bayh-Dole Act by Research Universities*, a document created by the US General Accounting Office. This document states that the Act's two main purposes are:

- (1) To allow universities, not-for-profit corporations, and small businesses to patent and commercialize their federally funded inventions and,
- (2) To allow federal agencies to grant exclusive licenses for their technology to provide more incentive to businesses.²⁵

The effect of this new regulation was the transfer of ownership of the IP and of the benefits derived from it, which enabled to companies obtain licenses and develop products based on the discoveries of University and PRI research conducted with federal funds, and generated full legal protection in regards to product competition. According to the Congressional Research Service of The Library of Congress,

Proponents of this approach contend that these benefits are more important than the initial cost of the technology to the government or any potential unfair advantage one company may have over another in their dealings with the federal departments and agencies.²⁶

The legislation was passed with several clauses designed to ensure that institutions would not abuse the monopoly powers granted to patent holders and licensees. These clauses have been the subject of much debate between IP specialists, and are the cause for concern in the private sector. The private sector is concerned about when and with what justification the clauses would be invoked by the government. The legislation expressed the opinion of Congress that the use of discoveries of state research would improve societal needs, clearly of public interest, even if they have to be carried out by government action.

The Bayh-Dole Act in Academic Institutions

²⁴ Code of Federal Regulations: 2000-, <https://books.google.com.ar/books?id=xUdzhrFdzkC> (last visited Mar 11, 2020).

²⁵ US General Accounting Office. 1998. *Technology Transfer, Administration of the Bayh-Dole Act by Research Universities*. RCED 98-126, Washington, DC. p. 3.

²⁶ CRS. 2000a. *Patent Ownership and Federal Research and Development (R&D): A Discussion on the BayhDole Act and the Stevenson-Wydler Act*. RL30320, 11 de Diciembre. Congressional Research Service: Washington, DC. p. 11.

The impact of the Bayh-Dole Act in connection to businesses is beyond the scope of this report, thus it will focus on the provisions which apply to universities and PRIs. In the past forty years since the implementation of the Act, research study centers and university faculty in the United States, have received a greater autonomy in managing their innovations, “by assuming ownership or by having freedom to pursue licensing opportunities through outside service providers,²⁷” as detailed by Stephen A. Merrill. In 1987, the Department of Commerce issued regulations in regards to university and PRI research and discovery, some of these provisions include:

- The university must disclose to the appropriate federal agency any invention created with the use of federal funds within 2 months of the date the inventor discloses the invention in writing to the university.
- To retain ownership, the university generally must notify the agency of its election to retain title...
- The university must provide the U.S. government a nontransferable, irrevocable, paid-up, nonexclusive license (“confirmatory license”) to use the invention.
- The university must attempt to develop the invention... The government also may take control of the invention for other reasons, such as a need to alleviate health or safety concerns. This provision is referred to in the law as the government’s “march-in” rights.
- When granting an exclusive license, the university must ensure that the invention will be “manufactured substantially” in the United States.
- The university must share a portion of the royalties with the inventor(s).²⁸

Through this infrastructure, institutions have come to expect financial rewards for their research efforts, in the form of royalties and fees for patents and licenses. In the eyes of some university officials, this flow of income is justified as compensation partial for the expenses incurred during the conduction of investigations supported by the state. The federal surveillance of the Bayh Dole act is decentralized, “each funding agency administers the law as it applies to grants and contracts... the bulk of the administration is left to the universities²⁹” In 1995, the US General Accounting Office determined that U.S. universities received about \$12.1 billion in direct federal funds for science and engineering, and research and discover.³⁰

²⁷ Stephen A. Merrill, *Managing university intellectual property in the public interest* (2011).

²⁸ US General Accounting Office. 1998. *Technology Transfer, Administration of the Bayh-Dole Act by Research Universities*. RCED 98–126, Washington, DC. p. 3-4

²⁹ US General Accounting Office. 1998. *Technology Transfer, Administration of the Bayh-Dole Act by Research Universities*. RCED 98–126, Washington, DC. p. 4

³⁰ US General Accounting Office. 1998. *Technology Transfer, Administration of the Bayh-Dole Act by Research Universities*. RCED 98–126, Washington, DC. p. 4

The United States General Accounting Office, held an extensive research in regards to universities which requested high volume of federal funding, in addition Office looked at the level of licensing income.³¹ The Table below shows these institutions, and the funding they attained for their science and engineering, and research and discovery for the fiscal year of 1995. In addition, the United States General Accounting Office looked at the licensing income for the year of 1996, and their ranking among other US universities.³²

Dollars in thousands				
University	Federal research funding, fiscal year 1995 ^a		Licensing income, fiscal year 1996	
	Amount	Rank	Amount	Rank
Johns Hopkins University	\$569,329	1	\$3,091	23
University of Washington	299,631	2	8,651	10
MIT	282,120	3	10,083	8
Stanford University	266,744	4	43,752	2
University of Michigan	243,126	5	1,075	48
University of Wisconsin-Madison	207,504	8	13,092	5
Harvard University	191,499	13	7,642	11
Columbia University	186,179	14	40,632	3
Michigan State University	69,175	55	17,232	4
University of California	1,071,280	^b	63,200	1
Total	\$3,386,587		\$208,450	

^aDoes not include federal funds provided to affiliated organizations, such as research hospitals using university staff or FFRDCs administered by universities.

^bThe University of California has a centralized technology transfer office providing oversight for nine campuses. Since we visited the central office, the total shown is for all nine campuses. The highest-ranking single campus receiving funds was San Diego, which ranked number 6 overall, although 7 of the 9 campuses were among the top 61.

Source: NSF and AUTM.

The universities [The United States General Accounting Office] visited accounted for over 28 percent of the direct science and engineering research funding awarded to universities in fiscal

³¹ US General Accounting Office. 1998. Technology Transfer, Administration of the Bayh-Dole Act by Research Universities. RCED 98-126, Washington, DC. p. 9

³² US General Accounting Office. 1998. Technology Transfer, Administration of the Bayh-Dole Act by Research Universities. RCED 98-126, Washington, DC. p. 9

year 1995 and received 57.1 percent of all licensing income going to universities in fiscal year 1996.³³

Each of these universities, created units to handle IP licensing under the Bayh-Dole Act. These units include: (1) a Centralized Licensing Office where all activities are recorded and centralized, (2) a Decentralized Licensing Office where reporting and licensing are carried out, (3) a Foundation program, where “the licensing activities are carried out by an independent foundation specifically set up for this purpose, although the university may retain an office to handle reporting on Bayh-Dole activities...”³⁴ and finally, (4) a Contractor, in this case, universities contract out their licensing activities.³⁵ Even though, this is a common pattern among many universities, there are others, such as Harvard, whom separate some of their internal units. This is in regards to Harvard’s medical school, where instead of co-joining it in a centralized unit, they have a separate division managing their licenses.³⁶

Since 1980, the Bayh-Dole act has fundamentally changed the United States’ IP system. The Act enabled universities to retain title of their innovations, and since then has generated approximately 4,000 companies.³⁷ The legislation changed the way American universities advanced ideas, materials, and innovations thanks to federal funds which “secured the country’s leadership position in innovation.”³⁸ As a matter of fact, according to the Association of University Technology Managers (AUTM) which conducted a survey in regards to universities, IP, and how federal funds aid the creation of startup companies and innovations. In the year of 2012, “\$36.8 billion of net product sales were generated and startup companies started by 70 academic institutions employed 15,741 full-time employees.”³⁹ The Bayh-Dole Act has become an essential

³³ US General Accounting Office. 1998. Technology Transfer, Administration of the Bayh-Dole Act by Research Universities. RCED 98–126, Washington, DC. p. 10

³⁴ US General Accounting Office. 1998. Technology Transfer, Administration of the Bayh-Dole Act by Research Universities. RCED 98–126, Washington, DC. p. 11

³⁵ US General Accounting Office. 1998. Technology Transfer, Administration of the Bayh-Dole Act by Research Universities. RCED 98–126, Washington, DC. p. 11

³⁶ US General Accounting Office. 1998. Technology Transfer, Administration of the Bayh-Dole Act by Research Universities. RCED 98–126, Washington, DC. p. 11

³⁷ Association of University Technology Managers, Inc., Association of University Technology Managers, Inc., <https://autm.net/AUTM/media/About-Tech-Transfer/Documents/BayhDoleTalkingPointsFINAL1193.pdf> (last visited Mar 12, 2020).

³⁸ Advocacy Efforts for Problems In Tech Transfer, AUTM, <https://autm.net/about-tech-transfer/advocacy/legislation/bayh-dole-act> (last visited Mar 12, 2020).

³⁹ Association of University Technology Managers, Inc., Association of University Technology Managers, Inc.,

legislation not only for universities and PRIs, but also for the United States, state, and local economies.

CHAPTER THREE

The Importance of IP Management in Universities and PRIs

Intellectual property management is held as the process oriented to plan, organize, ensure, and properly coordinate the associated resources to create protectable works, identify these creations in a timely manner, establish rights ownership, design protection strategies, define ways of exploitation, negotiate the transfer of these creations and, finally, monitor and defend protected creations or intellectual property assets. In this sense, the statutes or intellectual property policies of the Universities and PRIs, must establish minimum conditions that give clarity and security on the mentioned aspects, to encourage the relationship of the university with the other actors.

In creating an effective IP management, sharing research, teaching materials, and other innovations with the public, has become an objective for research and academic institutions. It is essential that institutions have a clear and eloquent policy to dictate their knowledge transfer and acknowledge potential risks that may arise from fulfilling the goals of “knowledge dissemination, regional economic development, service to faculty, generation of revenue for the institution, and, more recently, addressing humanitarian needs.”⁴⁰ Therefore, an IP policy is an important requirement for the success between the merge of academia and commercialization of such works.

In addition, an institution should work alongside IP protection laws in order to give endorsements and specific recommendations as a requirement for the request for protection, without ignoring the existence of different contractual forms. In any case, the inventors must request before the technology management program or technology transfer office, according to the case, the accompaniment to define the possibility of exploiting the result of its creation. Despite this, there are some difficulties:

- a) Communication: it is necessary to strengthen the communication channels between Investigators and staff responsible for intellectual property. It is identified that, although there is policy in this area, a relationship of trust must

<https://autm.net/AUTM/media/About-Tech-Transfer/Documents/BayhDoleTalkingPointsFINAL1193.pdf>
(last visited Mar 12, 2020).

⁴⁰ Stephen A. Merrill, *Managing university intellectual property in the public interest* (2011).

be generated, in that researchers recognize the people in charge as their support and, for this, internal communication strategies are required

- b) Timely identification of protectable intellectual creations: as a rule in general, researchers do not have tools that allow them to identify in a timely manner what creations are identified or developed. These are protected by intellectual property. For this reason, the University must accompany in the identification and in the report of possible protectable creations.

The importance of an institutional IP policy is essential in the research, creation, and protection of intellectual property, especially in regards to a collaboration between academia and commercialization.⁴¹ If such a formal document is not generated, then the many stakeholders in a university/PRI nor potential business partners will have guidance on how to deal with the institutions IP.⁴² According to WIPO, an IP policy is a form of proclamation dealing with:

- Ownership of and right to use the IP,
- Procedures for identification, evaluation, protection and management of IP,
- Procedures for cooperation with third parties,
- Guidelines on the sharing of profits from successful exploitation and,
- Mechanisms to ensure respect of third-party IP rights.⁴³

In order for universities and research institutions to create an excellent environment for the production and transfer of IP, they must establish a suitable IP policy that reflects the institution's mission. The IP policy has to complement the way the institution is run, the learning goals, and the objectives in regards to research, discovery, and the implementation of new ideas.

An IP policy should at the very least ensure that there are arrangements in place for sharing any commercial returns from commercialization of IP, that recognizes the range of IP activities of the university, and that

⁴¹ Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Mar 14 2020).

⁴² Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Mar 14 2020).

⁴³ Frequently Asked Questions: IP Policies for Universities and Research Institutions, WIPO, https://www.wipo.int/about-ip/en/universities_research/ip_policies/faqs/index.html (last visited Mar 14 2020).

displays a balance of engaging in IP work for reputational benefit, for positive social and economic impact, and for fiscal returns.⁴⁴

It is essential to consider that the creation of an effective IP policy, is not the case in which one size fits all, as a matter of fact, different institutions apply a different emphasis in regards to their missions in academics, research, discovery, and students. Nonetheless, even though it is important for institutions to create an IP policy which is accordant with their present and future goals, areas where IP protection is required is essentially the same for all: Protect all innovations.

The Benefits of IP and the Business Model

The first step in setting up an IP management system that works within higher education institutions is to recognize what the particular establishment needs. As mentioned prior, each institution has different needs and wants, yet IP is beneficial to all as it provides a stream of commercialization very difficult to attain otherwise. What is often disregarded is that IP strategies enhance the value of the institution, hence there are several reasons why these higher education establishments should consider to adopt an IP policy. The *Intellectual Asset Management for Universities* published by the Intellectual Property Office in the United Kingdom, states that: a lot of the IP that universities/PRI's generate is beneficial to teach and research activities within the organizations, universities/PRI's can also develop the capacity to transfer this knowledge for societal and economical applications, and, lastly, the research and discovery transmitted through conferences, teaching, and publications, creates new knowledge and provides information for academia and business and can be crucial for the future of a society.⁴⁵ The report concludes that, "These key mechanisms for use of IP are all tied to revenue generating possibilities, either through the universities' core business (in the first case) or through a variety of non-core mechanisms."⁴⁶ There are innumerable ways

⁴⁴ Phil Clare et al., Executive Summary, Intellectual Asset Management for Universities pg. 3, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/308072/ipasset-management.pdf (last visited Mar 16, 2020).

⁴⁵ Phil Clare et al., Executive Summary, Intellectual Asset Management for Universities pg. 11, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/308072/ipasset-management.pdf (last visited Mar 16, 2020).

⁴⁶ Phil Clare et al., Executive Summary, Intellectual Asset Management for Universities pg. 11, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/308072/ipasset-management.pdf (last visited Mar 16, 2020).

in which IP influences universities and PRIs, therefore it is crucial for these institutions to find a balance between academia and business.

The idea, is that all universities/PRIs consider the roles listed above within their policies and laws, however these same institutions should focus on protecting their own material. For example, universities should consider protecting and, maybe even, franchising their course materials and designs, for example: presentations, handouts, research papers, and other academic material. These materials are a university's strongest form of IP. On the other hand, a more research oriented institution should focus more on attaining licensing for the research and discoveries, in order to attract more investments. Once an institution has recognized their goals in regards to a university business model, it is important to look at all the benefits that can be gained from applying an eloquent IP policy.

When it comes to universities, there has been an evolution in regards to courses they teach and materials they use. New technologies and innovations, have forced academic institutions to change the way they teach, and even adopt and design new courses to meet the demands of this new age.⁴⁷ According to the *Intellectual Asset Management for Universities*, course materials can be easily copied and are often difficult to distinguish between universities: "A key barrier to entry is the effort required to create, design and validate a new course."⁴⁸ A handful of universities have considered policies that protect and manage IP in teaching and course materials, these IP policies may create debate among academia; nonetheless, the IP policies are required in order to protect the university's intellectual property, protect the institution's market position and freedom to operate, and, most importantly, protect students and staff whom invest their time and efforts into the creations of such materials.

Exceptional universities are great sources of knowledge, the main source of transfer of knowledge is through teaching students, however there are many other ways these institutions disseminate information. Universities are constantly creating new knowledge, the most significant source of data is acquired in the public domain, for

⁴⁷ Phil Clare et al., Executive Summary, *Intellectual Asset Management for Universities* pg. 12, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/308072/ipasset-management.pdf (last visited Mar 16, 2020).

⁴⁸ Phil Clare et al., Executive Summary, *Intellectual Asset Management for Universities* pg. 12, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/308072/ipasset-management.pdf (last visited Mar 16, 2020).

example in, journals, essays, presentations, curriculums, and even student's thesis papers.⁴⁹ In regards to students' materials, the *Intellectual Asset Management for Universities* states that "universities need to uphold the rights of postgraduate students to have their theses examined and to publish their results in the public domain in order to establish their research careers."⁵⁰ In addition, the university must preserve the right for academics to publish and protect their research, as this can intersect with commercial contracts and IP protection licenses; this can be done by educating university faculty, staff and students on the significance of filing patents before publishing,

In research institutions, such as PRIs, IP created when a private organization and government sponsorship is involved, can become combative.⁵¹ The Intellectual Property Office in the United Kingdom discusses that:

The biggest challenge in effective contracting is ensuring the right to publish and the right to use for continued research. Contracts which cede control of IP without due thought will often compromise a researcher's ability to build knowledge cumulatively and may also allow a third party to restrict the university's freedom to conduct and publish future research.⁵²

The United Kingdom office also states that these issues may also arise when university IP licenses are negotiated. For research institutions, it is essential for IP policies to cover negotiations that deal with the rights that derive from commercial benefit and also protect all future academic research and publications⁵³. As mentioned before, an "applicable to all" policy is not wise as all PRIs and research facilities have different goals in regards to projects and discovery. For PRIs, it is crucial to discuss and identify the different goals, motives, and issues that may arise in their projects, in order to have a

⁴⁹ Phil Clare et al., Executive Summary, *Intellectual Asset Management for Universities* pg. 13, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/308072/ipasset-management.pdf (last visited Mar 16, 2020).

⁵⁰ Phil Clare et al., Executive Summary, *Intellectual Asset Management for Universities* pg. 13, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/308072/ipasset-management.pdf (last visited Mar 16, 2020).

⁵¹ Phil Clare et al., Executive Summary, *Intellectual Asset Management for Universities* pg. 12, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/308072/ipasset-management.pdf (last visited Mar 16, 2020).

⁵² Phil Clare et al., Executive Summary, *Intellectual Asset Management for Universities* pg. 12, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/308072/ipasset-management.pdf (last visited Mar 16, 2020).

⁵³ Phil Clare et al., Executive Summary, *Intellectual Asset Management for Universities* pg. 12, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/308072/ipasset-management.pdf (last visited Mar 16, 2020).

solid protection of their intellectual property and benefit from present and future commercial profit.

IP is the core of university and PRI activities, due to this, IP should be considered one of the most important aspects of an institution's goals, be it in business or academia. It is important to determine how IP can be used strategically in scholarly, commercial, and economic facets. By investing in IP management and introducing an effective IP policy will generate a great economic return to the institution, in addition to adding value to its reputation.

WIPO University Initiative and IP Policies for Universities and Research Institutions in Transition Countries

Intellectual property seeks to protect creativity, effort, and investment; as well as recognition, exclusivity, economic and social utility. It is the mechanism of protection, acquisition, alienation and management of art, literature, knowledge, science, and technology. This is a key tool in a knowledge society, in a knowledge economy. Knowing how to exploit it, on the part of the university/PRI, is an incentive for creative activity, research, development, and as a source of information in the framework of science and technology, necessary in the expansion of the economy.

The importance of intellectual property in universities does not lie solely in the competition to achieve patent figures within international standards, the motivation for investment in research and development; but rather, that it has a visibly economic framework and protection of the institution's image and recognition. Intellectual property in universities and PRIs is so important, that World Intellectual Property Organization has developed a project called the "WIPO University Initiative...which encourages universities and R&D institutions in developing countries to create, protect and exploit IP assets."⁵⁴ This program, is focused on universities and research institutions of developing countries and countries in transition to market economies, with the intention that they become aware of intellectual property, adopt policies in this area, analyze and exploit their intellectual property assets, and make an effective transfer of science and technology

⁵⁴ WIPO University Initiative, World Intellectual Property Organization (September, 2005), https://www.wipo.int/wipo_magazine/en/2006/05/article_0007.html (last visited Mar 18, 2020).

The WIPO University Initiative was adopted by the member states of WIPO in 2002, “to assist universities in building IP and technology management capacity.”⁵⁵ This initiative is administered by the Innovation and Technology Transfer Section of WIPO, and currently has more than 250 partner universities and research institutions.⁵⁶ The WIPO determined several specific features which define a transition and developing country. These specific features include:

- Lower IP awareness inadequate in comparison with the growing performance of the industry and export of the products
- High cost of international protection of IPRs
- Low awareness of legal aspects at research institutions, universities as well as within the business sector
- Lack of qualified mediating entities such as technology transfer agencies and IP/licensing agencies
- Level of economic development and place in the world economic sharing lack of match between business and technology needs - EU component - enforcement issues.⁵⁷

According to Yumiko Hamano, a senior programmer officer, WIPO University Initiative Program Innovation and Technology Transfer Section, Patents and Innovation Division, in the World Intellectual Property Organization positions that, governments and universities in developing countries are constantly and progressively investing in research and discovery activities.⁵⁸ However, these institutions have not leveled up to the full benefits from this investments due to the lack of knowledge in regards to the IP and transfer of knowledge sector. Hence, Hamano states that developing countries need to build an eloquent IP infrastructure and skills in its respectable institutions in order to protect and benefit from their research and discovery, these include: “Set up technology transfer offices, develop institutional IP policies, establish an effective technology

⁵⁵ Yumiko Hamano, PPT (2011).

https://www.wipo.int/edocs/mdocs/aspac/en/wipo_ip_han_11/wipo_ip_han_11_ref_t9.pdf

⁵⁶ Yumiko Hamano, PPT (2011).

https://www.wipo.int/edocs/mdocs/aspac/en/wipo_ip_han_11/wipo_ip_han_11_ref_t9.pdf

⁵⁷ Michal Svantner, PPT.

<https://www.teknoloji transferi.gov.tr/TeknolojiTransferPlatformu/resources/temp/44FBBF3D-4E8A-4E78-8826-35043B29A8A4.pdf>

⁵⁸ Yumiko Hamano, PPT (2011).

https://www.wipo.int/edocs/mdocs/aspac/en/wipo_ip_han_11/wipo_ip_han_11_ref_t9.pdf

transfer mechanism, and develop effective collaborations between university, industry-government.⁵⁹

Mr. Michal Svantner, Director, Division for Certain Countries in Europe and Asia, in the World Intellectual Property Organization, states that by adopting the WIPO University Initiative, it assists universities and PRIs to create their own IP policies, helps “identify the legal and institutional elements of the early stage innovation systems (such as innovation and IP laws, roles of the central innovation promoting bodies, IP policies, TTOs, licensing activities, spin-offs, incubation),⁶⁰ aids in implementing the best practices for each developing country, in addition, it lays out a reasonable model of IP in universities and PRIs in countries in transition, offers legal assistance and IP management, and, lastly, provides an efficient evaluation and records of IP works by individuals in said institutions.⁶¹

Intellectual property policies are a valuable asset in order to exploit the potential of an institution. There are no arguments with the fact that a university and research center are the incubators of innovation. These magnificent ideas are later turned into products and services with aids in the development of a nation. Developing and transition countries should develop a powerful system, and attempt to join the WIPO University Initiative, in order to exploit all resources, and turn their investments in research a discovery into an economic benefit.

CHAPTER FOUR

Intellectual Property Rights in Universities and PRIs in the Republic of Armenia

The institutionalization of the protection of intellectual property rights in the Republic of Armenia, was established after the fall of the Soviet Union in January 1992, with the establishment of the Patent Office Under the Government of the Republic of Armenia and was later followed by the establishment of the National Agency of

⁵⁹ Yumiko Hamano, PPT (2011).

https://www.wipo.int/edocs/mdocs/aspac/en/wipo_ip_han_11/wipo_ip_han_11_ref_t9.pdf

⁶⁰ Michal Svantner, PPT.

<https://www.teknoloji transferi.gov.tr/TeknolojiTransferPlatformu/resources/temp/44FBBF3D-4E8A-4E78-8826-35043B29A8A4.pdf>

⁶¹ Michal Svantner, PPT.

<https://www.teknoloji transferi.gov.tr/TeknolojiTransferPlatformu/resources/temp/44FBBF3D-4E8A-4E78-8826-35043B29A8A4.pdf>

Copyright, in December of 1993.⁶² In 2002, the Intellectual Property Agency of the Republic of Armenia was created thanks to a merger amongst two organizations which, to date, act within the Ministry of Economy of the Republic of Armenia.⁶³ As laid out by the Ministry of Economy and the Intellectual Property Agency of the Republic of Armenia, the Republic of Armenia is a member of several international organizations whose aim is to protect the country's IP, these organizations are: the World Intellectual Property Organization (WIPO) joined in 1993 and the Eurasian Patent Office (EAPO) joined in 1995, in addition, the Intellectual Property Agency works alongside the European Patent Office (EPO), among other international and regional offices.⁶⁴

The Republic of Armenia has many important higher education institutions, including Yerevan State University (all faculties), the State Engineering University of Armenia, and the American University of Armenia, among many others. These institutions set the standard for the level of education provided to Armenians and provide leadership in the development of curricula and discovery and research. In Armenia, obtaining a higher education is regarded greatly. As a matter of fact, most individuals having minimum a high school education. According to *Science and Technology in Armenia: Toward a Knowledge-Based Economy*, during the Soviet Union, Armenia was the republic with the most graduates from higher education institutions.⁶⁵ Most students take the path of majoring in STEM (science, technology, engineering and mathematics), a tradition that has sustained since the Soviet Union, where the most recognized doctors and scientists were Armenians. However, new generation individuals are not as incentivized enough to produce research and discovery as were the prior generations because, they are aware that most of their works will not be protected. It is essential that universities and PRIs adopt an IP Policy in order to protect the generated work.

In comparison to the rest of the world, the Republic of Armenia does not excel in matters of understanding and applying intellectual property rights in universities and

⁶² Helix Consulting LLC, General Information Intellectual Property Agency (2020), <https://www.aipa.am/en/about-us/> (last visited Mar 23, 2020).

⁶³ Helix Consulting LLC, General Information Intellectual Property Agency (2020), <https://www.aipa.am/en/about-us/> (last visited Mar 23, 2020).

⁶⁴ Helix Consulting LLC, General Information Intellectual Property Agency (2020), <https://www.aipa.am/en/about-us/> (last visited Mar 23, 2020).

⁶⁵ Science and technology in Armenia toward a knowledge-based economy, (2004).

PRIs. Armenian universities and research centers excel in the creation of intellectual property, be this research or academic material, among others; yet, the protection of these materials have not yet been implemented. IP in higher education institutions is a complex issue that raises controversies such as the debate about the extent to which knowledge products must be of access to all, to arguing the protection and guarantee remuneration of the researcher and creator of that knowledge. The most recent IP report generated by the Intellectual Property Agency of the Ministry of Economy of Armenia, is of 2018. This report displays that that year, there were only 34 applications given to higher education institutions to protect their IP.

THE TABLE SHOWS THE RATIOS OF APPLICATIONS RECEIVED FROM NATURAL PERSONS AND LEGAL ENTITIES IN 2018.

Applicant	Number of applications	% of the total number of applications
Natural person	91	64,54%
Legal entity, Including :	50	35,46%
Higher Educational Institution	34	24,11%
Commercial organization	11	7,80%
Scientific institution	5	3,55%
Total	141	100%

SOURCE: Yerem Chakhoyan et al https://www.aipa.am/u_files/file/AnnualRep/AnnualReport2018EN.pdf

Works are created in the university environment, such as scientific articles or PhD/Master’s Thesis, and other benefits are generated for which rights are also recognized, such as musical performances or audiovisual recordings. By the mere fact of its creation, or obtaining intellectual property rights, are attributed to those who have created it. In other words, these people (authors, interpreters, etc.) need to go to the registry and adopt any formality so that their right exists, they can exercise it and demand respect to it. The Republic of Armenia’s *Law on Inventions, Utility Models and Industrial Designs*, Article 41: The Right Holder, protects the rights of the inventor, be this a faculty member, staff, or researcher. The law states that:

(9) Within the framework of teaching and/or research work duties in institutes of higher education or scientific and research... centers the

right to obtain an invention patent or industrial design certificate created by a lecturer or scientific employee, researcher belongs to a higher education institution or scientific center, if it is envisaged by the contract concluded between them.⁶⁶

When teachers and students create works or produce other types of services in a university, and they do it with the requirements and in the circumstances established by the Law, the original ownership of the rights is granted to them. Basically, it is up to you to decide on the disclosure of your creations. They also decide whether to exploit them or not, and if they do it personally or through third parties. Therefore, companies, entities or individuals who intend to reproduce, distribute, communicate or transform their works and benefits, will have to ask for their authorization, and in case it is agreed to deliver the corresponding financial consideration.

Adopting an IP Policy

Armenian institutions have developed in recent years a growing activity of productive research, obtaining important achievements in projects of applied research, aimed at solving problems in the productive sector and offer innovative research, discovery, and solutions that contribute to the well-being and development of the Republic of Armenia. This paper clearly determines the importance of adopting an IP policy, by carrying out developments that provide effective answers to academic and industrial requirements. Hence, it is necessary to protect the research and transfer of knowledge generated in classrooms and laboratories. It is important to value applications, services, and products that emanate from said work, and analyze the possibilities of protection and commercialization of these developments.

This need for an eloquent IP policy is answered in this proposal of an Intellectual Property Policy for universities and PRIs. This suggestion, will allow institutions to promote an environment that ensures the dissemination and expedited access to knowledge generated by students, faculty, staff, and researchers; value the products resulting from research and development activity; and harmonize the interests of all who participate in the execution of R&D projects. The IP policy, is a fundamental pillar

⁶⁶ Law on Inventions, Utility Models and Industrial designs, The Law of the Republic of Armenia on Inventions, Utility Models and Industrial designs - Laws - Intellectual Property Agency (2008), <https://www.aipa.am/en/PatentLaw/> (last visited Mar 24, 2020).

in university and PRI activities in the field of research, innovation, and development of knowledge, since it constitutes a clear guide and responds to institutional needs and characteristics. An IP will allow these institutions to effectively conduct and perform all matters successfully.

It is most certain, that an IP policy will guide academic institutions in the right directions, and lead the institution to, not only be a successful learning facility, but also be capable of generating new development and bring that knowledge to society and the industry, while also safeguarding the valuable work that academics, students, and researchers do.

In the Appendix of this paper, a proposal of a potential university/PRI IP Policy will be laid-out.

CONCLUSION

In general, it can be argued that an adequate exploitation of intellectual property will allow great contributions to the development of universities within a society that operates in a knowledge-based economy. It is recognized and accepted worldwide, that the functions of the universities and PRIs are divided in three axes: teaching, investigation, and extension. In the three fields, intellectual property makes practical contributions. Intellectual property is a very useful legal tool for universities and PRIs, which have to envisage themselves, as key players in a game of global dimensions, taking on the role of innovators in the region.

All intellectual property concepts have an important, but not unique, direction, which is the university funding. These concepts and the university competition that may arise, although these tend to be taught within an economic framework of neoliberalism, these can also be thought of from a social perspective, since the university mission does not focus simply on the foundation of economic wealth, but also on the commitment it assumes with society by becoming an axis of development and growth by training professionals; Moreover, by training individuals whom contribute to the future of a community. One of the elements of social impact, in regards to the economy, university can offer a generation of knowledge in areas of industry and commerce, and how it

works. This creates employment, more wealth, fluctuates the economy and generates intellectual dynamism.

The social function of the universities, also takes shape when it begins to enjoy the quality of life that the literary and artistic works bring, in addition to, scientific and technological advances. University and PRI advances, also provide an improvement in the health sector, enhancements in productivity, the creation of new employment, access to specialized services, and it encourages competitiveness and the generation of research.

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ANNEX

PRINCIPLES & OBJECTIVES

- To promote the development of the arts, sciences and technology through creation and communication.
- Investigate with the objective to develop knowledge and the expansion of innovative solutions for current problems in society.
- Promote and foster the national culture of innovation and entrepreneurship.
- Promote innovation and entrepreneurship at the regional, national, and international level.
- Encourage the development of intellectual property and the transfer of knowledge for the development of the university and society in general.
- Disseminate the results of the investigations carried out.

- Promote associativity with other universities, companies, centers of research or with other organizations in order to facilitate research and application of the generated results.
- Promote and diversify research lines, in order to generate new areas of potential development.
- Contribute to business technological innovation.
- Encourage the creation of resources, be they social or economic for the education and research.

I. General Provisions

This policy regulates the protection, use, management and transfer of property intellectual and industrial of the University, its academic, research, administration and students, whether they are permanent or temporary, and their associated entities and Centers.

The University will respect national and international regulations as well as rights of third parties in matters of intellectual and industrial property.

II. Ownership of Intellectual Property Rights

The University will recognize the intellectual and industrial property rights of authors and inventors on all those creations or inventions created by them.

Notwithstanding this, all economic rights belong to the University on those creations or inventions generated with University resources.

Attended the social function that the University fulfills, may be accepted from the previously established protection, those developments that are considered essential and urgent for society in general. In this case the University must make a public domain declaration or publications corresponding in order to avoid misappropriation by third parties.

III. Third Party Intellectual Property Rights

The University will respect the intellectual and industrial property rights of third parties, without prejudice to using the exceptions and flexibilities established in the Republic of Armenia's *Law on Inventions, Utility Models and Industrial Designs* Article 41.

IV. Institutionalism of University Intellectual Property

The Office of Transfer and Licensing of the University (once established) will be in charge of the proper management of intellectual property assets generated within the University, having to implement mechanisms for the timely and efficient detection of assets intellectual property of value generated in the projects and define strategies of protection of the same. It will also correspond to ensure the transfer of the results of research and creation, the dissemination and dissemination of the knowledge generated.

V. Protection of Knowledge

Researchers must safeguard the information obtained during development of research, both for academic purposes and for the protection of knowledge generated, recording accurately, clearly and in detail and documenting all the activities carried out during the investigation. Likewise the confidentiality of the information must be protected prior to its disclosure.

Investigators must disclose or disclose in a timely manner all those results subject to intellectual property rights before the body University of intellectual property and transfer, informing or updating the progress. The use of available information will be promoted for the generation of new knowledge.

VI. Transfer of Knowledge

The University must promote the transfer of knowledge for development and well-being of society, proactively executing actions aimed at obtain transfer of research results, promoting the promotion of regional, national and international development. The transfer must be carried out promoting actions such as dissemination y

VII. Benefit Sharing

The economic benefits derived from the transfer of the results of research will be distributed among the University, the Academic Unit, the Researchers and the Office of Transfer and Licensing. The distribution of benefits will be made by establishing a fixed percentage for each one of the beneficiaries as follows:

a) Distribution of Profits derived from the TC

40% Researchers

60% University

VIII. Conflicts of Interest

The University will ensure that its members, be they from the academic body, student, scientific or administrative, act independently and within the moral and ethical standards in the development of their work within the University.

Professionals hired by the University may perform work outside of the institution, in all matters that do not conflict with the principles of the University or competing with the technologies the professional is currently developing.

Direct or indirect resources of the University may not be used for external work, except for incidental purposes.

Non-monetary financing may not be accepted (example: gifts, travel, instruments), without prior approval of the corresponding body within of the University, which will evaluate the background in order to avoid future conflicts of interest.

IX. Dispute Settlement

Any discrepancy, controversy, conflict or interpretive doubt regarding the correct sense and scope, form and opportunity of application of this Policy of Intellectual Property and the University Intellectual Property, will be resolved, in a single instance, by the Office of Transfer and Licensing.