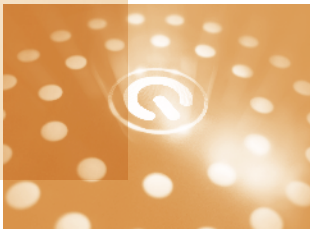
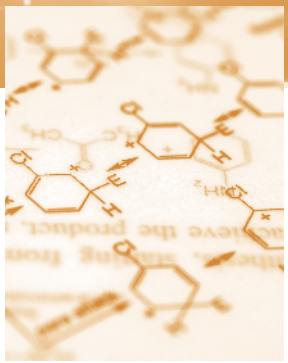
Enterprising Ideas

A Guide to Intellectual Property
for Startups





Intellectual Property
for Business Series
Number 6

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Table of contents

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This publication has its origins in the Committee on Development and Intellectual Property of WIPO, which approved in May 2018 a Development Agenda project on 'Increasing the Role of Women in Innovation and Entrepreneurship, Encouraging Women in Developing Countries to Use the Intellectual Property System'. In compiling this guide for startups, we have drawn from this project a wealth of examples of successful women entrepreneurs from all over the world, illustrating how they are using the IP system to successfully build their businesses.

Acronyms

API	Application program interface
ASPI	Access to Specialized Patent Information
ARIPO	African Regional Intellectual Property Organization
B2B	Business-to-business
BOIP	Benelux Office for Intellectual Property
ccTLD	country code top-level domain
CPC	Cooperative Patent Classification
CRM	customer relationship management
EUIPO	European Union Intellectual Property Office
FFF	friends, family and fools
FTO	freedom to operate
gTLD	generic top-level domain
ICANN	Internet Corporation for Assigned Names and Numbers
IP	intellectual property
IPC	International Patent Classification
LP	limited partner
NASA	National Aeronautics and Space Administration
OAPI	African Intellectual Property Organization
OEM	original equipment manufacturer
PCT	Patent Cooperation Treaty
R&D	research and development
RUL	remainder of useful life
SDK	software development kit
SHA	shareholder agreement
TISC	Technology and Innovation Support Centers
TLD	top-level domain
TRL	technology readiness level
TTO	technology transfer office
UDRP	Uniform Domain Name Dispute Resolution Policy
VC	venture capital
WIPO	World Intellectual Property Organization

Introduction

The scope of this guide

The launch of a successful company can often be traced back to a single good idea. That idea probably made a long and complex journey from laboratory to market and survived when other good ideas were culled because similar products already existed, lacked market appeal, or cost more than the market would bear. The intellectual property (IP) system[1] plays an important role throughout this journey. A company's IP should therefore be fully integrated into and support the company's business strategy.

The IP system allows innovators to control the destiny of their innovations. IP rights help to protect against imitators and enable companies to create a distinctive identity to strengthen their market presence. Good IP management practices remain relevant throughout the life cycle of a business, as it sets up, expands, looks for investors, engages with partners and collaborators, and hires employees. IP is relevant as well when startups are acquired by other companies or unfortunately fall into bankruptcy. The IP system is also a source of vital technical and business intelligence which is invaluable for making informed decisions throughout the business cycle of a company.

Startups should be equally aware that, in addition to strengthening their competitiveness, the IP system can help them manage risk. A startup that ignores IP may infringe the IP rights of others, be blocked from entering domains that others already occupy, or lose key assets to other companies that file for protection first. Such mistakes can be fatal.

This publication provides guidance on how startups can use the IP system to remain competitive and to understand the risks that may arise if it is ignored. It focuses on a startup that is trying to bring an innovative technology-based solution to market, but the principles should be just as helpful to startups that are not technology-based but have a novel marketing idea, cater to a niche market, or provide an innovative service. The IP system offers something to all startups, though to some more than others.

What is "intellectual property"?

Broadly understood, IP refers to creations of the mind. Such creations have been recognized in law as property that can be owned by the creator, provided the conditions set out in law are satisfied. Countries have broadly agreed on what these conditions are, in international treaties, though there are differences in how they interpret and apply these rights.

When we consider creations of the mind, we refer to new product ideas, new ways of doing things, attractive designs, distinctive business signs, and creations such as music, songs, paintings and sculptures. By their nature, these are intangible in that we cannot touch, hold or see the idea, though we can touch, hold or experience its expression. The intangibility of such property creates a disadvantage and an advantage that are unique. Because ideas are intangible, it is difficult to prevent others from appropriating and reproducing them; at the same time, many people can simultaneously use ideas without exhausting them or reducing their quality. Think in terms of a song. I may find it difficult to prevent another person from

copying a song I wrote, but many people can enjoy my song at the same time. IP laws give tangibility to ideas by enabling creators to own their innovative ideas and creative output, provided the legal criteria are satisfied.

When an idea reaches the point where it is expected to become the basis of a product or a service with commercial potential, it is important to consider, as soon as possible, how IP might facilitate its journey to market. The relevant IP tools are briefly described below.

Patents

A patent is an exclusive right granted by a government for an invention that is new, involves an inventive step, and is capable of industrial application. It affords its owner the legal right to exclude or prevent others from making, using, offering for sale, selling or importing a product or process based on the patented invention.

A patent is granted by a national patent office, or by a regional patent office that represents a group of countries. It is valid for a limited period of time, generally up to a maximum of 20 years from the date of filing, provided the patent owner pays promptly the fees required to maintain the patent in force. A patent is a territorial right limited to the geographical frontiers of the relevant country or region. In return for being granted a patent right, patent applicants are required to provide a detailed, accurate and complete written description of their invention.[2] Patent documents (patent applications and/or granted patents) are published by patent offices around the world and form the primary source of patent information. As a result, public patent collections and commercial patent databases are an essential and often unique source of technical information, since many related inventions are not published in scientific literature.

Trade secrets

A trade secret is any information that is commercially valuable to a business to the extent that it is kept secret. Broadly speaking, any information may be considered a trade secret, from technical know-how and client lists to financial information and marketing strategies, etc. Trade secrets are often described as an iceberg of which patents are the visible tip. A startup may hold a huge reservoir of confidential information, some of it potentially patentable, all of which, if kept secret, could qualify and be protectable as trade secrets. A startup may decide for strategic reasons to keep its patentable information secret, because to apply for a patent it will be required to make that information public. Information that has been disclosed, in the course of a patent application or for other reasons, no longer qualifies as a trade secret.

Copyright

Copyright law grants, to authors, composers, computer programmers, website designers and other creators, legal protection for their literary, artistic, dramatic or other forms of creation, which are usually referred to as "works." Copyright law protects a wide variety of original works, including books, magazines, newspapers, music, paintings, photographs, sculptures, architecture, films, computer programs, video games and original databases. However, it only protects the *expression* of an idea; it does not protect the underlying idea or concept. This is an important distinction. If an idea is expressed in a different way, it is unlikely to infringe an author's copyright. Copyright law gives

the author or creator of a work a range of exclusive rights over his or her work for a period of time defined in national laws. In most countries copyright extends for the life of the author plus 50 years; in some countries, including the United States of America and Europe, it lasts longer. These rights enable an author to control the economic use of his or her work in a number of ways and to receive payment. Copyright law also provides "moral rights," which protect, among other things, an author's reputation and integrity. In general, an author cannot assign these rights.[3]

Trademarks

Any sign that is capable of distinguishing goods or services (including words, names, letters, numerals, drawings, pictures, shapes, colors, labels, or any combination of these) may be used as a trademark. In most countries, taglines, advertising slogans and titles may also constitute trademarks. Legal protection of a trademark is obtained by registration and, in some countries, by use. To obtain a trademark registration, the first step is to file the appropriate application form at the national or regional trademark office, which examines applications in accordance with locally applicable law and grants or refuses a trademark registration. While the term of protection may vary, in many countries registered trademarks are protected for 10 years. Registration may be renewed indefinitely (usually for consecutive periods of 10 years) provided renewal fees are paid at designated times before registration expires.[4]

Industrial designs

The term "industrial design" refers to the ornamental or aesthetic aspects of a product. A product may be protected as an industrial design if certain conditions are met. Protection does not cover the technical or functional aspects of a product. To register an industrial design, an applicant must file a national or regional application at the relevant national or regional IP office. Protection of an industrial design varies from country to country but lasts at least 10 years.[5]

Other intellectual property rights[6]

- Utility models are also known as "short-term patents," "petty patents" or "innovation patents." In many countries, some types of invention, including small adaptations of existing products, are protectable as utility models.
- New varieties of plants. In many countries, breeders of new plant varieties may obtain protection through "plant breeder's rights."
- Layout-design (or topography) of integrated circuits. An original layout or design of an integrated circuit may be protected against copying.

While IP rights are presented here as separate rights, in practice they are used collectively to protect and market products as a whole. Consider a smart phone, for example. Patents protect its functions, from processing to camera technology; trademarks protect its logo and identity; industrial designs protect its shape and overall appearance; copyright protects the source code of the software on which the device runs; and trade secrets protect the marketing strategies employed to commercialize the device globally.

IP generating startup vs. IP consuming startup

In the context of this guide, it may be helpful to distinguish between startups that generate IP and startups that consume IP. An "IP consuming startup" is a startup whose business idea needs technology to exist. An "IP generating startup" is a startup that is centered round a core IP that needs a business idea to prosper.

Typically, an IP consuming startup involves very little or no research and development and does not generate much or any proprietary content or software. Such companies tend to be Internet startups, application development companies, or Internet marketplaces. Examples might include Airbnb or Uber. By contrast, an IP generating startup builds a business idea around a technical solution protected by an IP right. A typical example would be an early-stage technology, often protected by a patent that the startup has developed or licensed from a university or research institution.

In reality, innovative startups cannot be separated so neatly. Most innovative startups sit along a continuum: IP consuming startups generate some IP, and IP generating startups consume some IP. To launch their business idea, most IP consuming startups will license or buy technology protected by IP and owned by third parties. Most are also likely to subcontract third parties to develop solutions for their business model. Once they gain some traction, they will ideally begin to develop solutions and create potential IP rights in earnest. These IP rights tend to be trademarks, possibly some algorithms, and basic copyrights on user interfaces, etc. As they progress, they may create new IP as they improve software they licensed in, create their own software, or add new features to their offering. Over time, they will also generate confidential business information. The most successful IP consuming startups, such as Airbnb, Uber and Alibaba, generate more and more IP, and often start to acquire third-party IP and extensive patent portfolios in order to maintain or increase their competitive advantage.

Once launched, properly financed IP-generating startups will typically continue to invest in research and development and create new IP.

Understanding the technology readiness level (TRL)

The technology readiness level is a technique for assessing how close a technology or product is to commercialization (see Figure 1). Based on a methodology created by the National Aeronautics and Space Administration (NASA) in the United States of America to assess the maturity of space technologies, it is now used widely in different industry areas, though some experts claim that the tool is not appropriate for all types of technology. The European Commission and the United Kingdom public sector are among several institutions that have adapted the TRL model. Each technology project is evaluated against certain parameters and assigned a TRL rating. On a scale of nine levels, a product rated TRL 1 has the lowest readiness while a product at TRL 9 is fully scaled-up.[7]

The Story of Arçelik A.Ş.

Arçelik A.Ş., located in Turkey, was founded in 1955 as a subsidiary of Koç Holding. It manufactures household appliances and consumer electronics and has a market presence in more than a hundred countries.

In 2004, Arçelik introduced Telve®, a Turkish coffee-making machine. Turkish coffee is known for its strong flavor and its traditional way of brewing is recognized by UNESCO and included in the Intangible Cultural Heritage List.[8]

Coffee-making has a long tradition in Turkey and consumers were likely to reject modern brewing methods. Making a machine capable of replicating traditional Turkish coffee was therefore an engineering and marketing challenge.

The idea behind Telve® was first conceived late in 2001. By January 2002, Arçelik's research and development engineers were studying traditional brewing techniques to identify what gives Turkish coffee its special character. Researchers ran surveys and visited traditional Turkish coffee houses to identify the drink's key elements. Some of their findings were disarmingly simple: use cold water, heat the brew on a slow heat, avoid stirring to preserve the foam, and remove the liquid before it reaches boiling point. Automation required a technical solution for each of these problems. By September 2002, early concepts of the machine had been developed in Arçelik's labs. The Arçelik team adopted a final prototype in 2003 after internal testing.

Conscious that patents were needed to protect their innovations, the Arçelik team searched patent databases and studied coffee machines available in the market at that time. These searches identified no products that competed directly. However, several relevant

patents provided important information on the competitive landscape and helped Arçelik to reduce risk. It eventually filed eight international patent applications, three trademark applications and three design applications to cover the technology and the product.

The product was launched in August 2004, backed by a strong marketing and press campaign. Telve® established itself as the only automated Turkish coffee machine on the market. Its commercial success surprised even the research and development (R&D) team.

Third-party copycats inevitably followed. However, Arçelik's robust IP strategy enabled it to maintain its competitive edge. It defended itself against competitors and built goodwill and trust for at least 10 years before the first competing products entered the market.

By the time competition emerged, Telve® had clearly established itself as the market leader, aided by several major improvements. New products included a second generation Telve®, a 9-cup capacity Pro Telve®, and a capsule coffee machine that boasted an additional 22 patents and several international design awards.

Currently, the Telve® portfolio includes over 300 applications for patents or granted patents, grouped under 75 patent families, three registered trademarks, eight industrial designs, and 12 industrial design applications.

2019

2017

2016

2016

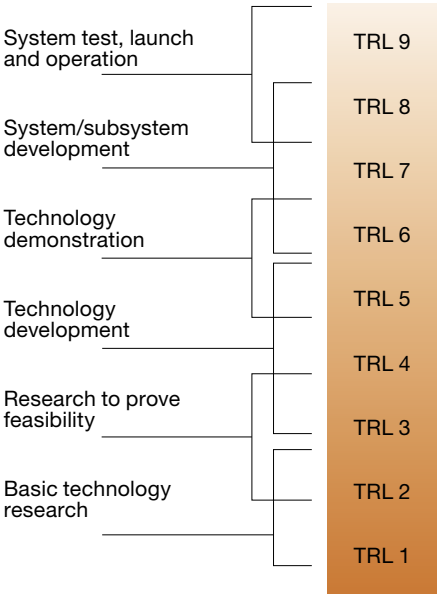
2015

2006

2004

Assigning a TRL to a technology or to a project enables a company to position it along the innovation chain. Typically, a project awarded a low TRL will require considerable development to be market-ready. This enables entrepreneurs to factor in future investments for development. Funding options and opportunities to license out a technology will also depend on the TRL. Essentially, the TRL scale is just an indicator. It can help companies reach funding and other decisions, but the time required to bring a technology to market will be influenced by a range of factors.

Figure 1. Technology readiness levels



Source: National Aeronautics and Space Administration, United States of America.

Business model vs. business plan

A successful business brings to customers a product or service they value. In its business model, a startup sets out a framework for identifying, creating and delivering value, its proposal for generating revenue, and a description of its current and projected competition, its target markets, etc.[9] Taking operational and financial elements into account, a business plan sets out in detail how a business will implement its business model. Because the business plan is an essential strategic document that projects the future of a new business, a comprehensive business plan requires an entrepreneur to make detailed projections. Most early-stage entrepreneurs will not have enough data to accurately project crucial elements that a business plan needs to address.

At the very early stages of startup creation, it is therefore advisable to use more flexible business models to identify the value proposal that the startup (once created) will attempt to validate. Entrepreneurs should nevertheless take the time to create a business plan once the core elements of the business model have been validated and the startup has gathered enough market information and data to make reasonable projections.

The company's IP strategy must be integrated in the business plan, which should demonstrate how IP will support successful implementation of the business model.

Notes

1 The term "intellectual property system" refers to: intellectual property rights; the process of granting them; national, regional and international systems that exist to process, grant and register such rights; and the databases that contain intellectual property information.

2 See WIPO (2018). *Inventing the Future: An Introduction to Patents for Small and Medium-sized Enterprises*. Intellectual Property for Business Series no. 3. www.wipo.int/edocs/pubdocs/en/wipo_pub_917_1.pdf.

3 See WIPO (2006). *Creative Expression – An Introduction to Copyright and Related Rights for Small and Medium-sized Enterprises*. Intellectual Property for Business Series no. 4. www.wipo.int/edocs/pubdocs/en/sme/918/wipo_pub_918.pdf.

4 See WIPO (2017). *Making a Mark – An Introduction to Trademarks and Brands for Small and Medium-sized Enterprises*. Intellectual Property for Business Series no. 1. www.wipo.int/edocs/pubdocs/en/wipo_pub_900_1.pdf.

5 See WIPO (2019). *Looking Good - An Introduction to Designs for Small and Medium-sized Enterprises.* Intellectual Property for Business Series no. 2. www.wipo.int/edocs/pubdocs/en/wipo_pub_498_1.pdf.

6 WIPO (2018). *Inventing the Future*, p. 12. www.wipo.int/edocs/pubdocs/en/wipo_pub_917_1.pdf.

7 See https://web.archive.org/web/20051206035043/http://as.nasa.gov/aboutus/trl-introduction.html.

8 See https://en.wikipedia.org/wiki/Turkish_coffee.

9 A business model can be created using a business model canvas. These visually represent elements that are needed to identify the value proposition of a product or company. See, for example, www.strategyzer.com/canvas/business-model-canvas.

Protecting your innovation

The innovative product or process created by a startup may be new in the marketplace, may improve the performance of an existing product or service, or may reduce manufacturing time or cost. In all cases, the startup should develop as quickly as possible an appropriate IP strategy that matches and supports its business plan. A startup with the right IP portfolio will be able to protect the company's competitive space, thereby delaying the entry of competitors and helping it to establish itself in the market.

Obtaining patent rights

A startup that has developed a technical solution to a problem may consider obtaining a patent right for that solution. To qualify for a patent, a solution must be new, inventive and useful. If others have already applied for patent protection for the same or a similar solution, the startup's idea or product may not be considered new, ruling out patent protection. It is therefore important to search existing patent databases to determine whether similar solutions have already been developed.

In addition, a startup's own actions may impair its ability to secure patents. An invention that is disclosed before a patent application is made will not be considered new and the application will fail to meet the requirement of novelty. Inadvertent disclosure can occur for example at trade shows, in articles in trade journals, or during any non-confidential discussions with third parties. Before a patent application has been filed, it is therefore vital to keep inventions secret. If disclosure is necessary, for example to conduct business with suppliers and potential customers, it should be done under the protection of confidentiality agreements.

A startup that considers filing for a patent should do so at the earliest possible opportunity. This moment occurs when the startup recognizes that it may have a technical solution to a technical problem – in other words, when it has made an invention and sufficient data show that it is effective. To protect all its different innovations and functions adequately, a proposed product may require many patent applications.

Some startups tend to wait until the final version of a product is ready before filing for a patent. This is a risky strategy. Companies are not obliged to market a product before they secure protection for it. On the contrary, waiting until the final stages of commercialization may close off important protection options. Competitors or other third parties may be on the point of developing the same or similar technical solutions.

It is important to make sure that a patent application is properly drafted, and that claims (which determine the scope of protection) cover the invention's critical elements. When preparing an application, a startup should consider how it will itself operationalize the technology and also how potential competitors may use it. When filing for patent protection, startups should also consider the different ways in which an invention can be manufactured or deployed. Broad disclosures in the patent application can create room to maneuver as the market develops. While a patent application is pending, the product can be refined or additional assets can be filed based on the initial disclosure. However, the breadth of

information revealed in the initial application should be balanced against the value of keeping information secret. There can be commercial benefits to both approaches.

A patent application must be submitted to the relevant national or regional patent office. To navigate technical issues and develop an effective IP strategy, a startup should consider retaining a patent agent to handle the application's preparation and its passage through the grant process.

A patent application contains several components. These include a description of the invention, drawings, and a summary known as an abstract. However, it is the application's claims that determine the scope of protection. Below is a generic overview[1] of the application process; bear in mind that countries differ in the way they manage this process.

1. Formal examination. The patent office examines the application to ensure that it complies with administrative requirements or formalities. (For example, is all the relevant documentation included? Have fees been paid?)

2. Search. In many countries the patent office runs a search to determine whether an invention is new. During the substantive examination (see below), the office draws on patents, patent applications, and other public information[2] turned up by the search.

3. Substantive examination. The patent office determines whether the application meets the criteria for a patent. Not all patent offices do substantive examinations, and some do them only if they receive requests within a specified time; failure to request can result in an application being abandoned. The outcome of the examination is sent in writing to the applicant or to the applicant's representative. In many countries, the applicant is given an opportunity to respond to any objections raised during the examination, or to amend the application. This often results in a narrowing of the scope of patent applications.

4. Publication of the application. In many countries, a patent application is published 18 months after the first filing date.

5. Grant. If the outcome of its examination is positive, the patent office grants a patent and issues a certificate of grant. Patent offices generally publish the patent at this time.

6. Opposition. Many patent offices provide a period during which third parties may oppose the grant of a patent, for example on the basis that the claimed invention is not new. Depending on the jurisdiction, opposition proceedings may take place before or after a patent is granted. After the period allowed for opposition is exhausted, third parties may still be able to apply to revoke a patent.

Griyum by PASMX S.A. C.V., Mexico

griYUM

Entrepreneurs
Cristina Clocchiatti
Alejandro de la Brena Meléndez
Francisco Pérez Nardoni

Core IP
Pending utility model application.
Two trademarks.
Know-how.
Trade secrets

Website: www.griyum.com.mx

Product
Griyum produces cricket-based flour with high protein content. Cricket-based flour is healthier and more friendly to the environment than traditional flour and, relative to the resources used to produce it, has a high protein content.

Beef has been a primary source of protein. However, cattle breeding generates both heat and methane gas, which are environmentally harmful. Insects are low-cost and a viable alternative source of protein. Griyum elected to breed crickets because they can be produced domestically in high volume.

Intellectual property, product and business design
Griyum developed its business idea after reviewing and mapping existing insect farming technologies and taking professional advice on IP. It filed and secured two trademark applications at an early stage. Its portfolio also includes trade secrets. The company is currently working on filing for utility model protection.

Alongside a preliminary IP strategy, Griyum structured its commercial agreements with strategic partners to cover transfer of technology to small producers in rural communities. Griyum adopted a Business-to-business (B2B) model in order to leverage the know-how it generated from farming crickets and converting them into flour; this knowledge is now the basis of its competitive advantage.

Between 10,000 and 12,000 crickets are needed to produce one kilo of flour, and Griyum's main challenge has been to scale-up cricket production to agro-industrial levels. Thanks to a network of producers and partners around five pilot cricket farms, Griyum currently has a capacity of between 80 and 100 kilograms of flour per month. Its short-term target is to reach 10-20 tonnes per month. The product has been validated successfully in the local market. The startup is now gearing up to respond to growing global demand for its product.

Particular attention must be paid when filing for IP protection that would create joint ownership. In such cases, parties often erroneously assume that they will share the IP, typically in equal parts. In fact, joint ownership grants each party full rights to IP ownership.[3] Joint application appears to be a straightforward solution when parties cannot agree who should own an IP. In practice, managing and exploiting jointly-owned IP can be difficult, notably in the context of patents, and the rights of each party need to be addressed in a separate joint-ownership agreement. If joint owners do not draft a sound ownership agreement, they may find that their interests are in conflict, possibly leading to claims of breach of contract. An experienced IP lawyer should be consulted before agreeing to file jointly for IP protection.

Ensuring trade secrets are protected

Confidential information, including market strategies, manufacturing methods, and customer lists, are likely to be the most valuable assets that a startup owns, especially early on. Protecting[4] these assets through trade secrets is therefore critical to success. As soon as possible, startups should decide how they will identify and safeguard their trade secrets.

There is no formal registration process for protecting trade secrets. However, reasonable measures must be put in place to qualify for protection. These can include the following:

- Limit access to information to those who "need to know."
- Physically restrict third-party access to information. For example, control access to the company's property and to sensitive areas such as laboratories.
- Establish procedures to prevent sensitive information from leaving the workplace, recognizing particularly the ease with which information can now be transported digitally.
- Control access to computer files and servers, using password protection and firewalls.
- Adopt non-disclosure agreements with employees, suppliers, and partners.
- Prohibit those who receive confidential information from disclosing or making unauthorized use of it.
- Train employees in trade secrecy policies and implement practical measures to protect the company's trade secrets.

Be aware that trade secret protection varies significantly from country to country, with regard both to what is protected and how trade secrets are enforced.

Copyright protection

Unlike trademarks, design rights and patents, creators are not required to register in order to obtain copyright, and no formal copyright notice is required to claim protection. A copyright is deemed to exist at the moment of creation of a protectable work. It is nevertheless good practice to register key elements that are eligible for copyright protection with the national copyright office in countries that offer that

facility (for example, the United States of America). Registering establishes a presumed date of creation and ownership of copyright, thereby helping creators to enforce copyrights and defend themselves against claims of copyright infringement. Startups should strive to mark all works and documents with a copyright notice (©), or similar information, to make third parties aware that copyright has been claimed and to facilitate payment where applicable. For digital works, it is sensible to include information on copyright (and related rights) in the metadata, and to use industry standard formats and identifiers, where these are available, to facilitate the flow of royalties and other forms of payment.

Notes

1 See WIPO (2018). *Inventing the Future*, pp. 25-26. www.wipo.int/edocs/pubdocs/en/wipo_pub_917_1.pdf.

2 The "prior art" relevant to the issue of the potential patentability of the invention.

3 See Kim, S., V. Lipton (2012). "Joint Ownership of IP Around the World." In *LES Nouvelles*. Licensing Executives Society International.

4 "Know-how" may or may not be a trade secret. The term generally refers to a broader body of internal business knowledge and skills that would amount to a trade secret if the conditions for qualifying as a trade secret have been met.

Distinguishing your product in the market

It is not enough to develop a product or service that solves a problem or improves existing solutions, and protect it through IP rights. A startup must also attract consumers and compete effectively in the marketplace. Consumers want to be able to find products they need easily and build a relationship of trust with them. When they find and like products, they feel attached to them and will probably buy those products again.

It is therefore important that a startup should consider as early as possible how it will create a distinctive identity for its product. As such, it should decide on a suitable name, logo or other sign that will enable consumers to identify and easily remember it. It may also consider designing the outward appearance of the product in a particular shape or form in order to make it attractive to consumers. These elements can be protected by trademarks, design rights and copyright and are important components of effective marketing.

Before deciding on a catchy name or creating an attractive design, the startup should check that others have not registered the same or a similar name for similar products and are not applying for the same or a similar design. Free trademark and design databases allow startups to determine if the same or a similar trademark or design has already been registered. Checking ensures that startups do not waste time on developing a marketing strategy around a name and design they cannot use. In addition, it protects them against the risk that third parties may take steps to prevent the startup from using that name or design if they consider their name or design has been copied. Mistakes can prove costly. The startup may be forced to redesign its product or craft a new marketing strategy, in some cases even if the trademark or design is not registered but simply used in the market. Making a careful online search is therefore highly recommended at an early stage. It should cover local but also foreign markets that the startup intends to target. A first search can be done through national databases and WIPO databases;[1] more specific information can be provided by private service providers. (See the section on Using IP databases on page 59.)

Obtaining a trademark right

Trademark rights can be obtained by applying for a registered trademark right. In some countries, it is possible to protect unregistered trademarks that are simply used in commerce. However, having a registered trademark provides the strongest protection and registration is the most secure way to build a brand image, consumer confidence and goodwill.

A startup should generally consider filing a trademark application at its national (or regional) IP office before the launch of the product to avoid any possible re-branding costs should the trademark application be unsuccessful. Below is a basic overview of the application process, which may of course differ from country to country.[2] The startup can decide to retain a trademark agent to handle its application and the registration process.

1. Application form. To start with, the applicant must submit a duly completed

trademark application form. This will include the contact details of the business, a graphic illustration of the trademark (a specific format may be required), and an indication of the goods and services for which the trademark application is being made. (Products are usually classified in accordance with the International Classification of Goods and Services.) Required fees must also be paid. Forms are available at the trademark office or online; in many countries the entire application can be done online. Some trademark offices may also require proof of use or a declaration that the business intends to use the trademark.

2. Formal examination. The office examines the application to make sure that it complies with administrative requirements. (For example, has the application form been completed correctly? Has the application fee been paid?)

3. Substantive examination. In some countries, the trademark office will only conduct a partial substantive examination, to verify whether the proposed trademark should be rejected on absolute grounds. (The term "absolute grounds" designates categories of signs that cannot be registered under the provisions of trademark law in the country concerned.) A full substantive examination will also consider relative grounds, meaning that the office will check whether the proposed trademark conflicts with an existing trademark registered in the relevant class(es).

4. Publication and opposition. In many countries, candidate trademarks are published in a journal, and opponents are granted a fixed period to argue against approval. In other countries, new trademarks are published after they have been registered and opponents are allowed time to petition to cancel the registration.

5. Registration. The trademark is registered if no grounds are found for refusal. The applicant receives a registration certificate that is generally valid for 10 years.

6. Renewal. A trademark may be renewed indefinitely by paying the required renewal fees, but registration may be canceled entirely or for certain goods or services if a trademark is not used for a certain period of time (as specified in relevant trademark law).

While filing early for trademark protection is recommended, startups should be aware that most jurisdictions apply a "use in commerce" requirement. This obliges a company to begin to use its trademark in commerce, in the class for which it applied, within a given period of time after the date of application. If the company "fails to use" the trademark within the allocated time, or ceases to use it, it may lose its trademark protection because the trademark will be considered to have been abandoned. The "use in commerce" requirement is a particular challenge when a trademark owner expects to expand internationally, because a company can lose trademark protection in a particular market if it files an international application too

early and is unable to enter that market before the "use in commerce" deadline.

Remember the following "dos and don'ts" for proper trademark use.[3]

Do

- Use the ® symbol to denote a registered trademark.
- Distinguish the trademark from surrounding text by using capitals, bold or italic fonts, or placing the trademark in quotation marks.
- Use the trademark consistently. If it is registered with a specific spelling, design, color or font, make sure it is always used exactly as it is registered.
- Establish clear and cogent best practices and guidelines for use of trademarks. Instruct licensees, employees, suppliers, distributors and consumers in how to use them. Make sure all relevant actors follow the policies and guidelines consistently.

Don't

- Do not modify the trademark. Avoid hyphenation, combination or abbreviation (for example, "MONTBLANC® fountain pen" should not appear as "Mont Blanc").
- Do not use the trademark as a noun, only as an adjective. (Say "LEGO® toy blocks," not "Legos.")
- Do not use the trademark as a verb. (Say "modified by ADOBE® PHOTOSHOP® software," not "photoshopped.")
- Do not use the trademark as a plural. (Say "TIC TAC ® candies," not "tic tacs.")

The majority of these dos and don'ts ensure that a trademark is maintained and prevent it from becoming indistinct or generic.

Domain names

In today's interconnected world, businesses are more or less obliged to have an online presence, whether they trade in physical or digital goods. Domain names, which identify a business' website address, have become important business identifiers in their own right because customers use them to find and review businesses and products on the Internet. Startups should therefore give careful attention to their online presence and domain name.

The Internet Corporation for Assigned Names and Numbers (ICANN) is responsible for technical management of the domain name system. Information on registration of domain names can be found on its website.[4]

Trademarks preceded domain names as business identifiers by hundreds of years. As we have seen, they offer an important IP right protected by national laws and international treaties. By contrast, domain names are a relatively new phenomenon, created in response to the need for identifiers on the Internet, and no comparable legal system for registration regulates their use. The Uniform Domain Name Dispute Resolution Policy (UDRP), designed by WIPO to address the bad faith registration and use of domain names, is discussed below. Whereas trademarks are valid in the countries or regions which have registered

them, domain names have no borders or territorial limits because the Internet has none. As a result, trademark owners may discover domain names on the Internet that resemble or are identical to their trademarks. Worse, the businesses using them may be selling the same or similar goods, or fakes. Even if the domain name is not being used, it prevents the trademark owner from using that domain name.

Startups should therefore register a domain name as soon as possible. To do so, the first step is to select what is called the top-level domain (TLD). TLD refers to the characters after the last dot of the domain name (for example, the ".int" in www.wipo.int). Generic TLDs (gTLDs) include ".com," ".org," and ".net." Newer gTLDs include ".online," ".life," and ".app." Country code top-level domains (ccTLDs) denote countries: examples include ".ch" for Switzerland and ".us" for the United States of America.

The part of the name that precedes the dot is called the second level domain. This part identifies the business and needs to stand out so that consumers can remember the website easily. A company's first preference for a domain name is likely to be its trademark. However, this may already have been taken by someone else, in which case the preferred domain name may need to be modified. (To illustrate, imagine a faucet company called Delta that discovers "delta.com" has already been registered. It might register instead as "deltafaucet.com," or, if it meets the relevant criteria for these TLDs, as "delta.ch" or "delta.online."[5])

Where a startup has not already registered a trademark it is sensible to choose one that is also available as a domain name (in exactly the same form or an acceptable variant) and to register both.

"Cybersquatting" is the practice of registering a domain name that is or includes a registered trademark for the purpose of blocking its use by the trademark holder, extorting money from the trademark holder or harming the brand. A startup that is targeted in this way can file a complaint under the UDRP. If it is found that the domain name had been registered in bad faith, an order may be made to cancel or transfer it. Globally, WIPO is the leading service provider accredited by ICANN to resolve domain name disputes.[6]

Obtaining a design right

As indicated above, attractively designed products and packaging are both more appealing and more visible in the market place. Many functionally similar products compete today on the basis of their visual allure and a combination of trademark and design often underpins brand loyalty. When startups take a product to market, they should aim to achieve and protect a unique and attractive design.

To qualify for protection, a design must generally be new or original. It is important to make sure that designs are not disclosed before an application for registration has been filed. Prior disclosure may disqualify a design from protection on the grounds that it is no longer new. Some countries provide a pre-application grace period, during which an applicant may disclose a design without forfeiting protection. However, it is always safer to

avoid disclosure before filing an application. Startups will generally need to take the steps below to obtain rights to an industrial design.[7]

1. Application form. Application forms are obtained from the national or regional IP office. Applicants will need to provide their name and contact details and a legal representative (where relevant). Most countries require applicants to include a reproduction of the design in their application; they usually specify formats and dimensions. Other requirements depend on the jurisdiction. For example, some countries require a written description of the design or offer the option to file one. In some countries the creator may be asked to formally declare the accuracy of the application.

2. Fees are paid.

3. Representation. The startup may choose to appoint an IP agent to represent it or assist it to file and complete the registration process. Some countries require applicants to appoint an IP agent. Where this is so, a "power of attorney" needs to be filed to make the appointment.

4. Examination. IP offices usually verify that the formal requirements of an application have been met, for example that reproduction of the design is of sufficient quality, and that fees have been paid. Many IP offices also carry out a substantive examination to determine whether the design complies with the requirements for protection.

5. Registration or grant of protection. In general, an industrial design must meet the following requirements to qualify for protection. It is these requirements that are considered during a substantive examination. In addition to conforming to the definition of a design under the relevant law, the design must be new or original.

6. Renewal. Protection of industrial designs varies in length from country to country, but lasts at least 10 years. In many countries, the term of protection is divided in succeeding renewable periods.

Notes

1 See https://ipportal.wipo.int.
2 WIPO (2017). *Making a Mark*, pp. 44-45. www.wipo.int/edocs/pubdocs/en/wipo_pub_900_1.pdf.
3 Idem, pp. 60-61.
4 See www.icann.org. For a general overview, see www.icann.org/en/system/files/files/domain-names-beginners-guide-06dec10-en.pdf.
5 "Delta" is the trademark of both a company that makes kitchen faucets and an airline. In abstract, both could legitimately lay claim to the domain name <delta.com>. Since the domain name happens to be held by the airline, the other brand owner trades as <deltafaucet.com>.
6 For more information, see www.wipo.int/amc/en/domains/index.html.
7 WIPO (2019). *Looking Good*, pp. 15-16. www.wipo.int/edocs/pubdocs/en/wipo_pub_498_1.pdf.

Going international

True global success stories come from startups that can address a global market. Some national markets are large enough to support startups that exclusively address their local market. However, where the local market is too small to support a company's growth, it must think globally as early as possible.

A common mistake is to assume that a business model that is successful locally will work equally well internationally. Certain business models, products or services will appeal to some markets but not others. A startup must consider whether to enter a market at all or whether it is feasible to change its offerings to better fit the target market. It also needs to assure itself that it is properly funded to pursue a global growth strategy.

In essence, entering a new market is similar to launching a startup: the company needs to assess its capacity, develop a specific business model, and make sound financial projections. As it begins to penetrate new markets, it is likely to challenge local companies and spur local innovation and copycat activity. Protecting its IP in target markets may therefore be an important condition of success.

Companies should keep in mind that IP rights are territorial; they are confined to the territory (country or region) that granted the right. It follows that IP rights a startup has obtained in one country or region may not be valid in the jurisdictions into which it wants to expand.

The IP law in the target country may also be different to the law of the startup's home country. It must carefully consider, as early as possible, which countries it wants to operate in, export to, or source from, in order to determine the jurisdictions in which it will seek protection.[1]

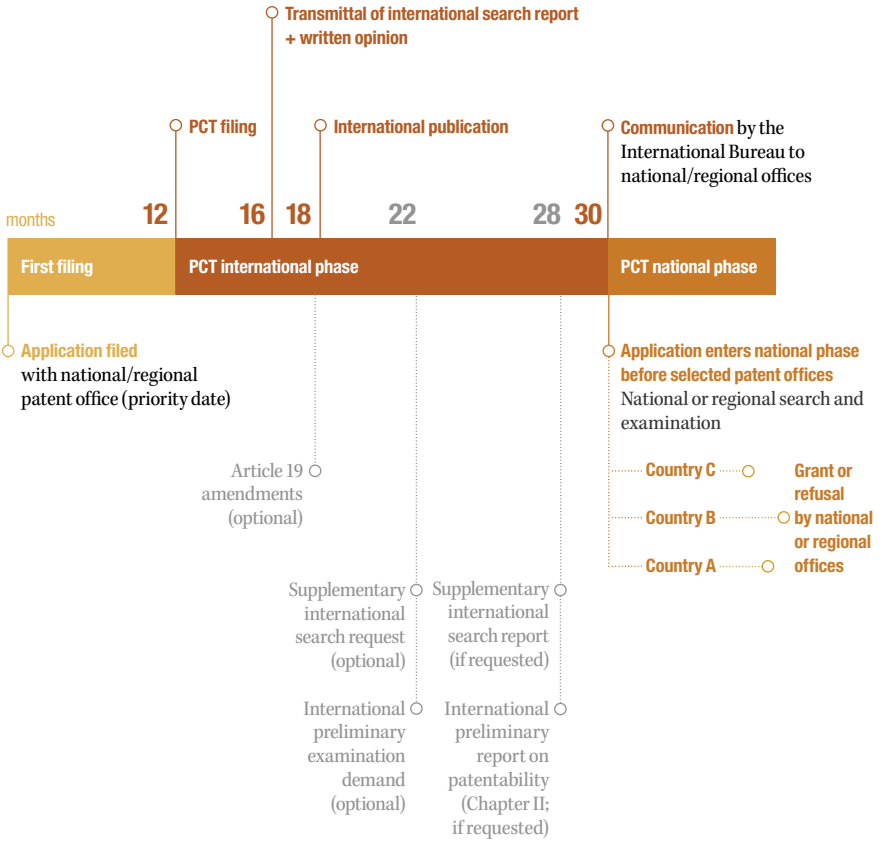
The Paris Convention created an important mechanism for filing patent, trademark and design applications in several countries.[2] Under the mechanism, the date on which an application is first filed in a country or region is called the priority date. Any subsequent applications filed in other countries within a stipulated period afterwards (the priority period), by the same applicant for the same invention, are considered for prior art purposes to have been filed on the priority date. The priority period lasts 12 months in the case of patents and six months in the case of trademarks and designs.

Filing for patent rights in other countries

Typically, a startup will file a national patent application in its home country. To benefit from the Paris Convention rules, a startup that wants to operate abroad must then file applications in other countries of interest within 12 months (the priority period).

Managed by WIPO, the Patent Cooperation Treaty (PCT) offers companies an efficient, often cost effective and practical way to obtain patent protection in several countries.[3] The PCT makes it possible to seek patent protection for an invention simultaneously in many countries by filing a single "international" patent application rather than separate applications in each national jurisdiction or region. National and regional patent offices remain responsible for granting patents during what is called

Figure 2. The Patent Cooperation Treaty procedure



Benefits

- One PCT application with legal effect in all PCT Contracting States
- Harmonized formal requirements
- Receive patentability information to support strategic decision-making
- Postpone significant costs for national processing by 18 months

the "national phase." Managed by WIPO, the Patent Cooperation Treaty (PCT) offers companies an efficient, often cost effective and practical way to obtain patent protection in several countries.[4] The PCT makes it possible to seek patent protection for an invention simultaneously in many countries by filing a single "international" patent application rather than separate applications in each national jurisdiction or region. National and regional patent offices remain responsible for granting patents during what is called the "national phase."

A PCT application can be filed from the start as an international application or can be filed within 12 months of an initial national patent application.

Under the PCT route (see Figure 2):

1. An international application is filed at the outset; alternatively, a company may file an international application within 12 months of filing a national or regional application.

2. The application is published 18 months after the priority date unless the applicant requests publication earlier. Since publication releases information on the invention, this timetable means that applications remain secret for 18 months from the priority date.

3. Within 30 months of the priority date,[5] the applicant must choose in which countries that are PCT members it wishes to seek patent protection; its application enters the "national phase" in those countries. A startup should carefully determine the countries that are important for its business and take steps to obtain protection in them, because its commercial success may depend on whether its invention is protected in those markets. On the other hand, this phase often requires startups to make a substantial investment because the costs rise in proportion to the number of countries selected for patent protection. In each location, companies are liable for office-specific fees as well as the costs of translation, local attorneys, etc.

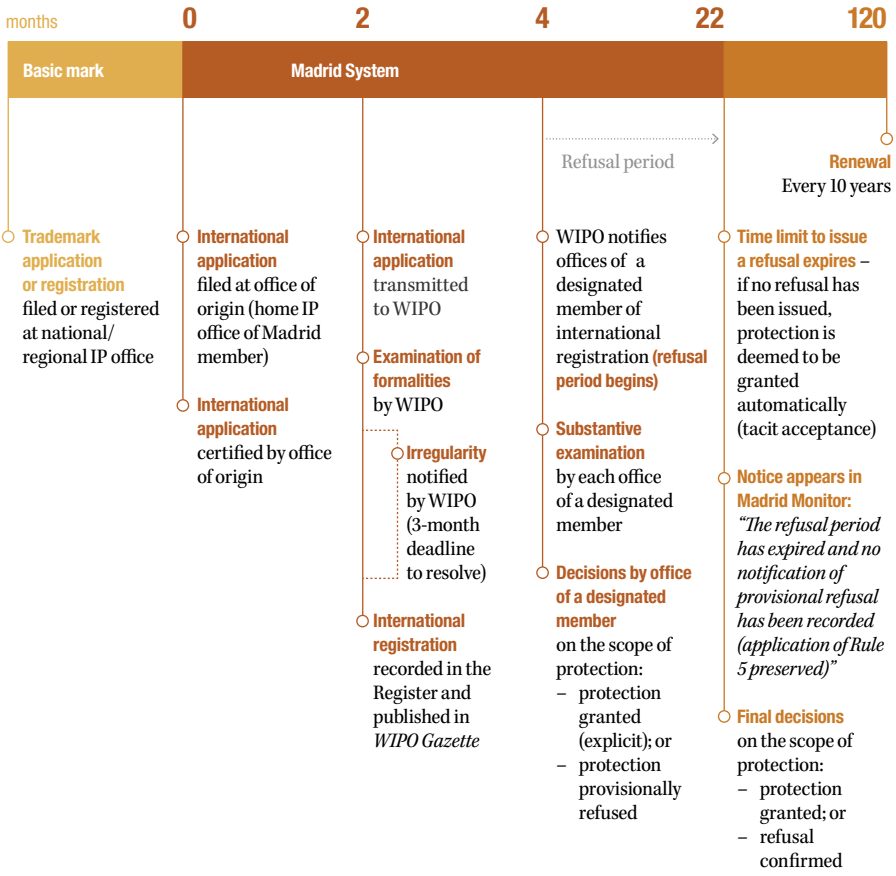
4. The PCT system is a system for filing and processing patent applications. Neither global nor PCT patents exist. Each national or regional patent must be sought and obtained individually. Each jurisdiction decides whether to grant the patent, based on its national laws.

5. The PCT system allows companies more time and provides more information than the traditional patent system based on the Paris Convention.

Under the Paris route, a startup can file an application in its home country and then (within the priority period) file applications in other countries.

Under the PCT, instead of filing applications for each of the countries in which it wants to be active, the startup files a single PCT international application. The startup receives an international search report, and is offered options to request an international preliminary examination and a supplementary international search.

Figure 3. The Madrid System procedure



Benefits

- Apply just once in one language for registration in up to 116 countries
- Pay one set of fees in a single currency
- Manage renewals and changes through a single central system
- Expand your trademark to other countries through subsequent designation

The PCT route allows companies to postpone national or regional proceedings and related costs for up to 30 months.[6]

When a startup files international patent applications to protect its technical innovations in international markets, it should also consider securing its trademarks and industrial design rights in those markets.

Filing for trademark rights in other countries

To protect a trademark abroad, a startup can choose from three different filing strategies, according to its global targets and budget:

- National route. It files a separate application at the national trademark office in each country in which it seeks protection.
- Regional route. It applies for protection through a regional trademark registration system which has legal effect in all its member states. Relevant systems include the African Intellectual Property Organization (OAPI), the African Regional Intellectual Property Organization (ARIPO), the Benelux Office for Intellectual Property (BOIP), and the European Union Intellectual Property Office (EUIPO).
- International route. It files through the Madrid System.

The Madrid System, administered by WIPO, is a convenient and cost-effective solution for registering and managing trademarks worldwide (see Figure 3). By making a single application in one language and paying one set of fees, a trademark holder can apply for protection in multiple markets.

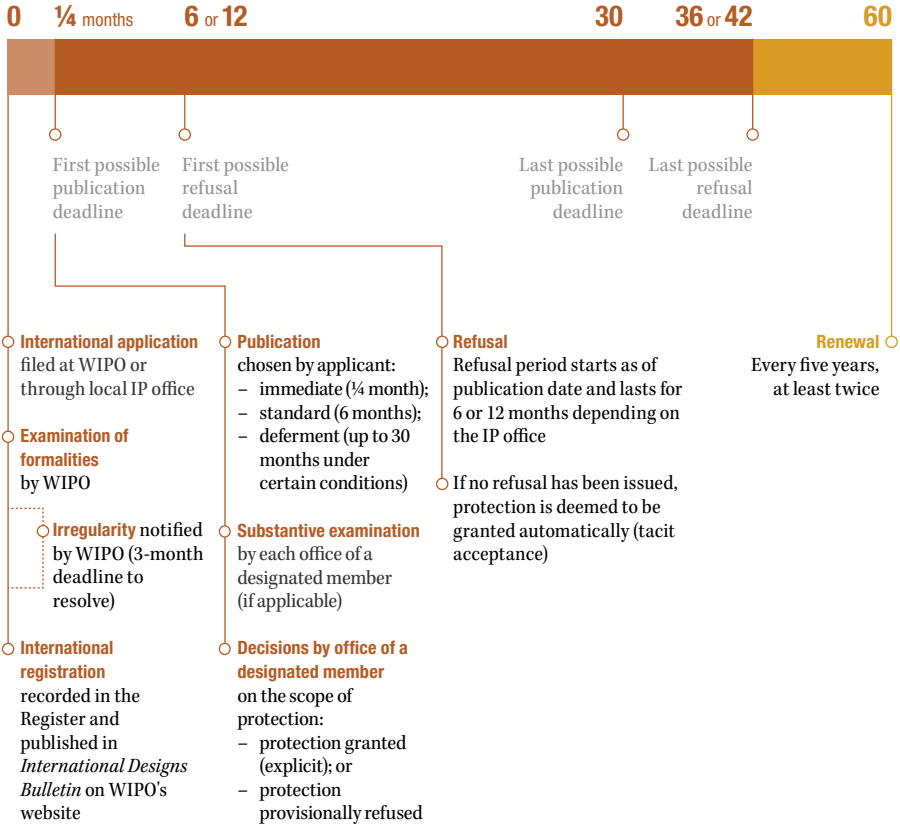
The Madrid System also permits the modification, renewal or enlargement of a global trademark portfolio via one centralized system.

Under the Madrid System, an international application must be based on a national or regional application or registration, which is known as the basic mark. The basic mark must be registered, or applied for, in the territory of a member of the Madrid System to which the applicant is connected by establishment, domicile or nationality.

An international application must first be submitted to the Office of origin (the trademark office at which the basic mark is registered or applied for). After it has certified the application, the Office submits it to WIPO. Once WIPO has reviewed the application for compliance with the formal requirements, it is recorded in the International Register and published in the *WIPO Gazette*. The territories in which trademark protection is being sought are notified. They decide whether to accept or reject the mark.

If a startup files an international application under the Madrid System within six months of having filed a trademark application in a national or regional trademark office, it can claim the initial filing date as the priority date. This means that, if a competitor files an application after that priority date for the same or a similar mark in a market of interest to the startup, the startup can claim that its application preceded that of the competitor, relying on the date of its initial filing.

Figure 4. The Hague System



Benefits

- Apply just once in one language for registration of up to a 100 industrial designs for products belonging to one and the same class in multiple jurisdictions
- Pay one set of fees in a single currency
- Time the publication of your registration to fit your business strategy
- Manage renewals and registration changes through a single central system

If the startup misses that six month period, however, it will not be able to claim priority in the international application and will be obliged to rely on the date of its international registration. In this situation, a competitor that filed before the startup's date of international registration (but after the date of the startup's first national or regional filing) would be considered to have filed first and as a result the startup might not obtain rights.

Filing for industrial design rights in other countries

To protect industrial design rights abroad, a startup can choose from three different filing strategies, according to its global targets and budget.

- National route. It files a separate industrial design application at the national IP office of each country in which it seeks protection.
- Regional route. It applies for protection through a regional design registration system that has legal effect in all its member states. This is currently possible at the African Intellectual Property Organization (OAPI), the Benelux Office for Intellectual Property (BOIP), and the European Union Intellectual Property Office (EUIPO).
- International route. It files an international application through the Hague System.

The Hague System administered by WIPO, enables startups to acquire, maintain and manage design rights in multiple markets worldwide by means of a single international application filed with WIPO, in one language, paying one set of fees. Because it has a centralized system, the Hague System also greatly simplifies the subsequent management of international registrations (see figure 4).

To be entitled to file an application, an applicant must be a national of a Contracting Party (a country or intergovernmental organization that is a member of the Hague Union) or have a domicile, business establishment or habitual residence in the territory of a Contracting Party. Unlike the Madrid System, no prior national or regional application or registration is required.

An international application is filed with WIPO directly. On receipt, WIPO checks for compliance with the formal requirements. If satisfied, it records the application in the International Register and publishes it. The Contracting Parties designated in the application will decide within a given period whether to accept or reject the design, in accordance with the substantive requirements of their laws.

As indicated earlier, the priority period for design rights is six months. If a startup has filed an application in one country or region and wishes to extend its protection to other countries or regions, it can do so by filing an international application under the Hague System within six months of its first application and can claim priority from the date that first application was filed. During the priority period, the applicant has precedence over anyone else that applies for the same or a similar design after the applicant's priority date. As with patents, once this period has lapsed and the first application has been published, the design may no longer be considered "new" and may not be eligible for protection in other territories.

LYS Technologies Ltd.,
United Kingdom

LYS

Founders
Christina Petersen
Hugo Strassjo

Core IP
Pending US and European patent applications.
One trademark.
Copyrights on software and algorithms.
Trade secrets (data) and know-how.

Website: https://lystechnologies.io

Product
Like air, food and water, light is a natural and vital source of health. Today, we spend more than 90% of our time indoors and most people do not have a healthy relationship to light. Recent scientific research has shown that poor exposure to light leads to a wide range of health problems, from sleep issues, alertness problems all the way to chronic diseases.

With applications across scientific research, workplace wellbeing, and personal health, LYS uses wearable technology, a mobile app and data science to enable healthier living with light.

LYS' approach has three key steps: create awareness of light's impact on personal wellbeing; encourage behavior change; and improve indoor light. LYS Button, a wearable light sensor, accurately measures light exposure. The LYS app integrates this information, enabling users to understand how the light in their everyday environments affects them. The LYS Button works with an in-app two-week wellbeing program called the Light Diet®. Personalized in-app advice and detailed reports nudge users to make small changes in their daily light habits. The LYS app also automatically detects smart lights and adjusts color temperature and brightness, using machine learning.

IP, product and business design
Though IP was not at first a priority, the cofounders were always aware that data would be one of LYS' most valuable intellectual assets. It developed a strong portfolio of proprietary intellectual assets from machine learning algorithms to hardware design, including pending US and European patent applications.

The aggregated, anonymized and analyzed data has proven to create high value. The data have helped inform design decisions with architects and construction firms and been used to improve workplace lighting and employees' wellbeing. LYS created the first large dataset on the effects of light on the human body and this has become a key value proposal.

While the startup relies on PCT applications to protect its product and method, LYS' data and algorithms represent its most significant competitive advantage. Conscious of their importance, the company has taken measures to comply with local and international data privacy laws. It is currently working on models for licensing its technology to lighting companies. LYS was developed in Imperial Enterprise Lab's *WE Innovate* programme, which helps female students to develop early-stage business ideas.

Obtaining copyright protection in other countries

Copyright is automatic in all States party to the Berne Convention.[7] The Berne Convention imposes certain common elements, but many matters are left to each State party to decide. The details of the protection may therefore vary slightly between jurisdictions. Because copyright is territorial in nature, the protection given in each location will reflect the law of the country concerned.

Notes

1 Contact details for national IP offices can be found at www.wipo.int/directory/en/urls.jsp.
2 Administered by WIPO, the Paris Convention of 1883 was the first major international agreement on protection of industrial property rights, including patents.
3 The PCT is an international treaty with more than 150 Contracting States.
4 The PCT is an international treaty with more than 150 Contracting States.
5 There are exceptions. Most notably, both the European Patent Office and the Korean Intellectual Property Office allow 31 months.
6 A number of fee reductions are available. See FAQ "Are there fee reductions available under the PCT?", at www.wipo.int/pct/en/faqs/faqs.html.
7 Berne Convention for the Protection of Literary and Artistic Works. See www.wipo.int/treaties/en/ip/berne.

Other strategic ways to exploit IP

When a startup obtains one or more IP rights, it acquires assets that it can put to strategic use in its business. It can do this by directly integrating the IP in the production or marketing of its products and services, thereby strengthen their competitiveness, as discussed already. It can also use IP to create additional revenue streams, secure financing, attract partners, collaborators and employees, and increase the value of the company. We consider these opportunities below.

Licensing

As well as, or instead of, using the IP in its core business, a startup can exploit its IP assets by giving others the right to use them. IP is an intangible asset and has the advantage that, unlike tangible or physical assets, it is scalable. It is an asset that can be exploited simultaneously by many users without changing its nature or quality.

Authorizing someone else to use IP while maintaining ownership of the underlying rights is called licensing. It is a contractual agreement (an exchange of promises) where one party (the licensor) agrees to allow another (the licensee) to use an IP owned by the licensor in exchange for something of value, usually recurrent payments (royalties).[1]

This mechanism enables a startup with IP rights to create additional revenue streams by licensing some of its IP assets to third parties (see Figure 5). It can recruit licensees in the same geographical area that it operates in or in other geographical areas where providing access to the IP will not damage the startup's ability to compete. A startup may even find it advantageous to license its technology to direct competitors, either by limiting the field of use or via a cross-licensing scheme where the startup can gain access to its competitor's IP portfolio as well. Most IP-intensive companies will structure their IP portfolio to identify

Figure 5. A simplified IP portfolio classification

1. Critical to the company: do not license.
2. Critical but of public benefit: license.
3. Not critical: license.
4. Not critical: divest or license.

In this simplified representation of a company's IP assets portfolio:

Box 1 contains IP assets that the company considers to be core or strategic technologies which it will not license except to partners such as vendors and suppliers.

Boxes 2, 3 and 4 will be made available for licensing.

Box 2 covers technologies that the company considers core or strategic, but which it has decided to license as a matter of public good (for example, because they save lives).

Box 3 contains IP assets that are not critical and may be considered for licensing.

Box 4 contains IP that has no value to the company. Maintaining IP assets in this category will translate as a cost. The company will therefore seek to license out or sell these assets. If they are not commercialized in a given time, the IP rights attached to them will be allowed to lapse.

IP assets they are willing to license out, separating them from IP assets that they deem too strategic to license.

IP licenses can be structured in many different ways. For instance, IP can be licensed to a single party, in what is known as an exclusive license. Under many exclusive licenses, IP owners reserve rights for themselves, such as the ability to incorporate the IP into their own offerings.

Alternatively, the same IP rights can be licensed to multiple parties, or non-exclusively. Agreements can be structured to give the licensee the right to share their rights with other parties; this is known as sub-licensing. It is also common to limit licenses to certain territories or activities.

License agreements are flexible documents that can be adapted to the needs of the parties. Nevertheless, depending on their objectives and the subject matter, drafting a sound license agreement is often difficult. In such cases, professional advice should be sought. While license agreements can be very different, common issues can be identified:

- Most jurisdictions require license agreements to be in written form.
- In a number of countries, license agreements must be registered with a national authority, such as a patent office.
- Grant and royalty clauses lie at the heart of license agreements.[2] A grant clause addresses what IP right is granted and any limitations that may be applicable. A royalty clause addresses what is received as value by the licensor in return for granting the license.
- An agreement that licenses an IP right can never be longer than the life of the IP that is granted.[3]
- If a license agreement covers multiple jurisdictions, these jurisdictions must be separately addressed in the grant clause or, if necessary, should be the subject of separate agreements. Self-evidently, all IP rights that are the subject of a licensing agreement must already have been obtained in the countries concerned.
- Where a trademark is being licensed, the licensor should establish clear rules to control correct use of the licensed trademark and the quality of the product to which the licensed trademark is to be attached, to ensure it meets consumer expectations of products bearing that trademark.
- Where the licensee needs to give third parties access to the licensor's IP rights, the licensee needs to have obtained the right to sublicense in the licensing agreement, whereby the licensee becomes the licensor to the sublicensee.

It must be noted that some of the parties' obligations to each other will survive termination of the agreement. Rights that survive will vary according to the licensed subject matter and the content of the agreement. However, a well-drafted agreement will contain provisions that: allow the licensor to collect royalties that are due; permit the licensee to sell licensed products still in the inventory; include mutual confidentiality and non-disclosure obligations; and provide for the right to undertake a limited audit after termination, etc. When IP is jointly owned, the ability to license may depend on the jurisdiction and on agreements between the parties. Care should be taken to

evaluate whether a single licensor has the right to license rights to others unilaterally. In many cases, joint owners must notify or obtain permission from co-owners. Often, licenses with competitors of a joint owner may be restricted by agreement.

Arçelik's licensing strategy

Arçelik A.Ş. creates its own technology in the field of household appliances and consumer electronics and establishes IP portfolios in line with the company's long-term strategic targets.

Arçelik A.Ş. differentiates its core technology and non-core technology for licensing activities and is open to discuss licensing opportunities for its non-core technologies, taking into account the licensee's ability to effectively commercialize the technology.

Arçelik A.Ş. also explores cross-licensing opportunities for its patented technologies with other companies if the cross-licensing of patents is beneficial for both parties. During these discussions, Arçelik A.Ş. considers the risk that poor strategy or execution might undermine the product's success or that poor quality management might damage its brand or the reputation of its products.

Arçelik A.Ş. is also eager to participate in patent portfolio programs. The company is willing to include its technology patents in patent pools if a consortium is interested in technologies that lie in areas in which Arçelik A.Ş is active.

Where licensing is the central business model of a startup and securing licensees is its main source of income, the company may not sell products or services but provide access to a technology via license agreements. Bluetooth or Dolby are examples of licensing-based business models. Dolby licenses its technologies to original equipment manufacturers (OEM) for incorporation in consumer entertainment products.

The same is true of startups that monetize copyrights, often by licensing software to third parties. Depending on its business model, IP and sector, a licensing-based startup may be high volume (approve several relatively low-value licenses a day) or low volume (one high-value license a year) and according to its profile will need to establish appropriate pre-licensing procedures for business development, negotiation and cash flow management, as well as appropriate licensing strategies and standard agreements.

Dermis Pharma Saglik ve Kozmetik Anonim Şirketi, Turkey

Founders
Professor Ozgen Ozer
Dr. Evren Homan Gokce
Dr. Sakine Tuncay Tanriverdi

Core IP

- Two patents (registered, Turkey).
- One European patent.
- Patents granted in Australia, Brazil, China, Japan, Russian Federation, United States of America.
- Pending PCT application (national phase in Canada).
- One trademark.
- Trade secrets and know-how.

Website: www.dermispharma.com

Product
Validated by clinical studies, the Dermalix™ wound care matrix patch treats chronic skin wounds caused by diabetes, bed sores or burns. During their research at Ege University, Turkey, the team built a dermal microparticle-based matrix containing antioxidants that significantly reduces the time required to heal chronic skin wounds, notably those caused by diabetes. Dermis Pharma has undergone regulatory approvals. The Dermalix product is expected to launch in 2021.

Intellectual property, product and business design
Ege University's technical transfer office (TTO) covered the initial costs of patenting under the Patent Cooperation Treaty and received a small equity share in Dermis Pharma in exchange.

A venture capital fund provided a loan to Ege University to finance the national phase of the original patent application.

Considering the startup capital required to enter production, as well as the costs of sales and human resources, the founders put their technology on the market via a strategic partnership. The competitive advantage provided by a patent proved crucial to attracting the strategic partner and eventually led to transfer of the patent rights.

Collaboration with one of Turkey's largest pharma companies evolved into a strategic partnership in which Dermis Pharma transferred the title to

all registered patents, as well as applications and the Dermalix products trademark. Dermis Pharma receives an undisclosed percentage of the revenue generated by commercial sales of Dermalix products.

The startup retains considerable know-how that it leverages on a project basis. Further, continuing collaboration with its strategic partner on Dermalix led to three new scientific publications which have further contributed to technical validation of the product.

A startup may also need to source and access IP that it needs for its business. Consider, for example, the following situation:

- A university owns an IP. It "spins off" a startup to develop and market that IP. Ideally, the startup owns the IP but the university is unwilling or unable to assign it. The startup therefore needs to obtain a license.
- Secure freedom to operate (FTO).[4] In this situation, the startup needs access to third-party IP in order to develop and commercialize its own products or services. Freedom to operate is most likely to be secured via licensing. When securing a license, care should be taken to consider what the needs of the company will be when it grows or when it is potentially sold to another entity. If contingencies are not considered in advance, the startup may need to renegotiate the terms of the license, which may be expensive or impossible.

Assignment

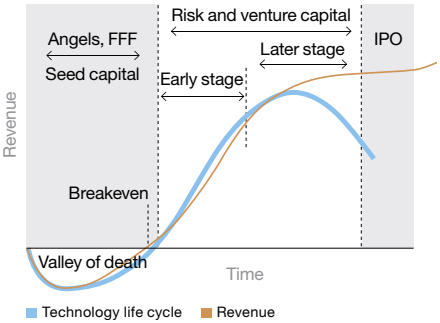
Assignment is the sale of an IP asset. An assignor transfers ownership of the asset to an assignee, usually but not always for value. (Transfers may be for a nominal consideration, where permissible.) When an assignment has been completed, the assignee holds full title to the assigned IP. The assignment process is subject to different rules in different countries and may need to be registered in the national registry to be enforceable against third parties. If a family of IP rights in multiple jurisdictions is being assigned, parties need to keep in mind the national character of IP rights, and that the sale of the asset must conform to applicable laws in each of the jurisdictions in question. It should be noted that a hybrid approach, of assignment and licensing, is possible. Consider, for instance, a technology that is covered by two separate patents in two different countries. A startup might acquire the patent in Country A through assignment and exploit the patent in Country B through a license agreement.

Access to finance

Until a startup can generate sufficient income to sustain its operations, it needs funding. Any newly established company needs to spend money before it can earn money. This is the infamous "valley of death" that a startup must cross. Because a startup is unlikely to generate sufficient income at its launch, it needs to have enough capital to cover its operational costs until it can become self-sustainable. In some cases, the company's founders finance its startup.

However, most require funding, often in substantial amounts. Many startups therefore turn to a range of funding sources, at inception or during their growth. When they do so, funders usually need to be reassured that a startup has taken appropriate steps to survey the IP landscape and protect its IP. Some funding sources are summarized below and the phases of financing are illustrated in Figure 6.

Figure 6. Phases of financing



This generic graphic of funding sources reflects ecosystems with a long history of investing in startups. In practice, funding landscapes vary from country to country.

Note that pre-revenue funding (while crossing the valley of death) usually comes from "friends, family and fools" (FFF), angel investors, and, potentially, government grants.

Most venture capital (VC) funders prefer to invest in companies that already have a positive cash flow (earn more income than they spend). Some early stage VC funds, typically in high technology areas, do invest during the pre-revenue phase.

Typically, a startup will traverse several fundraising stages, from angel investment to VC funding. At each stage, the amount invested will be significantly higher than the one before.

It should be noted that, in early stages, the revenue curve (orange) is likely to follow the technology life cycle curve (blue). A basic lesson here is that, if a startup does not continue to innovate but relies on the technology it originally developed, its revenue is likely to decline as that technology ages.

Government grants

Technologies that are classed TRL4 or below are unlikely to obtain funding from traditional investors because they carry considerable technology as well as business risks. In addition, there may not be a legal entity that can receive financing. The technology tends to be in development, often within a larger institution such as a university. At this point, the funding necessary to raise the TRL will usually come either from a university research budget or from government.

There are exceptions to this general rule. Some governments have established small grant mechanisms to foster entrepreneurship, which provide grants or long-term loans to enable startups to develop and validate their technologies or business models independently. More rarely, an angel investor is willing to provide a small sum to finance validation and the R&D phase.

Official research grants are likely to set conditions on ownership and use of any IP that the funding generates ("foreground IP"). As a result, the government body or university in which the research is conducted may have a claim on foreground

IP that might reduce the entrepreneur's ability to exploit it freely in the startup. Where a university's resources have been used (laboratories, materials, human resources) or where the entrepreneur has made an employment agreement with the university, the university or parties that funded the research may have a full or partial claim on the IP that is generated. This depends on local law and the policies of the university;[5] startup creators should therefore be careful to verify local laws and university IP policies.

Funding of collaborative projects, consortiums and international research programs may be conditioned in similar ways that also restrict the use and allocation of expected foreground IP. In addition, the project may require project partners to make their own IP ("background IP") available to project partners. If the business model of a startup requires exploitation of foreground IP that may depend on a third party's background IP, the entrepreneur may have to address freedom to operate issues.

Startups can also benefit from other government schemes designed to support innovation. For example, some tax regimes allow companies to deduct R&D costs in their tax declarations, reducing their costs. Other schemes, such as the Patent Box, grant companies a tax benefit on revenues they earn from IP rights.

Friends, family and fools (FFF)

At any stage, startups may be able to access non-institutional funding from friends or family. Typically such funds are loans, which are usually small, tend not to be accompanied by a formal agreement, and may not appear in the startup's books. If it accepts FFF funds, a startup should take care to document this capital inflow to avoid potential legal or tax liabilities in the future.

Where the launch and early stages of a startup are self-financed, ownership of IP may become an issue if there is more than one co-founder. In particular, partners should address the allocation of IP as early as possible. This is usually done via a shareholder agreement (SHA). For example, one co-founder may finance the startup, while the other brings in IP or technical knowledge that will create new IP. It is good practice to transfer all titles to relevant IP to the startup, and make all new filings for protection through the startup rather than personally by the entrepreneurs.

Angel investors

Angel investors are individuals who invest their own money, as distinct from venture capital funders who manage the funds of third-party investors. Angel investors tend to invest in areas in which they have professional experience or an interest. Compared to venture capital funds, they generally invest smaller amounts, but usually do so at an earlier stage. In addition to providing capital, good angel investors share their expertise and support their startups' product and business development, and later on their fundraising and management. Like venture capital funds, angel investors usually receive equity in the startup in exchange for their investment. They therefore come to have a proprietary interest in companies they support, though not necessarily in their IP

or the IP they create. Angel investors rarely ask for a proprietary interest in the core IP; if such a request is made, the entrepreneur should respond very carefully. By contrast, investors commonly ask startups to assign relevant IP rights to the new company, for example when they belong to a separate entity such as a university or to an individual such as the entrepreneur.

Venture and risk capital funds

Venture capital (VC) funds are much more institutionalized than angel investors. They typically manage funds that have been pooled by other investors, high net worth individuals, or funds of funds. Collectively, the investors in a VC fund are called "limited partners" (LPs). Most VCs will have a focus area of investment and will tend to invest at certain stages. The amounts they invest (called the "ticket size") will vary from VC to VC. Because they are institutional and have a fiduciary duty to their LPs, the due diligence procedures and investment decisions of VC funds take longer than those of an angel investor.

When entrepreneurs pitch to a VC fund, they should take steps to establish that the startup's focus and the sums it seeks fall within a fund's investment criteria. A mobile app startup seeking USD 500,000 is unlikely to secure investment from a life science VC fund that never invests less than USD 2 million.

It is evident that entrepreneurs must look for startup capital if their projects are not yet generating income; but a startup with positive cash flow may also wish to raise investment funds (which translates into selling equity in the company), for example to accelerate its growth, enter new markets, or bring new products to market. The core rationale is to increase the new company's value. Typically, the share of founders will decrease substantially as a startup moves through rounds of financing. The core presumption is that, when the value of the company rises, the value of each share in it rises too. If the company performs well and its overall value increases, a smaller percentage of equity will be worth more.

To illustrate, imagine that an entrepreneur holds 80 percent of the shares in a startup valued at USD 1 million. The value of her equity is USD 800,000. After several rounds of investment, the value of the startup rises to USD 500 million, but the entrepreneur's share of the equity is now 10 percent of the total. The value of her equity has risen to USD 50 million.

Increase the value of the startup

As indicated earlier, IP is an asset and can be attributed a value. This value facilitates trading with that asset and also creates a basis for enhancing the company's value. In today's knowledge-based economy, the intangible assets of companies constitute a larger share of their overall value, and physical assets increasingly a lower share. This is particularly true of startups, many of which rely on a single innovation – one intangible asset – and have virtually no physical assets. The value of such startups is by and large the value of their innovation plus the knowledge held by their creators.

However, valuing IP is complex and often difficult,[6] and is especially challenging for startups because their IP is likely to be immature, still in research and development, or in the process of registration. Nor is the value of an IP constant. It changes over time under the influence of many factors, including registration of a patent, validation of the technology, expressions of interest by possible licensing partners, the perceived demand for the technology, the degree to which it can replaced by different technologies, etc. Similarly, the refusal of a patent application, a legal challenge to ownership, the appearance of a different but competitive product, or a new regulatory hurdle can depress an IP's value.

Nevertheless, a value assessment should be made as far as it can be done. To start with, it is important to bear in mind the difference in potential value of an IP that a startup commercializes and an IP that is licensed to a large corporation. Initially, the former will have a much lower value than the latter, because of the risks associated with startups. However, if a startup succeeds in clearing the different stages of development and validates its business model, the value of its IP will rise and may reach a much higher monetary value than could be achieved by licensing.

Taking this into account, valuation of early-stage IP is useful for several purposes, including:

- To calculate the share of the equity of the party bringing IP into a startup (as opposed to the party bringing capital). For instance, imagine that a patent application is valued at USD 100,000 and that another party is willing to invest the same amount in the startup. On this basis, the partners will each own 50 percent of the equity of the startup, provided that other considerations do not change the equity structure.
- To attract investors. A startup in search of funds needs to be valued so that potential investors can ascertain how much equity their investment will buy. A valuation of its IP may increase the startup's value, allowing the founders to increase their equity for the same amount of financing. For instance, imagine that an investor is willing to put USD 100,000 into a startup in an early stage. If the startup is valued at USD 500,000, the investor will receive 20 percent of the equity. However, if the founders can value the same startup at USD 1 million on the basis of an evaluation of its IP, the funders will increase their own holding and the investor will receive 10 percent of the equity for the same investment.
- A startup may want to license in an IP asset that belongs to a third party, such as a university. The value of the IP to be licensed in will impact on the cost of establishing the startup. In response, the startup might negotiate an option (to license the IP at a later date); seek capital from investors (to enable it to license the IP); or negotiate a deferred royalty payment scheme with the IP owner (under which royalties will accrue but the startup will defer their payment, typically until it generates positive cash flow).
- IP will also need to be valued when it is to be sold, licensed out, used as col-

Table 1. IP valuation trigger

Classification	Valuation trigger
Transaction	Licensing of IP assets; franchising
	Sale or purchase of IP assets
	M&A; divestures, spin-offs
	Joint venture or strategic alliance
	Donation of IP assets
Enforcement of IP rights	Calculation of damages when IP rights are infringed
Internal use	Investment in R&D
	Internal management of IP assets
	Strategic financing and/or raising equity/capital
	Investor relations
Other purposes	Financial reporting
	Bankruptcy/liquidation
	Optimizing taxation
	Insurance of IP assets

See WIPO. IP PANORAMA. Module 11 on IP valuation.
www.wipo.int/export/sites/www/sme/en/documents/pdf/ip_panorama_11_learning_points.pdf.

lateral for a loan, or used to claim tax benefits on commercialized IP assets (in countries whose fiscal policies are favorable). A company may also value the whole of its IP portfolio, and record its value as assets in its accounts, in order to calculate the value of the company.

Several methods[7] are used to value IP assets. Some of the more commonly used are set out below.

Cost method

The cost method evaluates the value of an IP asset by determining the cost of developing a similar (or exactly the same) IP asset either internally or externally. It aggregates the direct expenditures and opportunity costs involved and also considers obsolescence. A final value of IP is reached, for instance, by calculating the cost incurred in development, adjusting for inflation to provide a current value, and adjusting further to compensate for obsolescence.

Calculations of obsolescence of an IP asset take functional, technological and economic dimensions of obsolescence into account.

Functional obsolescence is calculated in terms of the additional operational cost of using an IP relative to current alternatives, which may be state of the art. Technological obsolescence occurs when technological evolution renders an IP worthless. For example, patents for a next generation computer floppy disk drive are likely to be worthless because technologically superior options are already available. Economic obsolescence occurs when use of an IP in its highest and

best form cannot provide an adequate return on investment.

The cost method has two variants. The reproduction cost method examines the cost of reproducing an exact replica of the IP asset. The replacement cost method examines the cost of recreating a similar IP asset that performs the same function.

Market method
The market method compares the IP asset with the actual price paid for a similar IP asset under comparable circumstances. To make a valuation using this method, an active market and an identical IP asset or a group of comparable or similar IP assets are necessary. If these assets are not perfectly comparable, variables must be found to control for the differences.

A valuation using this system increases in accuracy to the extent that information is available on the nature and extent of the rights transferred, including details of terms and conditions and the circumstances of the transaction (whether it is cross-license, or a license has been agreed in settlement of litigation, etc.).

By definition, however, an IP asset is unique. It is not possible to find exactly similar or very highly comparable IP assets. Further, even if one were able to successfully locate transactions relating to highly similar IP, it would be extremely difficult to obtain precise information about them because such information would normally be confidential.

Income method
The income method values an IP asset in terms of the economic income that the IP asset is expected to generate, adjusted to present day value. It is the most commonly used method of IP valuation.

To apply it, one must project the revenue flow (or cost savings) generated by an IP asset over the remainder of its useful life (RUL); offset those revenues or savings against costs that are directly linked to the IP asset; assess risks; and finally adjust the income to its present day value by applying a discount or capitalization rate.

Attract partners and collaborators

A well-managed IP portfolio signals that a startup is serious about and values its IP, and has taken steps to protect it. This gives confidence to potential collaborators. It implies a favorable environment, that innovations will be respected and protected, and that the venture will be secure.

The subject of collaboration and IP has recently become more salient in the context of what is referred to as "open innovation." Firms that practice open innovation actively engage external collaborators to advance their offerings, encouraging ideas from outside the organization. In the past, innovation typically occurred in a closed environment; it was generated within organizations with little input from outside.

Today, it is more common for organizations to seek the input of external parties. Small

companies increasingly seek to participate in larger projects and signal to other players their inventive and creative credentials by taking steps to manage their IP assets and make themselves attractive candidates for big companies to work with. While open innovation models can create tremendous opportunities for startups, they need to pay careful attention to IP ownership and to licensing arrangements that may be a condition of participation. Parties that solicit collaboration often require their partners to transfer IP ownership or grant broad license rights. This may not be compatible with the startup's business model or its interest.

Notes

1 See International Trade Center and WIPO (2005). *Exchanging Value, Negotiating Technology Licensing Agreements – A Training Manual*. www.wipo.int/edocs/pubdocs/en/licensing/906/wipo_pub_906.pdf; and WIPO (2015). *Successful Technology Licensing*. www.wipo.int/edocs/pubdocs/en/licensing/903/wipo_pub_903.pdf.

2 See WIPO Green, *Licensing Check List*. www3.wipo.int/wipogreen/docs/en/wipogreen_licensingchecklist_061216.pdf.

3 However, keep in mind that trade secrets can last forever. An agreement can also last longer than the IP provisions in it, especially if services are being provided.

4 For more information on FTO, see the section on Managing risks associated with intellectual property.

5 For more information, see WIPO. "Intellectual Property Policies for Universities." www.wipo.int/about-ip/en/universities_research/ip_policies/index.html#toolkit.

6 See WIPO. IP PANORAMA. Module 11 on IP valuation. www.wipo.int/export/sites/www/sme/en/documents/pdf/ip_panorama_11_learning_points.pdf; and European IPR Helpdesk. "Fact sheet – Intellectual Property Valuation." https://intellectual-property-helpdesk.ec.europa.eu/ip-business_en.

7 Ibid.

Managing risks

The success of a startup depends as much on understanding the risks of ignoring the IP system as knowing how to use it to strengthen competitiveness. Failure to protect innovations which the startup relies on will foreclose options referred to earlier that can strengthen and expand its business. Failure to understand how the IP system works will expose the startup to attack and unnecessary costs. Startups should integrate IP risk management in their overall business strategy as a priority. Some of the more important risks are described below.

Clarify ownership and usage rights

Failure to protect and protect early

As discussed above, a technology-based startup is created to bring to market an innovative product or service, sometimes a single product or service. The innovation is often its only or principal resource of value. For such a startup, one of its main risks is to lose the asset to third parties as a result of failing to protect it, jeopardizing its entire business model. Every startup should therefore take action to protect its innovation and thereby prevent its appropriation by others. Managing this risk implies, for example, acting to:

- register at an early date;
- respect registration deadlines and timelines; draft a sound patent claim that prevents circumvention;
- obtain protection in all relevant markets; and
- protect all improvements that follow.

Because IP assets are territorial, a startup's IP protection strategy should include all the markets in which it has an interest. Once protected, the startup must continue to maintain its IP protection by paying all relevant fees.

Prevent leakage

Startups also face a threat if they fail to keep potential IP assets confidential until they have applied for IP protection. As noted earlier in this guide, if a startup's innovation or design is disclosed (even to a small number of people), it forfeits its claim to be novel and may no longer qualify for protection (unless the disclosure was made during a grace period, if that exists). If this happens, at a stroke it can make a startup unviable. Likewise, confidential business information that has been disclosed does not qualify for trade secret protection unless disclosure occurs in the context of a confidentiality agreement. Startups should therefore take steps as a priority to prepare and implement confidentiality agreements and practices with their staff and with third parties, including suppliers, partners, and customers.

Failure to obtain assignments

Employees or third-party suppliers or contractors may contribute to or may be responsible for innovations. A startup should not assume that it owns what its employees or contractors have worked on. The specific provisions in the national law should always be considered in such situations.

In some countries, when inventions have been made in the course and context of employment, the law automatically assigns ownership to the employer. However,

considering that many startups will eventually work across borders, where the laws may differ, companies are recommended to include clauses that deal with IP ownership in their employment agreements. Care should be taken to analyze both how the IP will be used currently, and how it may be used as the company evolves. Always review national laws, because these may assert that employees who innovate have a right of first refusal, or that employers have a duty to reward such employees, etc.

For similar reasons, when a startup prepares contracts with third parties, these should clearly address and clarify IP ownership. Where inventive or creative work has been done by a third-party contractor, the agreement between the contractor and the startup should assign to the startup all work that is necessary to the success of the venture. In the absence of such a provision, it is often the default position, particularly with respect to creative work such as software development, website design, and photography, that the third-party contractor will own his or her work unless that work has been explicitly assigned to the startup. Once again, startups should think ahead, consult national law and, in all employment agreements and contracts with external parties, spell out how ownership will be determined. Contracts should state that all innovations produced by employees or commissioned to third parties will be assigned to the startup.

It might also happen that a startup had several founders, all of whom played a role in creating and developing the initial product idea. If one or more of them leave without assigning their rights to the startup, the company may find that it no longer owns the IP it needs to pursue its business.

In the same way that a startup employs or contracts third parties, bigger companies contract smaller companies to perform certain tasks. This frequently occurs in open innovation environments, where big companies often request smaller specialized companies to resolve specific technical problems. In this situation, the startup is in the position of an external contractor. Before undertaking such work, startups should clarify with the bigger company who will own the IP in the work that results. An arrangement is likely to be particularly complex if the startup develops a new solution (foreground IP) having been granted access to third-party IP (background IP). It is essential to clarify what rights devolve to whom in such a case and what restrictions there might be on use of the IP that results. These are complex issues that need to be studied carefully and negotiated beforehand.

The aim of the startup should be to ensure that it has "clean" title to the IP it creates. If ownership is not possible, the startup should obtain the right to use the IP in question for agreed purposes. As with physical property, the objective is to remove all doubt as to who owns it.

Prevent litigation

Costly litigation can wreck startups, which characteristically lack the resources to resist an aggressive litigator. Litigation is often

the weapon preferred by large companies (indeed any competitor with means) to knock a promising young startup from its trajectory. Startups are also at risk from "non-practicing entities" (often unflatteringly called "patent trolls") whose business model is to search out small companies that use third-party proprietary technology and threaten to sue them unless they take out a license.

Risks of this kind can be mitigated or avoided by checking third-party rights and ensuring that they are not being infringed. All registered rights are available for inspection (patent applications generally 18 months after filing) and startups can easily check and confirm that they are not using proprietary technology, or business signs and designs that belong to others. Similarly, startups should take care to ensure that they do not infringe copyright-protected works of others, or illegally access confidential business information. Missteps can result in expensive lawsuits, cause a startup to lose crucial time, or compromise its reputation.

Freedom to operate (FTO)

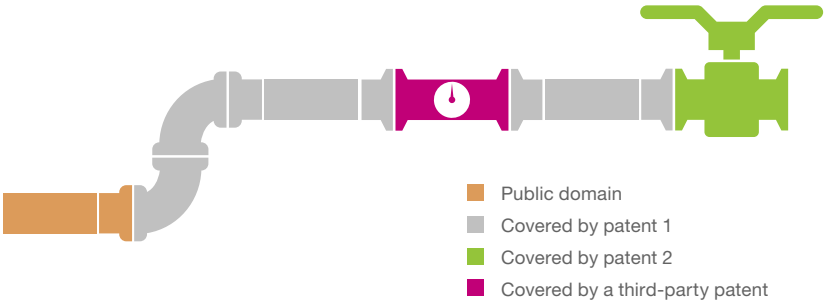
A startup may own IP rights that cover its own innovative niche; but these rights alone may be insufficient to market its product. The reason is that most IP rights, and patent rights in particular, are "negative rights."[1] A patent owner does not have an automatic right to use and exploit the invention claimed in his or her patent document. A patent merely confers on the patent owner the right to exclude others from using the patented invention. It follows that a startup may need access to other IP rights to market its product.

Imagine, for instance, that a startup wants to commercialize a new and innovative charging station for electric scooters. The design of the product includes a retractable charging cable. In the market where the startup will make or sell its product, a separate company has a patent for the retraction system. To sell its innovative charger with the retractable charging cable, therefore, the startup may need permission from this company. If the startup commercializes its product without permission, it is likely that the company with the retraction system patent will intervene. It might demand that the startup stops using the cable or pays damages for unauthorized use of the company's IP.

To prevent such scenarios, companies need to search for third-party IP that may prevent them from marketing their products in the markets that are of interest to them. This is known as freedom to operate analysis.[2]

To understand how FTO works in practice, consider the following hypothetical example of an FTO analysis in a given country.

Figure 7. An example of freedom to operate (FTO) analysis: Product A, its subcomponents and the patents that cover each subcomponent



- A startup wants to produce and sell product A. It wants to market its product under the name "Jambu."
- The product has seven separate sub-components.
- The startup has two pending patent applications covering five of the seven sub-components (gray and pink in the figure).
- The connector (orange) is a critical sub-component that is in the public domain.
- The valve (green) is owned by a third-party patent.
- The proposed brand name "Jambu" is already protected by another company, for a different category of product.

In this example, the startup has a problem because the valve (green) has been patented by a third party. The startup has the following options:

- To remove the protected valve from the final product.
- To adopt a different design that avoids using the patented valve.
- To buy the patent or secure a license from the patent owner to use the valve technology.
- To challenge the validity of the patent.

It is likely that the product will not function without the valve, so the first option may not be feasible. If the startup cannot design an alternative valve, it can approach the third-party patent holder and ask to buy the patent or obtain a license to use the technology. If the patent owner is unwilling to sell or license the patented

valve, however, or will only do so at a price that is too high for the startup's business model, the startup may be forced to drop the project, run the risk of being sued for infringing the patent, or embark on a costly and uncertain attempt to invalidate the patent. These outcomes could be highly damaging for a startup that has already made a substantial investment in time and resources to develop and commercialize its product.

While FTO issues are often referred to in the context of patents, other IP rights may also give rise to FTO challenges. For example, the startup in our example hoped to call its product "Jambu." It has discovered that this name is already protected and in use for a different product. In this case, the name would be available for use, since two trademarks can exist in the same territory for different types of products, unless one is considered "well-known" (in which case there may be restrictions).

Imagine other examples. A startup wants to produce hardware but needs a copyright-protected software to run it or to be compatible with other systems. Or a startup has developed a mobile application but needs access to a third-party application program interface (API) or to software development kits (SDK). In the context of copyright, open-source licenses on software may be tied to contractual obligations that preclude the startup from commercially exploiting the original source code or making its own publicly accessible.

A startup needs to run an FTO analysis in each geographical area in which its product is to be commercialized. Because IP rights are valid only in countries or regions that have granted them, FTO analysis may generate a different outcome in each country that is analyzed.

For all the above reasons, startups are strongly advised to run an FTO analysis as early as possible in all markets of interest, and to do so before allocating significant resources to developing a product. Startups that do not take this precaution are likely to pay more to access technology and risk litigation and reputational harm. Startups that lack the resources to undertake a full-scale FTO analysis in all markets of interest may need to prioritize (markets, features, or patent owners associated with the highest risk, etc.).

Avoid wasting time and resources

Many startups make the error of "falling in love" with their idea and fail to check whether it is in fact new; they simply assume that noone else has had the same idea or a variation of it. Such an omission can condemn the product and the startup to failure. If others have had the same or a similar product idea and have taken steps to protect it in markets that interest the startup, the startup will effectively be blocked from entering those markets.

Startups must therefore take the trouble to understand the competitive landscape. Doing so will give them vital information and permit them to avoid unfortunate and costly surprises. A startup that briefs itself on the competition can focus its research and development efforts in areas that offer opportunities, pivot or restructure its development process as necessary, adapt its business model, spot possible partners and competitors, or simply drop its idea.

Publicly available databases are an important source of information and can assist a startup to make these decisions and avoid mistakes. A number of patent databases that hold published patent applications and granted patents, as well as trademark and design databases, are freely available. They are crucial sources of technical, legal and business information.

Notes

1 It is important to clarify that, in a FTO analysis involving a patent, it is the claims (a specific part of the patent document) that define the legal scope of a patent. What is material for the purposes of the FTO is what is disclosed there, not anywhere else.

2 See "IP and Business: Launching a New Product: freedom to operate." In *WIPO Magazine*, September 2005. www.wipo.int/wipo_magazine/en/2005/05/article_0006.html.

Using IP databases

As noted, when a startup files an application for a patent, trademark or industrial design, the relevant national or regional IP authority makes the application public after a period of time whose length depends on the IP right and the jurisdiction. Patent, trademark and industrial design databases provide important business, technical and legal information that is freely available to anyone with an Internet connection. These databases are a useful resource for startups throughout their business life cycle on matters from exploitation to risk management.

Patent databases

To obtain a patent, the applicant must disclose information about the invention that is sufficiently detailed to enable a person skilled in the field to understand it. This information is maintained in patent databases, which:

- Hold detailed information on technical solutions.
- Are often a unique source, containing information not available elsewhere.
- Cover a broad range of technical and scientific activity.
- Classify entries according to international patent classification systems, thereby facilitating searches.

A startup can consult the free-of-charge databases maintained by its local national office,[1] WIPO's patent database PATENTSCOPE,[2] which lists many national and regional patent collections as well as other databases offered by regional organizations such as Espacenet, or databases maintained by private providers, such as google patents and lens.org. Private commercial service providers also maintain patent databases that can be consulted for a fee and include sophisticated search and analysis functions. They include Derwent Innovation, Questel Orbit, PatBase, TotalPatentOne, Ambercite, PatSeer, PatSnap, WIPS Global, and East Linden. Startups may obtain access to these databases free of charge or at a reduced fee in countries that qualify under WIPO's Access to Specialized Patent Information (ASPI) program.[3] Some can benefit from national patent offices that provide certain search and consultation services free or for a small fee. Finally, startups in certain locations can use the services provided by WIPO's Technology and Innovation Support Centers (TISC, www.wipo.int/tisc).

Consulting the information contained in patent databases assists startups to:

- Avoid duplicating their research and development efforts.
- Assess the potential of an invention to qualify for a patent.
- Avoid infringing third-party patents.
- Assess the competitiveness and unique value of their inventions.
- Exploit technologies described in patent applications that have not been granted, and patents that are not valid in certain countries or are no longer in force.[4]
- Gather intelligence on the innovative activities and future direction of business competitors.
- Improve planning of business decisions with regard to licensing, technology partnerships, and mergers and acquisitions.

Vispera Bilgi Teknolojileri Sanayi İç ve Dış Ticaret Anonim Şirketi, Turkey

Founders
Professor Dr. Aytül Erçil
Dr. Ceyhun Burak Akgül
Core IP

- Patents granted in Turkey, United Kingdom and United States of America.
- Trademarks registered in India, Turkey, United Kingdom and United States of America.
- Copyrights on software.
- Trade secrets.

Website: www.vispera.co

Product
Vispera produces image recognition services for fast-moving consumer goods (FMCG). It uses visual recognition technologies to capture in-store retail data in real time, reporting product placement on shelves and reducing losses due to lack of stock or overstocking.

Existing retail stock control solutions principally focus on manual monitoring, tracking planogram compliance, and stock controls. These measures are costly, slow and often inaccurate. Vispera estimates that its solution increases sales by 15-18 percent and reduces costs by 15 percent.

IP, product and business design
The development of the business idea included a thorough review of IP databases to identify and map areas of low patent activity. These were specifically targeted as they were believed to offer business potential.

The startup leveraged various government grants to partly finance two separate Patent Cooperation Treaty applications that it filed during the early stages of development. The co-founders engaged venture capital firms to finance operational costs, other IP applications and legal issues.

Vispera's IP portfolio is crucial to its global development strategy. Apart from the patents and trademarks it has secured the company has copyright in Turkey, the United Kingdom and the United States of America, and the company has also secured trademark registrations in India, Turkey, the United Kingdom and United States of America.

The company has copyright on its proprietary code and protects its trade secrets and know-how. Internationally, Vispera expects that licensing its

intellectual assets will generate an increasing proportion of its business activity, especially copyright licenses on the proprietary software.

Use of patent data and landscape analysis

"Patent mapping" or "patent landscape analysis" refers to the systematic search and analysis of existing patents in a given technology space. A mapping describes the landscape in a technological area, types of technical solutions that may be available, and the leading and emerging players in that space. It is based on a state of the art search using search terms and keywords, patent classification symbols drawn from the International Patent Classification (IPC) or the Cooperative Patent Classification (CPC), and a series of search operators that improve targeting. The process is iterative. Once the relevant dataset is finalized, different patent fields can be analyzed and visualized, providing crucial competitive, quantitative and qualitative intelligence for startups, research institutions and multinationals alike. The type of information to be analyzed and presented, or even co-related, varies based on the objective of each landscaping exercise (see Figure 8).[5]

Patent analysis can provide a wide array of information, including on:

- Technology trends in target technology spaces. In our fast-paced world, some technologies quickly become irrelevant while others expand explosively in the manner of artificial intelligence, driven forward by the increased availability of large data sets. If companies can identify where a technology sits on the technology S Curve[6] and where target technologies are evolving, they can structure their commercialization strategies and focus their research and development. Such information also helps to identify peaks in patenting activity, crowded areas that may make markets difficult to enter ("Red Ocean"), and areas of low patenting activity ("Blue Ocean") where competition may be less intense. Startups are likely to find some of the most promising opportunities in relatively unexplored areas known as "white spaces." Some types of analysis and services focus on identifying these.
- Active players in the field. Patent data analysis can help to identify leaders and newcomers in an area, and potential partners and competitors, and reveal how their patenting activity has evolved over time. It can highlight the affiliations of important inventors, possibly their connections to various entities, and also collaborations, which usually appear as patent co-applications. This information shows where collaborations are taking place between industry players, academia and startups and spinoffs. In addition, inventor information may provide insights into past and present affiliations, as well as joint research and cooperation.

Figure 8. Spatial concept maps

Patent landscape reports can include spatial concept maps. These visualize the frequency and concentration of certain terms in identified patent documents (the data set). Areas of high interest are visualized as lifted areas or "peaks" and may be saturated. Areas that have less activity lie between the peaks: these "white spaces" are of particular interest to startups that are trying to enter a market. Several companies offer variants of spatial concept maps. They include Derwent Innovation's Themescape, PatSnap Landscape, and the Orbit concept map. An example is pictured below. Some text mining tools, such as Vantage Point, and certain open source tools, such as Python or R, allow similar forms of analysis.

Source: PatSnap (www.patsnap.com).

Trademark and design databases

Before a startup invests time and resources and becomes attached to a dream trademark that captures everything the startup believes about its product, it is important to do what is called a trademark clearance search. This ensures that an identical or very similar trademark is not already registered or used by someone else for the same or similar products. A startup can begin by making a simple Internet search, using a search engine to check whether the name it has in mind is already in use. A further search may be undertaken in the trademark databases of national and regional trademark offices as well as WIPO's Global Brand Database.[7] It is best to obtain the assistance of a trademark agent. With industrial designs, similarly, it is important to check whether an identical or very similar design has been registered. The Global Design Database, maintained by WIPO, is a useful resource for this purpose.[8]

Copyright

It is more difficult to check for copyrighted works because not all countries have copyright registries and registering a "work" is voluntary. However, one can conduct online searches, focusing on business ideas to which a copyrighted work might be relevant and competing businesses, to identify potential IP-related liabilities and opportunities. As indicated earlier, copyright protects the way an idea is expressed, not the idea itself. As a result, it is quite possible to produce independent original work that "innovates around" copyright protected work. For instance, because code for software can achieve the same output in many different ways, it is possible to write new code without infringing third-party rights. As well, it is sometimes possible to obtain a license to develop an idea around an existing work. A competitive advantage is likely to emerge if the new work is easier to use, is more practical or attractive, or is delivered more efficiently to market.

Domain names

As noted earlier, startups should check that their preferred domain name is available.[9] If a search shows that it is not, it should choose an alternative domain name or possibly purchase the desired name from someone who is holding it for resale. Companies can also modify their preferred domain name, or try to register it under other gTLDs, including the new gTLDs, which are likely to be more available, as well as ccTLDs. (For more on domain names, see the section on Distinguishing your product in the market.)

Notes

1 www.wipo.int/directory/en/urls.jsp.
2 www.wipo.int/patentscope.
3 www.wipo.int/aspi.
4 For information on identifying and using information in the public domain, see WIPO (2020). *Identifying Inventions in the Public Domain – A Guide for Inventors and Entrepreneurs.* https://www.wipo.int/edocs/pubdocs/en/wipo_pub_1062.pdf. See also, WIPO. *Using Inventions in the Public Domain – A Guide for Inventors and Entrepreneurs*. www.wipo.int/edocs/pubdocs/en/wipo_pub_1063.pdf.
5 See WIPO. PATENTSCOPE. "Patent Landscape Reports." www.wipo.int/patentscope/en/programs/patent_landscapes.
6 A technology S curve is a graphical representation of the life cycle of a particular technology that outlines its emergence, growth, maturity and saturation.
7 See WIPO. Global Brand Database. www.wipo.int/reference/en/branddb.
8 See WIPO. Global Design Database. www.wipo.int/reference/en/designdb.
9 See ICANN. Domain Name Registration Data Lookup. https://lookup.icann.org/lookup.

IP audit

An IP audit[1] is a systematic review of the IP that a business owns, uses or has acquired. It is done to assess and manage risk, remedy problems, and implement best practices in IP asset management. Based on a comprehensive review of the company's IP assets, related agreements, relevant policies and compliance procedures, the audit helps a company to:

- inventory or update its IP assets;
- analyze how these assets are used or not used;
- confirm whether the business or others own the IP assets it uses; and
- establish whether the company's use of IP assets infringes the rights of others and whether others are infringing the IP rights of the company.

A simplified IP audit checklist is given in Table 2. The company can use this information to determine what actions to take with respect to each IP asset to achieve its business goals.[2]

For a company, IP audits can be useful both as a general housekeeping procedure and to achieve a very specific purposes when it needs to understand the status of its IP assets. For example, a startup that has developed an innovative product or service, that it may or may not have transformed into an IP asset, will want to understand its options. An audit will help it to determine how its IP asset can support its business strategy, assess its competitive strength, and manage risks. Audits also help startups to be investor ready. Investors want to have a clear picture of a startup's IP situation. For similar reasons an audit will be helpful if and when a startup is bought (the "exit stage").

In addition, audits reveal assets that do not directly impact on core business activities and might be licensed out or sold to create alternative revenue streams; and can identify superfluous assets that create unnecessary maintenance costs and should be dropped from the portfolio.

The first step in an IP audit is to identify the startup's IP assets. This implies identifying all its intellectual assets and distinguishing those that could qualify to be protected as IP. As a sub-category of intellectual assets, IP can be distinguished from other intellectual assets because they are defined in law and rights accrue from them.

To begin with, in an internal process, the startup monitors what it does differently to its competitors that gives it a competitive edge. For instance, does the startup have well-established operational procedures for project management, knowledge and experience in storing sensitive chemicals, or an in-house customer relationship management (CRM) system? Does the knowledge of employees represent an important intellectual asset of the company? Estimating employee know-how can be difficult. One method is to track employees' job descriptions against the requirements of their positions to establish the value that each employee adds. This exercise should be complemented by record keeping procedures (laboratory books, project development briefs, research documents, etc.) that will permit the company to capture and internalize its intellectual assets.

Table 2. A simplified checklist of issues to be considered in an IP audit

1. **What potential intellectual property assets are there?**
   - Signs, names, labels used to identify products or services.
   - Innovative ideas, new ways of doing things, technical solutions.
   - Creative writing, software, advertising jingles, video clips, etc.
   - Attractive packaging, designs, distinctive shapes, etc.
   - Internal business information, such as: reports; analyses of data; marketing information; production information; know-how and negative knowhow; customer lists and customer information; operation and design manuals; designs, drawings, diagrams and artwork; ideas and plans; formulas and calculations; prototypes; laboratory notebooks and experiment; vendor and supplier information; R&D information; cost, price, profit, loss and margins data; forecasts and plans; advertising materials; financial information; budgets and forecasts; software and source code.
2. **Can these IP assets be protected as trade secrets, patents, trademarks, domain names, designs or copyright?**
3. **Are there any ownership issues?**
   - Have the ideas been developed by the founders of the company, by employees in the course of their employment, or by contractors, vendors, or customers?
4. **Are there relevant agreements that determine their relevance for IP?**
   - Do they provide for the assignment of rights?
5. **Where agreements entered into do not cover the assignment of rights, have steps been taken to have the rights assigned or licensed to the company?**
6. **Are there infringement issues?**
   - Is the company infringing the rights of any third parties?
   - Are third parties infringing the rights of the company?
7. **Where no ownership or infringement issues occur:**
   - Have steps been taken to file appropriate applications for trademarks, domain names, patents and designs?
   - Are these applications or assets being maintained by paying on time the required maintenance fees?
8. **Have applications been made in all target countries?**
9. **Have steps been taken to maintain the secrecy of competitive business information by:**
   - taking protection measures; restricting access to information;
   - signing confidentiality agreements with employees and third parties to whom disclosure may be made;
   - signing noncompete agreements with departing employees; communicating internal policies to prevent inadvertent disclosure?
10. **How do the IP assets add value to the strategic business goals of the company?**
    - Are they all used in the core business of the company?
    - Can others be given the right to use them?
    - Should some be dropped, donated or used in other ways?
    - Can they be used to attract investors, partners and collaborators?

Note: For more information, see South-East Asia IPR SME Helpdesk. IP Audit Checklist. www.southeastasiaiprhelpdesk.eu/sites/default/files/publications/EN_Audit.pdf. See also, Alan R. Singleton. IP Audit Checklist (Singleton Law Firm, P.C). https://nebula.wsimg.com/d88b0ffd498cd797d780f38d40a0a316?AccessKeyId=532DB1B257AADAEA6A76&disposition=0&alloworigin=1.

Having identified assets that are IP or potential IP, the audit determines their status. Which, if any, of the company's IP assets does it own, and do the rights remain valid? Where IP rights are not owned, have steps been taken to acquire ownership or acquire use rights through a licensing arrangement?

The information gathered through this exercise will help the startup to spot deficiencies in internal processes, determine how costs might be managed better, clarify the degree of exposure to infringement, and identify opportunities for collaboration.

Many IP-based startups make the error of failing to keep their IP portfolio up to date. As a result, they can lose the initial competitive advantage they gained through their IP rights. Imagine that a first product is protected by a patent. The product is successful. The startup continues to innovate and launches several generations of product with important additional functions. However, it fails to secure IP protection for the improvements it makes, relying solely on the original patent. As a result, the company's newer products become vulnerable to copying, enabling competitors to challenge the startup's market advantage. A startup's IP management strategies must always evolve in line with its innovation strategies. Startups should periodically conduct an IP audit to determine the status of their IP assets and to make sure that their IP protection is adequate, appropriate and up to date.

Notes

1 On conducting an IP self-assessment, see WIPO. *IP Diagnostics*. www.wipo.int/ipdiagnostic.

2 See WIPO. IP Audit, Module 10. www.wipo.int/export/sites/www/sme/en/documents/pdf/ip_panorama_10_learning_points.pdf.

Annex 1: Service providers

Because it has limited resources, a startup is often unable to engage qualified outside service providers. Most startups are either unaware that they are in need of outside help or cannot afford it. Founders tend to dismiss the need or try to fill gaps themselves. In particular, startups tend not to obtain support they need in two key areas: legal advice and IP support. Though there is unfortunately no easy fix to this problem, a startup that knows when it needs help is more likely to find interim solutions. Founders should research the availability of local accelerator or incubation programs, seek advice from their technology transfer offices (TTO) if they are from an academic setting, and seek out other providers that can provide basic support services free of charge or at an affordable rate. Startups at the fundraising stage should include budget lines for hiring external service providers, as well as the cost of IP renewal and maintenance fees. Most venture capital funds will not challenge such expenditures because they are likely to realize the critical value of competent advice.

Startups may need advice on drafting a patent application, drafting legal foundation documents, or simply generating a viable business model. Some organizations support early-stage entrepreneurs, though they are not found everywhere.

Accelerators

Typically, accelerators are for-profit organizations that assist startups to "accelerate" their business growth. Accelerators offer mentoring, capacity building and in certain cases some capital investment in exchange for a small share of equity. Top accelerators are very selective and applicants are subject to a rigorous application process. The goal of an accelerator is to prepare the startup to receive venture capital funding. In emerging economies, university or technology park accelerators are stepping into the role of accelerators; some have a sectoral focus, in life sciences, green technologies, etc. A good accelerator will also offer mentors or staff with specific industry, legal or IP expertise who can assist a startup to negotiate the various challenges described earlier. Some accelerators have offices in different countries, and can provide a landing pad for promising startups that wish to enter international markets.

Incubators

Incubators are typically sponsored by a university, venture capital fund or company. They are not profit driven although some may require an option (a future right) to acquire equity in the startup. Most incubators will accept startups at a very early stage, even before they exist legally, permitting would-be founders to explore their business idea and graduate from the incubation center with a sound strategy and business model. A good incubator, like a good accelerator, will offer (some) mentoring to help frame the business model, address IP and other legal issues, and provide information on topics that founders find useful.

Technology management offices (TMOs)

Also known as technology transfer offices or knowledge management offices, these

generally operate in a university or a research center. TMO models vary widely from country to country. However, their primary purpose is to transfer IP (usually patents generated in the university) to industry via licensing and generate income for the university.

In theory, a TMO will also manage the transfer of IP to a startup or to a university spinout but, here too, methodologies and the objectives of TMOs vary widely. The mission of some TMOs is to foster academic entrepreneurship and fulfill the role of an incubator or accelerator effectively. Others seek to extract the most value from their IP portfolios and may not provide special terms or privileges to their spinouts. Generally speaking, TMO staff usually have expertise in IP-related issues and the TMO may be willing to manage patent filing and its costs for a startup, sometimes in exchange for a small share of equity, an option to buy equity, or on the condition that the startup will pay patent costs when it begins to generate income.

Government, NGO and international support programs

Most governments offer interesting support programs to foster entrepreneurship and innovation. Some offer small pre-seed capital to enable startups to launch. Certain governments offer grants, on certain conditions, to cover the costs of obtaining patents. Most national patent offices include a help desk to explain the avenues available to IP protection and the application process. Some international foundations provide incubation and acceleration services in various technology or market sectors that interest them. Finally, many international organizations offer information at no cost, access to a network of qualified experts, access to useful databases, and information on international good practice (see Annex 2: Resources).

Annex 2: Resources

WIPO (2006). *Creative Expression: An Introduction to Copyright and Related Rights for Small and Medium-sized Enterprises*. Intellectual Property for Business Series no. 4. www.wipo.int/edocs/pubdocs/en/sme/918/wipo_pub_918.pdf

WIPO (2015) *Successful Technology Licensing*. https://www.wipo.int/edocs/pubdocs/en/licensing/903/wipo_pub_903.pdf

WIPO (2017). *Making a Mark - An Introduction to Trademarks for Small and Medium-Sized Enterprises*. Intellectual Property for Business Series no. 1. www.wipo.int/edocs/pubdocs/en/wipo_pub_900_1.pdf

WIPO (2018). *Inventing the Future – An Introduction to Patents for Small and Medium-sized Enterprises*. Intellectual Property for Business Series no. 3. www.wipo.int/edocs/pubdocs/en/wipo_pub_917_1.pdf

WIPO (2019). *In Good Company: Managing Intellectual Property Issues in Franchising*. Intellectual Property for Business Series no. 5. https://www.wipo.int/edocs/pubdocs/en/sme/1035/wipo_pub_1035.pdf

WIPO (2019). *Looking Good: An Introduction to Industrial Designs for Small and Medium-sized Enterprises*. Intellectual Property for Business Series no. 2. www.wipo.int/edocs/pubdocs/en/wipo_pub_498_1.pdf

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WIPO (2020). *Using Inventions in the Public Domain – A Guide for Inventors and Entrepreneurs.* www.wipo.int/edocs/pubdocs/en/wipo_pub_1063.pdf

WIPO Academy. Distance learning program. www.wipo.int/academy/en

WIPO Global Brand Database. www.wipo.int/reference/en/branddb

WIPO Global Design Database. www.wipo.int/reference/en/designdb

WIPO Green Licensing Check List. www3.wipo.int/wipogreen/en/network/index.html#licensing

WIPO Inventor Assistance Program (IAP). www.wipo.int/iap

WIPO IP Diagnostics. www.wipo.int/ip-diagnostic/

WIPO IP for Business website. www.wipo.int/sme/en

WIPO IP PANORAMA. www.wipo.int/sme/en/multimedia

WIPO Lex Database Search. https://wipolex.wipo.int/en/main/legislation

WIPO Patent Landscape Reports. www.wipo.int/patentscope/en/programs/patent_landscapes

WIPO PATENTSCOPE database. www.wipo.int/patentscope

WIPO Technology and Innovation Support Centers (TISCs). www.wipo.int/tisc

WIPO Universities and Intellectual Property. www.wipo.int/about-ip/en/universities_research

WIPO Website. www.wipo.int

WIPO and the International Chamber of Commerce (2012). *Making Intellectual Property Work for Business - A Handbook for Chambers of Commerce and Business Associations Setting Up Intellectual Property Services.* www.wipo.int/publications/en/details.jsp?id=295&plang=EN

WIPO and the International Trade Center (2003). *Marketing Crafts and Visual Arts: The Role of Intellectual Property.* www.wipo.int/publications/en/details.jsp?id=281&plang=EN

WIPO (2003). *Secrets of Intellectual Property: A Guide for Small and Medium-sized Exporters.* www.wipo.int/publications/en/details.jsp?id=294&plang=EN

WIPO (2005). *Exchanging Value, Negotiating Technology Licensing Agreements - A Training Manual.* www.wipo.int/publications/en/details.jsp?id=291&plang=EN

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