

IP EXPERIENCE



Best Practices on IP valorization:

Handbook on Italian and Spanish best practices of
Intellectual Property exploitation in an academic context

Supported by:



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INDEX

1. INTRODUCTION: WHY TALK ABOUT THE STRATEGIC VALUE OF INTELLECTUAL PROPERTY RIGHTS? WHY IP VALORIZATION IN THE CONTEXT OF UNIVERSITIES?	3
2. INTRODUCTION: IP AS AN UNIVERSITY ASSET AND THE MAIN VALORIZATION PATHWAYS.....	9
3. THE CREATION OF VALUE AND THE DEFINITION OF AN EXPLOITATION STRATEGY: FROM THE IDEA TO THE PRODUCT	16
4. THE LEGAL AND ECONOMIC VALUE OF IP: HOW TO EVALUATE THE PATENTABILITY AND THE REGISTRATION REQUIREMENTS AND HOW TO CALCULATE THE VALUE OF AN INTANGIBLE ASSET .	20
5. ACADEMY-INDUSTRY RELATIONS IN INTELLECTUAL PROPERTY COMMERCIALIZATION AND OPEN INNOVATION STRATEGIES.....	29
6. HOW TO ECONOMICALLY VALORIZE IP THROUGH A UNIVERSITY SPIN-OFF.....	37

1. INTRODUCTION: WHY TALK ABOUT THE STRATEGIC VALUE OF INTELLECTUAL PROPERTY RIGHTS?

By Filippo Silipigni

Intellectual Property Rights (IPRs) are traditionally linked to the ability to fight counterfeiting and piracy and still in the context of the global market SMEs declare strongly that the main reasons for registering IPRs are to prevent others from copying their products or services and to ensure greater legal certainty (EUIPO IP SME SCOREBOARD 2019).

Besides, another aspect of Intellectual Property has been arising and has some untapped potential to grow further: the strategic value brought by Intellectual Property Rights into business activities.

Today this factor appears to be nevertheless of great importance not only for enterprises and companies that already compete on the market but also for start-ups and new entrepreneurial activities that need to grow and to achieve a higher level of maturity and for universities and public research organizations that have recently established the concept of the third mission.

However, despite the different and specific reasons that could drive the actions and attitudes of above-cited actors to register IPRs for strategic objectives, the lack of knowledge on IPRs (what is IP and how to register it?) is still the main reason for not to register IPRs (EUIPO IP SME SCOREBOARD 2019) and wider and deeper diffusion and understanding of the IPRs and their impact on economy need to be pursued.

In such a context, the IP EXPERIENCE project aims to sensitize and empower university students, researchers, and young entrepreneurs on the strategic value that Intellectual Property Rights brings into their future business activities.

As an output of the project, the present handbook aims to shine a light on the theme of the strategic value of Intellectual Property rights in the context of Universities, focusing on the theme of IP valorization, sharing the experiences of university-industry collaboration made by Politecnico di Milano, Milan and Universitat Politecnica de Catalunya, Barcelona.

How Intellectual Property can be a valuable asset in the context of Universities? Which are the possible approaches to valorize an idea in the context of university? How to evaluate the patentability and the registration requirements and how to calculate the value of an intangible asset? Which are the possible exploitation strategies for the results coming from scientific and industrial research?

To provide answers to the above questions, the handbook will present:

- In the first chapter the Politecnico di Milano and Universitat Politecnica de Catalunya will present the general overview of their IP policy;
- The second chapter deals with the importance of establishing well-defined IP strategies to economically valorize an invention, with a specific focus on licensing policy and start-up creation process.
- The third chapter tackles a very tricky issue: how to evaluate the patentability and the registration requirements and how to calculate the value of an intangible asset
- The fourth chapter points out the importance to define IP Regulations to optimize the Academic – industrial relations in the context of intellectual property commercialization and Open Innovation projects.
- The last chapter presents how the two universities evaluate, support, and monitor the invention of their researchers, promoting entrepreneurship within their structures.

The learning objectives of the present handbook are:

- To achieve a greater sensibility on the strategic impact that Intellectual Property can bring to the entrepreneurial and business in general activities;
- To understand that the exploitation of results emerging from research and development activities can be greatly enhanced if such results are duly protected by Intellectual Property Rights and a well-defined strategy of IP protection needs to be defined and undertaken since from the beginning of the creation of such results;
- To understand the possible actions to be undertaken to carry on a valorization of intellectual property rights within the academic context.

In recent times, notable institutions have published significant studies and reports to strongly highlight the importance of Intellectual Property in the economy and in particular for European Union SMEs. Some of the pieces of evidence arising from such studies are directly or indirectly linked to the theme of IP valorization.

In the following, some of such reports are cited with the objectives:

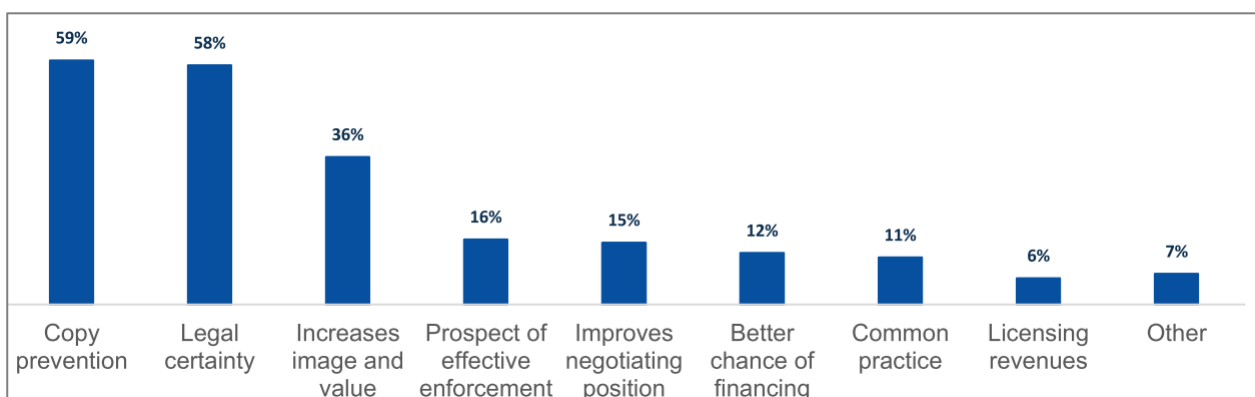
- o To provide relevant insights on ongoing trends running at the European Union level on the use of IP by universities and enterprises, with particular attention to the topic of IP valorization;
- o To complete and enrich the contents of the following articles in the present handbook in the light of such studies. The pieces of evidence hereafter cited can definitively provide grounds of motivations for or a better understating of the experiences and practices adopted by Politecnico di Milano and Universitat Politècnica de Catalunya.

Refer to the full studies for deeper analyses and more details.

Concerning the attitude of enterprises towards intellectual Property rights in general, the **IP SME Scoreboard 2019 edition** published by the European Union Intellectual Property Office-EUIPO provides insights into why EU-SMEs do or do not register intellectual property rights, and what problems they encounter in doing so. The survey interviewed more than 8.300 SMEs in the 28 countries of the EU, operating in 21 different sectors of activity. Half of the firms selected have applied for IP Rights, according to databases of EUIPO and the Worldwide Patent Statistical Database (PATSTAT), provided by the European Patent Office (EPO).

Firstly, it is worth citing the main reasons for registering IPRs according to the opinion of EU SMEs.

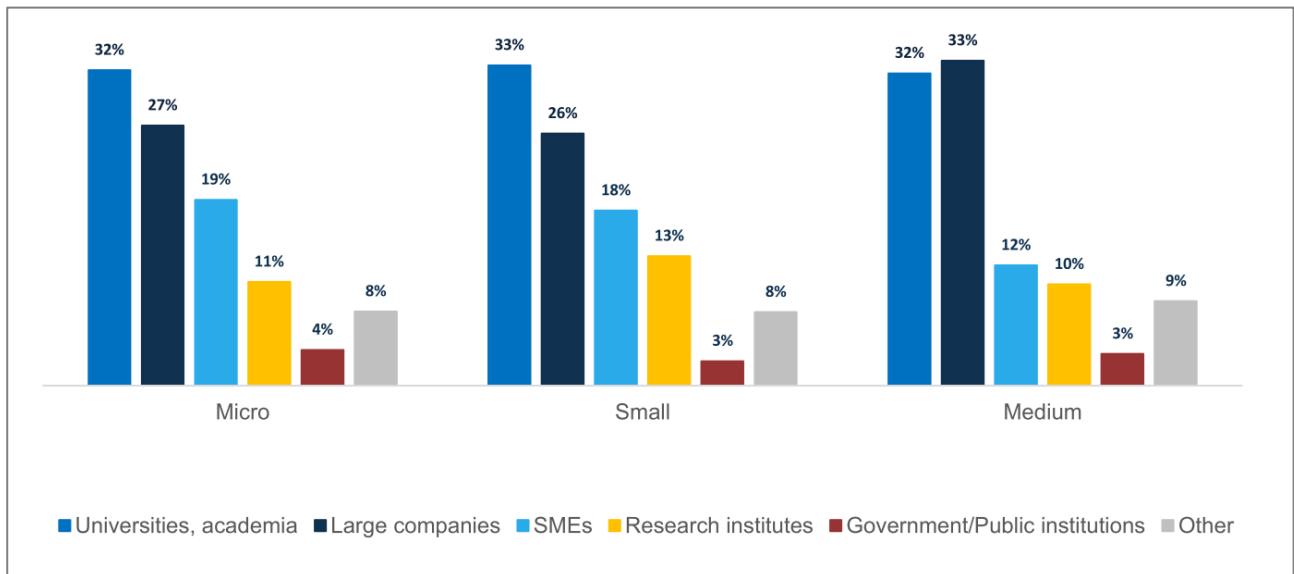
Among the several reasons, IPR owners agree that the three main ones are: to prevent others from copying their products or services (59 %); to ensure greater legal certainty (58 %); IPR has a positive impact on the company's image and value (36 %). Licensing revenues represent the eighth reason for 8% of surveyed.



Main reasons for registering IPRs by EU SMEs in 2019 - EUIPO IP SME Scoreboard 2019 edition (2019)

Among the different analyses, the ones related to the practices of innovation processes are of interest for the topic of IP valorization.

The study reveals that IPR owners are almost twice as likely as non-IP owners to collaborate with other organizations on innovations. Besides, universities and academia are the most recurrent collaboration partners for IPR owners, being involved in almost a third (32 %) of cases. Micro and Small enterprises prefer to collaborate with Universities and academia, while medium companies choose first Large companies (33%).



Collaboration partners by IPR owners, broken down by company size - EUIPO IP SME Scoreboard 2019 edition (2019)

Concerning the topic of monetization of IP rights in general, the same survey can provide an insight into the diffusion of the practice of IP rights license among EU SMEs. The survey unveils that only 24% of interviewed IPR owners have signed a license involving IPR (including patent, confidential know-how or trade secret, trademark, franchising, copyright, design, and other license agreements, such as those that involve alternative protection measures, etc). Only 71% of those licensed their IPRs to other organisations. Only 7% of non-IPR owners have signed a license agreement.



Companies that have signed a license agreement including IPRs – EUIPO IP SME Scoreboard 2019 edition (2019)

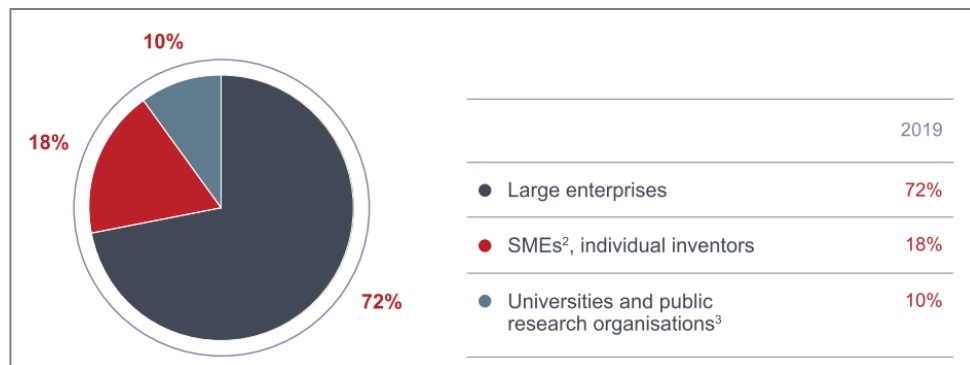
Focusing on patent invention IP rights, as documented by different research studies (among the others, OECD 2019), **in the last years patent applications filed by universities and public organizations are growing faster.**

The EPO- Annual Patent Index reports of the last years provide clear pieces of evidence about ongoing trends concerning the attitude of Universities and public research organizations to file patents.

According to the EPO Annual Patent Index reports, in 2015, only 5% of the patent applications originating from European countries were filed by Universities and Public research organizations, on a total amount of 160.022 patent applications.

Growing with an average rate of more than 1% each year, in the Annual Patent Index 2019 published by the EPO in March 2020, the share of patent applications filed by such institutions reaches 10% of the total amount of 181.406 patent applications filed in 2019. In other words, in five years the amount of patent applications from European countries filed by Universities and Public organizations has doubled.

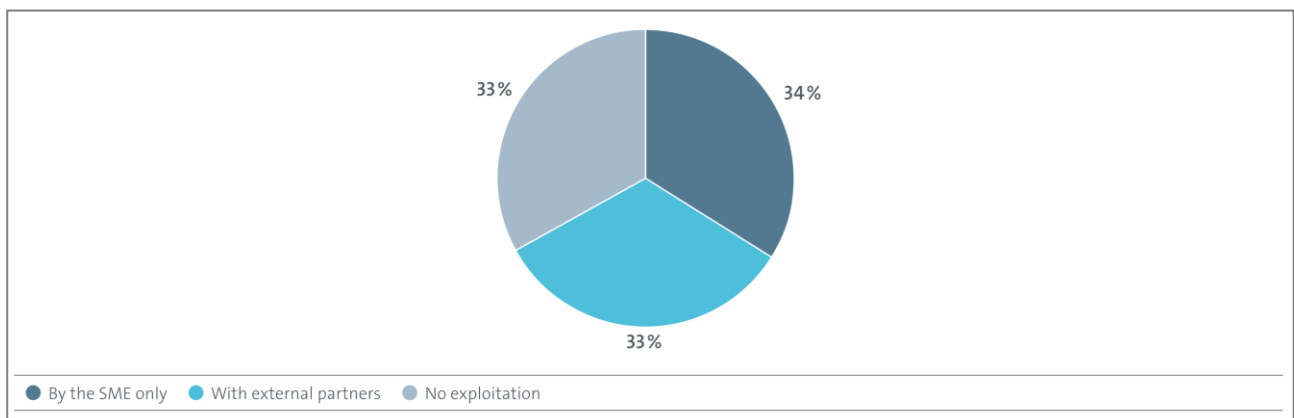
Besides, it is worth noting that nearly one in five European patent applications is filed by an SME (or individual inventors).



Shares in European patent applications originating from applicants based in one of the contracting states of the European Patent Convention – EPO Patent Index 2019 (2020)

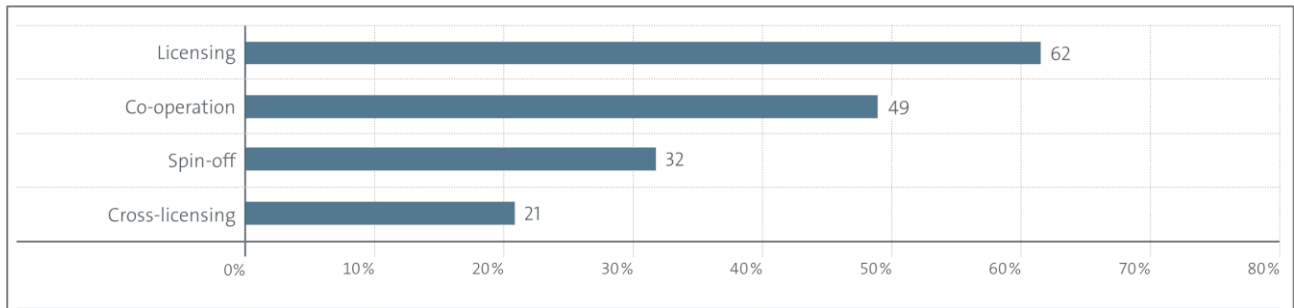
Moving the attention on the topic of valorization of patents, notable pieces of evidence come from the study “Market success for inventions” published by the EPO in 2019 which reveals how European SMEs rely on European patents to protect their high potential inventions. The survey interviewed 1500 SMEs who filed European patent applications with the EPO between 2009 and 2018.

Among the other results, the study shows that **almost two thirds (34%+33%=67%) of the inventions for which SMEs have filed a patent application with the EPO are exploited for commercial purposes**. One third (34%) of all inventions are exploited exclusively by SMEs, and another third (33%) are commercialized in collaboration with external partners, via technology transfers or co-operation agreements. In other words, half of all patented inventions that reach the market are exploited via a partnership.



Type of commercial exploitation used by SMEs which have filed a patent application with the EPO – Market success for inventions, EPO (2019)

The survey details also the forms of collaborative exploitation and **licensing is the most frequent (62%) form of collaborative exploitation undertaken by SMEs**. Almost half of the joint commercialization cases also involve a broader form of co-operation. Nearly one-third of the surveyed SMEs involved in collaborative exploitation create spin-offs based on their patented inventions, while just over 21% co-operate via cross-licensing.

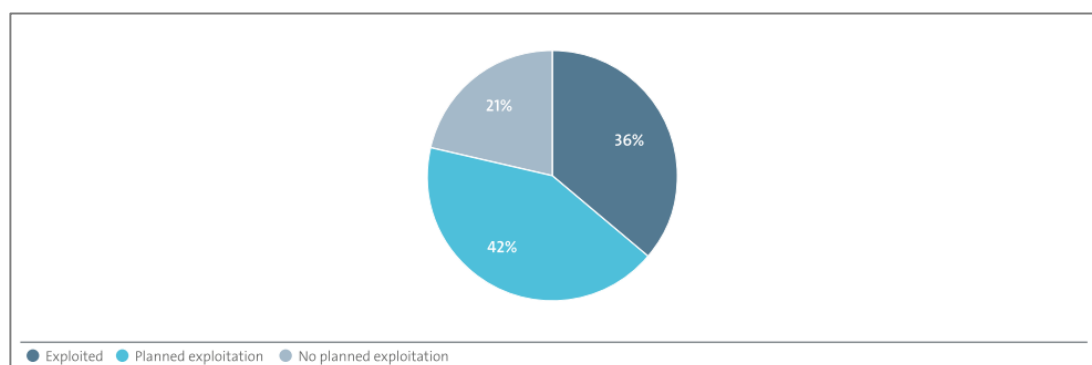


*Forms of collaborative exploitation (if any) used by SMEs which have filed a patent application with the EPO–
Market success for inventions, EPO (2019)*

Finally, a very recent study gives insights also on **how European universities and public research organizations use European patents**.

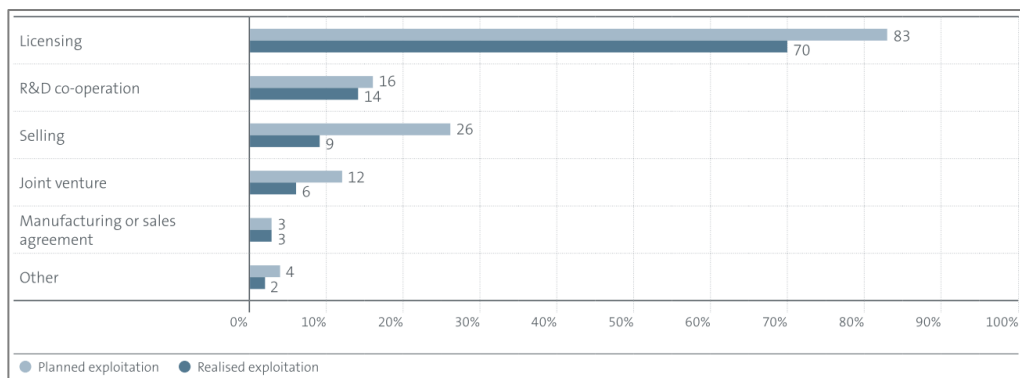
The study entitled "Valorisation of scientific results" published by the EPO in November 2020 have surveyed European universities and public research organizations based in one of the 38 contracting states of the European Patent Convention for a total amount of 1.540 unique institutions, which are mentioned among the applicants for published European applications filed after the 2007 and granted patents by the EPO between 2010 and 2017 (more than 10800 pending European applications and almost 7600 granted European patents).

The study points out **that Research institutions already commercialize more than one third (36%) of the inventions** for which they have filed a patent application with the EPO.



*Stage of exploitation of European patented inventions owned by Universities and Public Research Organisations –
Valorization of scientific results, EPO (2020)*

Among the different forms of exploitation, **licensing is by far their preferred commercialization channel**, with 70% of commercialized inventions.



*Types of exploitation forms used by Universities and Public Research Organisations which are applicants of European applications or granted patents – **Valorization of scientific results**, EPO (2020)*

References:

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2. IP as a university asset and the main valorization pathways

By Annalisa Balloi and Cristina Areste

The creation and dissemination of knowledge, has always been the main aim of every university, along time. However, in recent decades, the global challenge is how to turn academic knowledge into innovation and provide the maximum value to the economy, society, and the university itself. For these reasons, universities are fully aware of the importance of looking at their IP valorization as a strategic asset, concerning their policy. This enables universities to set overall IP strategies that optimize the benefits that can be gained from the use of their IP and to enhance knowledge transfer beyond the simple commercialization of patents.

To create the best IP creation and management, a university must have a suite of IP policies and practices that reflect the university's mission. The policies have to sit in a complementary way with the core objective of knowledge creation, scholarship, and learning. 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 displays a balance of engaging in IP work for the reputational benefit, for positive social and economic impact, and for fiscal returns. However, beyond individual differences, to economical valorize IP, all universities need to consider three main items:

► USE OF IPR FOR BUILDING R&D COLLABORATIONS

The transition from university to business is not obvious or easy. Firstly, very interesting inventions from a scientific point of view may not have any practical application or can be not attractive from a commercial point of view because are a very long way from the market. Furthermore, it is not easy at all to find companies that are willing to invest in inventions created in the university for several reasons that will be discussed further. In many cases, for the companies, is easier to collaborate with the research group in a co-development project. In this perspective, patents can be defined as a "tool" capable of bringing the academic and industrial world closer together thanks to the fact that they effectively present the outcome of research in the form of a product that can be commercialized and express complex scientific activity in a language that a company can understand. This then creates a route for opening conversations with companies which may then result in the company investing in a research relationship with an IPR licensing deal as part of an overall transaction.

► IPR LICENSING AND ASSIGNMENTS

In the academic context, the IP valorization process is a one-way process, from the laboratories of the university to companies, and it can occur in the form of IP Licensing or assignment.

This is a very complex process also because the access to IP rights should be considered in terms of present and future potential uses.

In addition to the entrepreneurial risks related to the market response to the new technology, the main obstacles (or barriers) to licensing are:

- Technological risk: will the device or the product scalable? Can technology be integrated into a consolidated industrial process?
- Protection risk: there is a Freedom To Operate (FTO)? It is possible to circumvent the patent? Will the patent be granted? Will the patent be subject to opposition proceedings or a cause of nullity?)
- Economical evaluation: How much is my patent worth? It is often difficult to make an economic assessment that is accepted both by the university and the company. Many agreements do not pass the negotiation phase.

Care also should be taken so that the granting of licenses does not conflict with existing obligations, or limit the potential future use of a piece of IP in another collaboration or another field, application, or territory. Different forms of a license provide different levels of flexibility and control. For example, a stronger bargain may be able to be struck with an exclusive licensee in terms of reciprocal compensation but this may limit broad dissemination. Non-exclusive licenses necessarily provide greater scope for dissemination but less bargaining power on returns, although the aggregate income from non-exclusive licenses can be greater. Another option is to secure an exclusive license by field or by territory. This will enable an IP proprietor to exploit its IPR in multiple markets that a single company may not be able to target effectively.

► CREATION OF SPIN-OFF COMPANIES

Spin-off companies are usually created to develop research originating from universities into commercial use. They are often created when there is no existing business to approach about a significant breakthrough in a field of work or because the work has clear possibilities to generate many products and applications and so potentially could be extremely valuable. To be effective, a spin-off company will need to bring together various assets and resources to commercialise the IP. These resources include financial support, as well as a specialist management team with skills in finance, marketing, and sales.

This is because, in the contest of an academic spin-off one of the most problematic aspects is the team: in the majority of the cases, these are strong from a scientific point of view but weak in management and business. Moreover within the team sometimes there isn't a common vision regarding the fate of the invention.

Finally, as the spin-offs are legally removed from the institutions, facilities for research and/ or manufacturing are needed, although some IP based spin-off business models will seek to outsource manufacture and distribution. In any case, the collaboration between universities and start-up incubators and access to venture capital is a crucial aspect to help teams in the technological scale-up and business empowerment.

After this general overview on the importance of IP protection and the valorization process in the academic context, here are compared some aspects of the IP policy of two European Technical Universities (Politecnico di Milano and Universitat Politecnica de Catalunya) to highlight similarities and differences of the IP strategies adopted to optimize the benefit of the IP portfolio created by staff and students.

POLITECNICO DI MILANO

With approximately 42,000 students, Politecnico di Milano (POLIMI) is the Italian largest university for Engineering, Architecture, and Industrial Design and it is ranked as one of the most outstanding European universities in these fields. The university has seven campuses located in Milan and other nearby Italian cities and it is organized into 12 Departments, devoted to research and 4 Schools, devoted to education.

The University innovation ecosystem roots on:

- a) High-quality research (attested by the various international rankings);
- b) Close relationship with the industrial world, highlighted by the volume of collaborations with companies supported also by the capacity to make technological facilities available to businesses,
- c) Strong inclination to technology transfer and entrepreneurship: POLIMI was among the first universities in Italy to understand the importance of enhancing the innovation arising from its teaching and research activities.

POLIMI innovation ecosystem mainly relies upon two operative structures: the Technology Transfer Office (TTO), which supports the development and transfer of Intellectual property stemmed from research results and activities (such as know-how, patents, designs, trademarks, software) and PoliHub - Startup District and

Incubator, a company providing support to high innovative startups operating in different fields of innovation.

The TTO and PoliHub work actively in spreading the innovation and entrepreneurial culture inside the University. They build networks for the development of long-standing partnerships with other Universities and Research Institutions and work closely with other TTOs and incubators associations like NETVAL (the Italian TTO'S association), PNI CUBE (the Italian association of incubators and academic business plan competition), and others.

Politecnico di Milano usually follows different valorization models for IP economical valorization.

1 Technology Co-Development

Sometimes further research and development may be required to get a technology ready for the market before pursuing a licensing arrangement. This can be funded in many different ways including collaborative industry funding. The information given to the company will be treated as confidential and all the parties will sign a Non-Disclosure Agreement, regulating the interaction and exchange of information and data. In this case, the researchers of Politecnico cooperates with the Company for the development of new technology and its future market entry. This collaboration is regulated with a:

- Joint-development/research agreement: it is a contract in which the cooperation between a research group and a Company is regulated to develop a technology. The main points of the contract are the definitions of the workgroups and the research activities to be performed, the cooperation time period, the financial management of the activity, the management of the current and the future intellectual property rights.
- Contract Research: this contract is aimed to solve a specific industrial problem or develop a company-owned technology: it is performed by Politecnico based on certain company funding. The IPRs arising from this type of collaboration is managed as follows. The Company and Politecnico will file the first patent application in co-ownership. The Company will cover all the Patenting costs and rewards the Inventors with a sum called "Inventor price". Subsequently, the company could get an exclusive license or the entire ownership of the patent.
- Revenues from the sale and licensing of Politecnico IP rights deriving from funded research are allocated as follows:
 - 80% to the inventor, equally divided in case of multiple inventors
 - 20% to the Technology Transfer Office to cover the costs of patenting, technology transfer, and related activities.
- Open Innovation with Corporate: this kind of process can occur through different activities: call4idea, hackathon, student contests, a tailored spin-off with the corporate as a stakeholder, V.C. investments.

The Technology Transfer Office of Politecnico di Milano manages all the patent applications from the idea disclosures to the licensing of the related invention. The IP strategy is discussed and decided together with the inventors. The TTO collaborates with external IP firms for patent writing and administration. In case of innovation from autonomous research, Politecnico will cover all the filing costs till the licensing of the invention. In the case in which the Patent is transferred to a Company of filed in co-ownership, all the IP process is then followed and funded by the licensor/co-owner with the TTO cooperation.

2 Licensing

The IP rights belonging to Politecnico are transferred to a Company for the commercial exploitation of the technology. A patent license agreement allows Politecnico to give to the Company the exclusive/non-exclusive right to commercially exploit the technology for a specific time and territory, keeping the ownership. These rights are usually granted upon royalty payments as following:

- Exclusive or Not Exclusive License is the grant of certain exploitation rights on the Licensed Technology and allows the Company to make commercial use of the Licensed Technology, in order to develop, manufacture, market, distribute or sell a product, all within the Field and the Territory only, subject to and in accordance with the terms and conditions of the Agreement.
- License Fee: usually Politecnico asks for a down payment for the License agreement that the Company shall pay to Politecnico. The amount is decided with the Company based on the Technology evaluation and the exclusivity or nonexclusivity of the license.
- Royalties: are the amount that the Company has to pay to Politecnico every year, calculated as a percentage of the Net Sales of any Product under the License and usually ranges within 2% to 10% according to the specific technological field.
- Minimum Royalty: usually Politecnico agrees on a minimum royalty that shall be paid annually irrespective of whether the Company and/or its Affiliates and/or its Sublicenses have made any sales of the Products.
- Management of Intellectual Property: the Company reimburses Politecnico for all previously documented expenses and costs relating to the registration and maintenance of the IPRs in the License Agreement and Politecnico shall attend to the filing, prosecution, and maintenance of the IPRs in the agreed Territory, at the Company's expense.

Revenues from the sale or licensing of Politecnico IP rights deriving from funded research are allocated as follows:

- 12% to the inventor's Department to be reinvested in new research projects
- 28% to the Technology Transfer Office to cover the costs of patenting, technology transfer, and related activities.
- 60% to the inventor, equally divided in case of multiple inventors.

3 Creation of Spin-off/Start-up

Politecnico di Milano promotes entrepreneurship within its structures by establishing spin-offs, new high-tech enterprises aimed to transform the scientific and technological know-how into innovations that can be exploited from a commercial viewpoint through the realization of products or services.

In this case, TTO and Polihub will collaborate closely and advise the researcher on the best practice and all the guidance in order to help the new company to succeed. The University does not directly participate to the new company equity share, whereas Polihub selectively does.

The creation of the V.C. Poli360 fund allows to support entrepreneurial projects and stimulate the collaboration of corporate partners. The aim is to impart both internationality and scalability from the very outset of the spin-offs' lifecycle, as such characteristics are at the basis of entrepreneurial success. Poli360 is the new investment fund – the only one of its kind in Italy – that hinges on the University's research potentialities and fields of competence, as well as on the Technology Transfer Platform managed by the TTO and the incubator PoliHub. The investments support the development of high technology projects and start-ups – based on research and intellectual property – in the sectors of industrial manufacturing and

automation, energy efficiency management, civil infrastructure and telecommunication, development of advanced materials and design.

UNIVERSITAT POLITÈCNICA DE CATALUNYA

The Universitat Politècnica de Catalunya (UPC) is a public institution dedicated to research and higher education that specializes in the fields of architecture, science, and engineering. Every year over 30,000 undergraduate and master's degree students and nearly 2,000 doctoral students enrolled at the UPC. Characterized by high student mobility, the UPC is one of the European universities that receive the most international students. In fact, it has the highest intake of international master's and doctoral degree students in Spain. The UPC is also the European university with the highest number of Erasmus Mundus programs: 75 master's degrees and 45 doctoral programs. The UPC's leadership is reflected in the latest university rankings: it is the top Spanish university in engineering and technology in the latest QS World University Ranking and the national leader in engineering (2002–2011) and architecture (2007–2011) in the I-UGR Ranking. According to the SCIMAGO Ranking 2013, it is the top technical university in Southern Europe. The UPC has a long track record of collaboration with companies, increasing their competitiveness and capacity for innovation, and working to promote research transfer and valorization. In 2019, the UPC's turnover for this kind of activity was more than € 58 million. One-third of this total was from agreements with companies and institutions, one third from national calls for proposals and programs, and one third from European programs. As for international research collaboration projects, the UPC is the first in the ranking of Spanish universities in attracting funds from Horizon2020 and has a long track of successfully coordinated projects. The UPC has created a complex network of international partnerships with other universities, research institutions, and companies that organize new projects and support many initiatives in which the word "collaboration" is the key. The sphere of action for these partnerships without borders is an interconnected world that promotes the sharing of knowledge and experience

At the UPC, students are trained to become professionals in engineering, architecture, sciences, and technology, acquiring the knowledge, abilities, and skills needed to tackle new challenges in a way that takes into account the need for technological efficiency and reflects sustainability criteria. The UPC teaches bachelor's, master's, and doctoral degrees and continuing education courses, with a complementary offering of international mobility opportunities and double-degree programs. Student participation and leadership in research projects and work placements help them build relationships in the world of work and bolster their autonomy and initiative. The University is therefore a space for knowledge that stimulates learning and personal growth based on a dynamic, motivating teaching model.

As for the patent portfolio, in 2019 the Innovation Office filed 15 priority patents and 8 international applications. It received more than 260 thousand euros from licenses under its existing patent portfolio in 2019. The patent portfolio has also evolved. It previously included many CV-oriented patents of no commercial value; now it is a solid portfolio of patent families with over 60 market-oriented patents. The UPC currently has a portfolio of 80 spin-offs and holds an equity stake in 28 of them. In 2019, created 11EBTs and obtained a return of 105mil euros from linked EBT's licenses. Furthermore, mobilized investment in the active spin-offs in which the UPC has a stake was €8,5million.

Since 2016, UPC set the promotion of research, technological development and innovation as a challenge with the aim to reinforce technology transfer and IP valorization in the cooperation between universities and companies. UPC. In this sense, the UPC Technology transfer office focused to ensure the interconnection between the university's research centers and big and small companies. To do so, it provides technical

support in three major areas: protection of intellectual property and support in the innovation funnel stages, collaboration and generation of joint ventures, and creation of spin-offs as commercialization of research outputs.

1 IPR management and valorisation process

The TTO of UPC manages the entire Innovation funnel from the idea disclosures to the licensing of the related invention. The innovation funnel involves the researchers as a key actor for the success of results commercialization. The TTO is involved and give support in how to protect the research outputs and build a strong IP portfolio able to attract the industry's interest and establish a culture to technology transfer.

Furthermore, UPC's TTO is in the chair of mediate between parties in the commercialization process and to negotiate fair conditions of licenses and link with other stakeholders as patent attorneys, IPR consulting and governmental involvement in the innovation funnel.

2 Collaborations and Joint ventures

Researchers from UPC and Industry often have considerably different interests, objectives, constraints, and Incentives. In order to avoid conflicts and misunderstanding, and distrust between the partners of the collaboration UPC has worked in developed an IP policy. So far the IPR is regulated by agreements previous to begin the collaboration. In the joint ownership, agreement clauses are based on the purpose of the collaboration, the product or technology that is expected to develop, and whether consists in a disrupted innovation or if the industry partners will be the exploitation partner. All the information sharing to create the collaboration framework is under confidentiality through NDA agreements

When a patent application results from an Industry-university collaboration, the Industry with the support of UPC TTO is responsible for the preparation, filing, and prosecution of any applications for patents, designs or other registered rights in respect of the Joint IPR and to cover the cost for maintaining it.

3 Creation of Spin-off/Start-up

UPC promotes entrepreneurship within its structures by establishing spin-offs/start-ups, new high-tech enterprises aimed to transform the scientific and technological know-how generated in the university (either by researchers or students) into innovations that can be exploited from a commercial viewpoint through the realization of products or services.

The TTO works closely with those researchers that are willing to create a tech company based on the results generated from its research activity in the university. Moreover, the role of the TTO in the creation of a spin-off/start-up might be crucial in the last stages of the process:

- As a vehicle aimed to commercialize scientific and technological know-how generated in the UPC, a technology transfer agreement between the university and the new company has to be signed. Bearing in mind the previous, the sooner the TTO gets involved in the creation process, the more agile the conversations for the technology transfer.
- Depending on the role that the university research staff is supposed to have in the company, the participation of the UPC as a shareholder in the new company shall be required based on what is stated in the Spanish law. If both parties (university and company) are interested in the UPC to become a shareholder, the corresponding shareholders' agreement must be put in place. This agreement will

establish the fundamentals of the relationship between the shareholders of the company, including the university. The negotiation of the UPC rights comprised in the shareholders' agreement is also managed by the TTO.

Apart from those services offered by the TTO, the University has different mechanisms to promote and support the creation of tech-companies created within its framework of activity:

- Espai Empren: An initiative created by the UPC to promote and support entrepreneurship among its community of students. Espai Empren comprises specific co-working spaces located within UPC campuses, which can be used by students to develop the first steps of their entrepreneurship projects. Besides these co-working spaces, Espai Empren provides other services to its users such as consulting, networking, and the opportunity to be part of an exciting community of young entrepreneurs.
- University programs: UPC is involved in several programs focused on promoting entrepreneurship from the university. One of such is the "From science to market" program, which is coordinated by the UPC. "From Science to Market" is addressed to young researchers (Ph.D., master, young post-docs) that are interested (or curious) about the commercialization potential of their research projects. The program consists of several formations on the basics of business creation and management, specific advising for each project, and the opportunity to visit some of the top spaces within the Catalan innovation ecosystem. Since its creation in 2017, more than 30 participants from over 15 different nationalities have participated in the program. As a result, from the two editions that have been carried out so far, five new tech-companies have been created and several new collaborations and joint projects have emerged between participants.
- Participation in joint venture programs: UPC can also take advantage of the various entrepreneurship programs that take place within the ecosystem. An example of this interaction is joint venture initiatives in which UPC has been involved. These joint venture programs attempt to attract talent and innovation from research centers by offering them specific ad-hoc advising from business profiles, which might have different backgrounds, experiences, and profile depending on the scope of the program. The two parties agree to pool their resources for accomplishing a specific task. This task can be a specific project (creation of a business plan) or, in some cases, the creation of a new company.

IP EXPERIENCE project

IP EXPERIENCE- *Intellectual Property Experiential Program* is an awareness-raising project to engage university and high school students on Industrial Property Rights, their fundamentals, and their strategic value, through a program of workshops and live events in Milan and Barcelona.

The project lasted 14 months (November 2019/ December 2020) is carried out by Fondazione Politecnico di Milano, Politecnico di Milano – TTO, PoliHub - Innovation District and Startup Accelerator, Universitat Politecnica de Catalunya and is cofounded by the European Union Intellectual Property Office-EUIPO, GR/001/19, Lot 2: *Reaching consumers/citizens and especially young people*, Application reference n° 0185, Agreement Number 1320190007.

The main target of the project is young people from 15 to 24 years. The project has been designed to cluster the target into two specific groups: High School students from 15 to 18 years and university students from 19 to 24 years, especially from technical faculties (engineering, architecture, and design).

Additionally, the project promotes contents of interest for young researchers, Ph.D. students, and young entrepreneurs/start-uppers.

The General Objectives (GO)

- (GO-1). To support the development of future young citizens and consumers aware of Intellectual Property issues and well informed on how to protect the results of their creativity, to enrich the human capital of young individuals;
- (GO-2). To support the growth of young future workers informed concerning the main elements on IP rights (patents for inventions, trademarks, design) potentially emerging from research & development activities.
- (GO-3). To promote the culture of IP rights and the respect of the IP rights of other people in the context of the collaborations between University and Industry, empowering all the actors involved (academic teachers, companies, and especially university students), to strengthen and enhance the emerging models of co-creation between University and Industry.

The Specific Objectives (SO)

- SO-1. To promote the fundamentals of IP Rights through an experiential education and simulation approach during a program of interactive workshops (*Interactive Program*).
- SO-2. To inspiring university students with best practices of IP value exploitation, involving successful Italian and Spanish companies and entrepreneurs that will share their experiences.
- SO-3. To create new training material that will be promoted in the already running and existing activities.

For further details and project outputs, visit www.ipexperience.eu

