HØIBERG Patent Guide

How to patent your inventions

HØIBERG
European patent & trademark attorneys

IMPRESSUM

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Foreword from HØIBERG

We are proud to present **The HØIBERG Patent Guide.** Intellectual Property Rights in general and patents in particular are becoming increasingly important to any firm engaged in product development. But no two inventions are the same, and there is no such thing as a "one size fits all" innovation strategy. We have made this Patent Guide to show what you need to know about patenting, because great inventions require great protection. By sharing our knowledge you will be able to reap the benefits of the dedication, hours and hard work you put into your great ideas, inventions and research.

Patents are an investment. Like any other investment it must be aligned with the business strategy. But if the investment in a patent is not nurtured it becomes an expense. HØIBERG was founded with the vision of assisting technology based companies in patent protecting their inventions to add value to the company. We have been doing this for more than 20 years and have become the IPR firm of choice for ambitious and innovative companies.

Innovation allows companies to gain a clear market position. Innovation can differentiate your products from those of competitors, attain premium prices and create demand. Innovation is therefore directly related to profitability for technology based Danish companies. This was confirmed in a recent report from Aarhus University and McKinsey mapping the Danish manufacturing industry. The report stated that "innovation is increasingly a prerequisite for success given increasing competition in the global market place". It was concluded that innovation leaders are on average **more profitable** and grow faster than innovation followers.

The **problem** is that Danish manufacturers invest less in R&D and have **fewer patents** granted in comparison with similar European companies from Germany, Sweden and UK. In general, Danish manufacturers should therefore develop a **clear innovation strategy** to strengthen their competitive position. But the **quality of R&D spending** is as important as the quantity – merely increasing the spending on R&D might not be the solution. An effective innovation strategy can show the importance of looking beyond traditional product development and for example focus on disruptive technologies, digitization opportunities and restructuring of existing innovation processes.

We hope that you will read The HØIBERG Patent Guide, and be inspired by the cases, before developing your next innovation strategy – we are always available if you have questions. Keep collaborating, sharing knowledge and thinking outside the box – just remember to **patent your great ideas first**.

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CHAPTER 1

Why patent?

A basic principle behind the patent system is that the description of the invention becomes public and thereby contributes to the general knowledge of society. In return, the applicant of a patentable invention obtains the right to prevent others from using the invention for 20 years. Therefore, patents are of great importance to society, since they both facilitate further development and research and ensure that the patented invention can be exploited and used. An alternative to patent protection is maintaining the technology as a trade secret.

The protection of inventions is particularly important in highly competitive industrial fields, and hence patents represent a major commercial asset for innovative companies.

A patent can be used to protect an invention, but it can also be regarded as a strategic asset aimed at improving the competitive advantages and the earning capacity of a company.

For young companies, which are in the build-up phase, patent applications play a large role in substantiating the major commercial assets of the company by transforming inventions into a tangible asset. A granted patent or even a filed patent application can make a large difference in the evaluation of a company and facilitates the attraction of investors.

In seeking to establish contact with key collaborators, it is a major asset that the technology is protected by a patent application. A filed patent application facilitates communication and ensures that the inventions can be shown to other parties, such as investors.

A patent can be used to protect an invention, but it can also be sold or licensed to other parties, or even used as collateral just like any other property, such as for example real estate, equipment, or a car.

How can patents and patent applications be useful?

- In preventing others from copying or using your invention.
- In substantiating a major commercial asset of innovative companies into tangible assets.
- In facilitating the build-up of a new company, for instance by attracting investors.
- In establishing collaborations and facilitating dialogue with future collaborators.
- In increasing return of investment in research and development.
- In selling or licensing your IPR.

If the commercial exploitation of the invention requires resources which the company does not have or cannot attract itself, it is an option to sell or license the invention to other interested parties which have these resources.

As an example, a major part of new startup companies primarily focus on the research and development and are heavily dependent on collaborators for upscaling, manufacturing and production of a future product. For such new companies, the protection of inventions, filing of patent applications and obtaining patents are crucial for establishing collaboration and securing return of investment in research.

There are many reasons for seeking protection of intellectual property rights (IPR) by filing patent applications, and few reasons for not doing it. In a few cases it may be better to postpone or even avoid the filing of a patent application. In some cases it may be more advisable to avoid the publication of the invention. One example is when it is difficult to enforce the IP right and prevent others from using the invention once published.

If it is decided not to protect an invention by a patent application it is advisable to take relevant measures to ensure that the invention is kept secret. One reason is that the legal protection of trade secrets is dependent on the efforts made to keep the information a secret.

Measures to be considered when a technology is not protected by patent applications:

- Use non-disclosure agreements (NDA) whenever the technology is disclosed for employees, collaborators, investors and other parties.
- Describe the technology (i.e. the secret) in specific terms and formalize who is allowed to know about the technology and who is not.
- Restrict information access for employees.

An IPR strategy includes detailed policies regarding which inventions are to be kept secret and measures to be taken to ensure the maintenance of these secrets.

A patent is a prohibition right, not a right to work an invention

CHAPTER 2

What protection does a patent provide?

A patent is an exclusive right as well as a prohibition right. Thus, a patentee can prohibit others from working the patented invention. However, a patent is not sufficient clearance for the patentee to work the invention himself. Thus, issuance of a patent does not automatically establish a right to exercise an invention. Other factors may inhibit the patentee from entering the market with his invention including existence of dominating patent rights.

Thus, exercising an invention could for instance be hindered if exercising the invention involves utilization of a patent-protected product or process technology. In certain instances, it may be necessary to obtain a license from other patent owners in order to exercise a patented invention.

In all member states of the World Trade Organization (WTO), a patent to a product gives the patent owner the right to prevent others from making, using, selling or importing the product. A patent to a process gives the owner the right to prevent others from using the process, but the patentee can also prevent others from using, selling or importing the product prepared directly by the process. In most countries, there are a few exceptions to the protection conferred by a patent, for example most countries have a research exemption.

Once a patent owner has brought a patented product to the market, he has exhausted his patent rights in respect to the specific product, and the buyer can then use the patent product without infringing the patent in the country of purchase.

A patent is valid for a minimum of 20 years after the filing date provided that the patent owner has undertaken all required actions and paid all fees.

It is the responsibility of the patent owner to enforce his patents. Thus, in general, official authorities do not aid in enforcement of patent rights on their own volition. To enforce a patent, the patent owner must normally take legal action if no agreement can be reached with an infringer out of court.

CASE: SENSATIVE

Aligning an IPR strategy with business partnerships

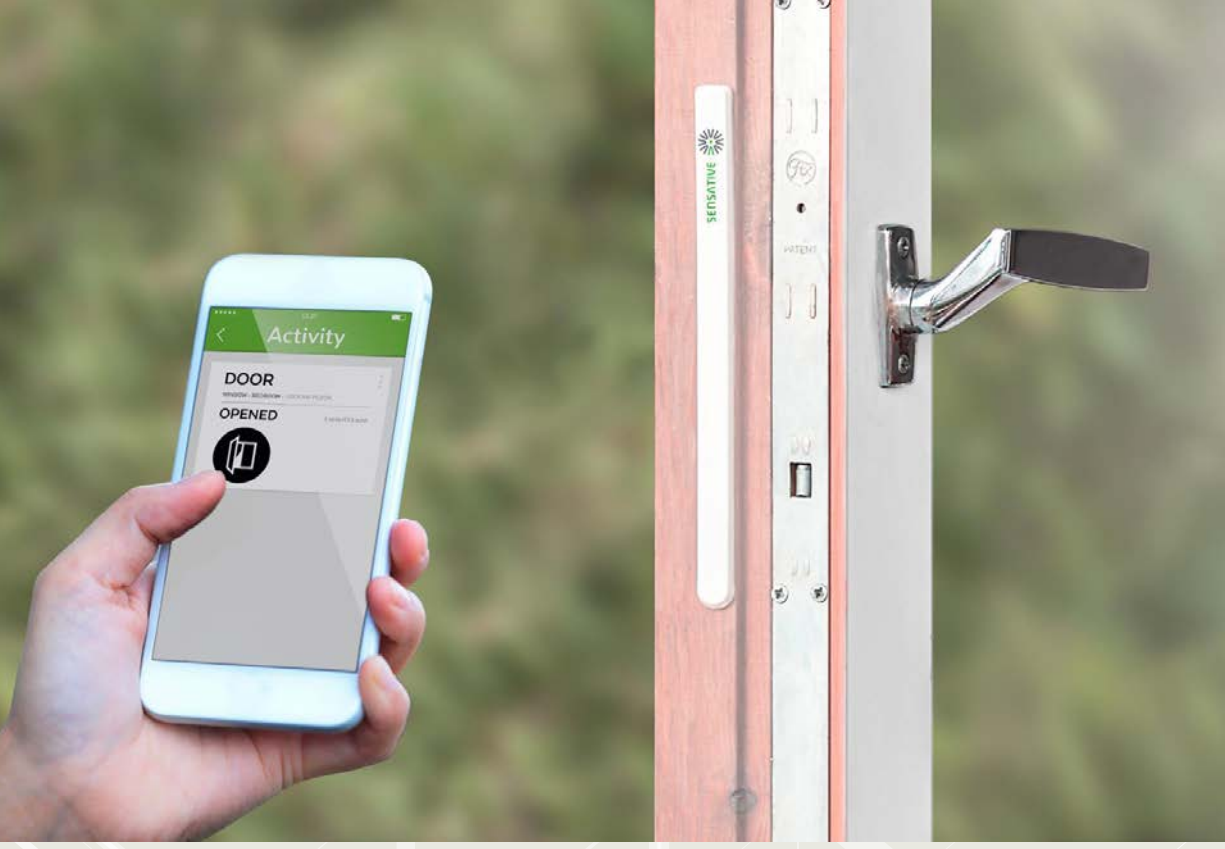
Developing a solid intellectual property strategy is essential for new technology companies. Early patenting may be both expensive and time-consuming for a new company. However, in the long term the protection is very valuable and key to the future success of technology based companies.

Sensative has developed an ultrathin, wireless, magnetic sensor that can be mounted invisibly on windows and doors and function as an intruder alarm. The technology is well suited for being used in partnerships with e.g. home automation development companies and home security system providers. The establishment of such partnerships is proactively addressed in Sensative's IPR strategy.

The fact that the technology is complex, contains relatively expensive components for smart home communication protocols and is a security device suggests that the product may be less exposed to traditional counterfeits directed towards end consumers. For such products consumers tend to prefer buying equipment from well-known retailers or providers of home security systems.

However, being less exposed to traditional counterfeits does not mean that the technology will not be copied if there is not a strong IP protection. In fact the strategy of seeking collaboration can easily turn into a situation where the potential collaboration partner decides to develop its own solution if there are no patents, or if the patents can be circumvented. Sensative works proactively on minimizing the risks of potential collaborators using their ideas without an agreed partnership. The IPR strategy is aligned with the strategy of establishing mutually beneficial relationships with potential competitors. One of the ideas of the mutually beneficial partnerships is to remove the risk of potential collaborators stealing the idea behind the sensor by offering a solution where the collaborator can profit from the success of Sensative and benefit from the competence of Sensative. At the same time, it is clear from the beginning of the collaboration that there is no other option since the IPR is strong enough to protect Sensative's invention.

How can this be achieved, and in particular, how can this be achieved with limited means to invest in a patent portfolio? A simple answer would be: by ensuring that broad patent claims are obtained on strategic aspects. A more complete answer is, however, more com-



plex. Since Sensative is the first mover in a new technical field, there is room for strategic maneuvers. Sensative has one base patent granted on the home market, Sweden. The Swedish patent essentially prevents anyone from manufacturing, marketing or selling a thin, wireless, magnetic alarm sensor on the Swedish market, thereby clearly signaling that the home market is secured and that broad claims are allowed by a respected patent office. The corresponding applications, containing a range of features, are pending in other important countries. The claims in these applications can be directed to different features depending on what the competitors implement. In their patent applications Sensative targets not only features that are considered important for their product, but also features that potential collaborators do not have in their portfolio, thereby ensuring that the mutual benefits are also reflected in the IP. The patent applications are also directed to features that could be generalized to a platform and thereby ensure that the collaborations become long term collaborations.

Partnerships may also serve as a protection against lawsuits. Patent litigation is an expensive hurdle for startup companies. If a more powerful partner has an interest in defending the invention, the chances of protecting oneself against lawsuits are increased since the partner may have the means, competence and motivation to defend the technology.

CHAPTER 3

Who is the rightful owner of a patent?

Once an invention has been conceived the rights to a patent on that invention belong to the person who invented it. Thus, as a starting point a patent simply belongs to the inventor.

However, even if the starting point is very simple there are many challenges in assuring correct ownership of a patent. First of all, in order to establish the ownership of a patent it is very important to identify who is (are) the inventor(s).

Many inventors are contractually obliged to assign their rights to any invention they make. For example, in many countries employees at universities are obliged to assign their rights to the university, provided that the university wishes to take on the patent process. Also many private employees are obliged to assign their patent rights to their employer. This is usually regulated through their employment contract or in some countries by law.

Thus, even though the inventor is in principle the owner of the patent, the employer of the inventor is in fact frequently the actual owner of the patent.

Nowadays most inventions are conceived by a team, and thus as a starting point the invention belongs jointly to the people on that team. If all inventors are employed by the same company, and they are obliged to assign the rights to their inventions to their employer, then the patent simply belongs to that company. If the inventors, however, are employed by different companies, the patent will be co-owned by several entities. Also in the case where some of the inventors are not obliged to assign their rights to the patent, the patent will be jointly owned.

The joint ownership creates challenges that are preferably addressed up front. In Denmark and most other European countries co-owners must act jointly, which effectively gives each co-owner a veto right with regard to licensing or selling a patent. In contrast in

the US each co-owner can act independently. Thus, it is recommendable to ensure clear agreements regulating the rights of each co-owner.

If no contracts regulate the joint ownership, then in the US one owner can license out the patent, without the consent of the other owners. This may result in reduced license fees, since there will be an internal competition between co-owners. Also it will not be possible for any of the co-owners to grant an exclusive license without an agreement. In Europe one owner can block a license, which another owner may wish to grant. Therefore a good contract is essential.

Accordingly, prior to embarking on a joint development program, it is highly advisable that the firms involved regulate the rights to any ensuing patents contractually. This is also true for collaborations with sub-contractors. Even if the research leading to an invention is paid for by an ordering firm, then the rights to a patent do not automatically belong to that firm. The rights to a patent belong to the inventor or possibly the inventor's employer. Thus, for the ordering firm it is crucial to ensure that a sub-contractor's employees are obliged to assign patents to the sub-contractor and that the sub-contractor is contractually bound to assign the patent rights.

In conclusion, in order for a company to control ownership of future patents, it is important to understand who may be the inventor in the future, and to have all the right contracts in place that will allow the company to take over the ownership from the inventors or their employers.

CHAPTER 4

Criteria for patentability

In principle any invention fulfilling the following three basic criteria is patentable. Thus the invention must be

- novel
- associated with an inventive step
- industrially applicable

However, there are several exceptions. Some inventions are not patentable for moral reasons, such as methods for cloning human beings. Other inventions are specifically exempt from patentability in one or more jurisdictions, for example mathematical algorithms, business methods and plant varieties cannot be patented in many countries.

Novelty

A product is novel if an identical product has not previously been disclosed. Thus, a product is not novel if another product characterized by the same specific combination of physical and functional features has previously been made publicly available.

A product can be protected by a patent by claiming its physical features, or its functional features, or a combination of both. Frequently, at least some physical features need to be defined, and thus it is often desirable to claim a product by a combination of physical and functional features. Functional features frequently confer a broader protection of the product than the protection which would have been conferred by claiming physical features only.

When evaluating the novelty of methods, it is in general necessary to consider more than just the method steps carried out when the method is exercised. Methods for producing a product can disclose:

- a starting material
- one or more method steps for processing the starting material
- the result of the method, in the form of the end product

A method for producing a product is in general novel when either the starting material is novel, or when the combination of processing steps is novel, or when the product resulting from the method is novel. A novel product in general always results in a novel method for producing the product.

A method for using a product for a particular purpose can disclose:

- use of the product for carrying out the method
- the method steps carried out when performing the method
- the technical results obtained from carrying out the method

Frequently, it may be preferable to claim such methods by defining the steps carried out when performing the method. A method for using a product is novel when either the product is novel, or when the method steps are novel. A method for using a product can in some instances also be novel when the technical result is novel.

An evaluation of novelty of an invention must clarify what has been made available to the public.

Inventive step

An invention complies with the requirement for inventive step if the invention was not obvious to a skilled person based on what was known in the art. Inventive step is evaluated based on what was known at the time of filing the patent application from the viewpoint of a person skilled in the art. Inventive step can for example be based on a superior effect, an advantageous method, a surprising solution or a result which was not reasonably expected.

When evaluating inventive step, the relevant question to ask is not whether a skilled person from a relevant technical area could have carried out the invention, but whether he would have done so in the hope of solving the underlying technical problem or in the expectation of some improvement or advantage.

It is important not to use hindsight when evaluating inventive step. When using hindsight many inventions could appear obvious, but inventive step should be evaluated without using the actual knowledge of the invention.

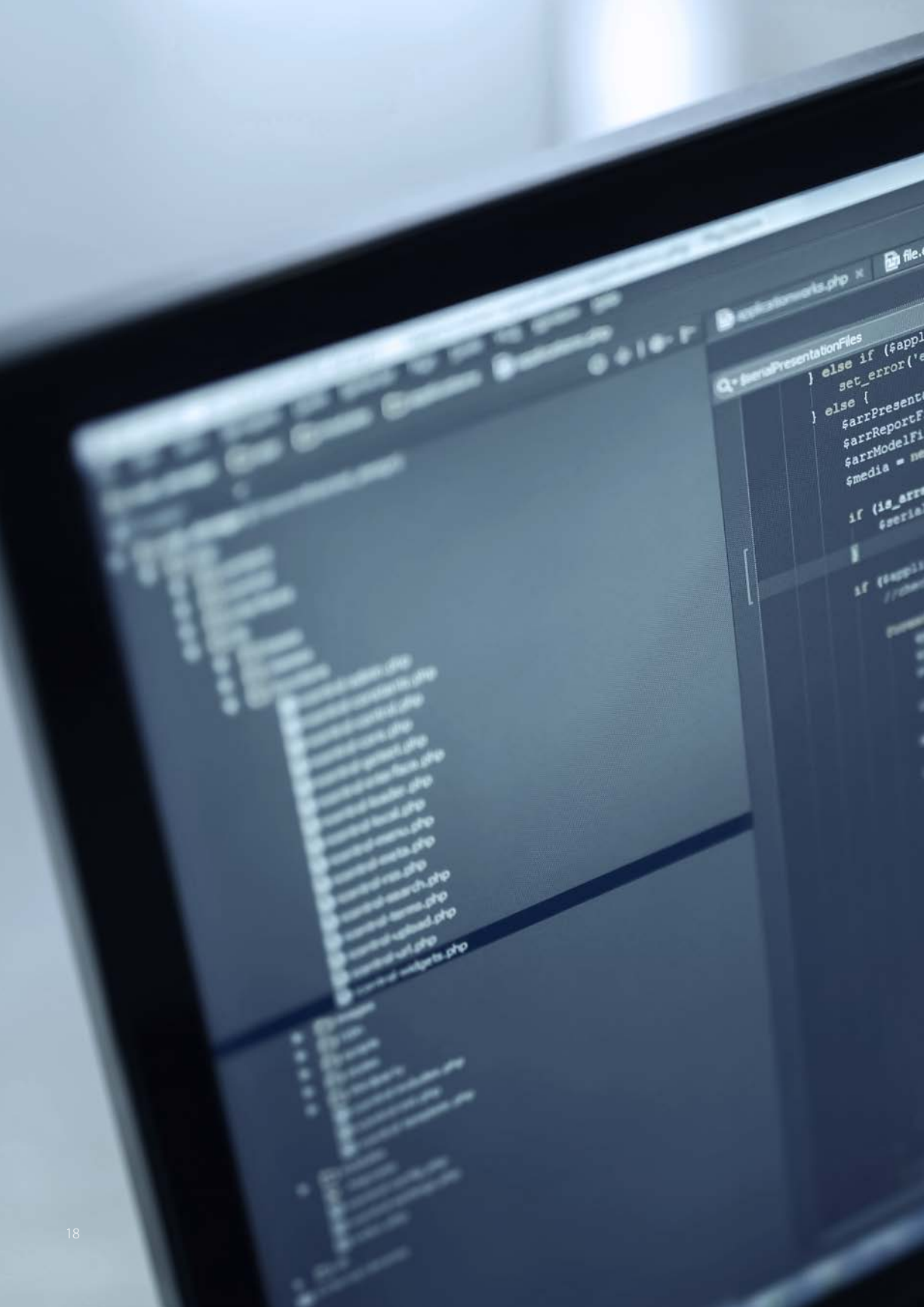
In Europe a very stringent approach is used for evaluation of inventive step, namely the "problem-solution approach":

1. The prior art document most closely resembling the invention is identified.
2. The differences between the closest prior art and the invention are identified.
3. The technical effect of these differences is assessed.
4. An objective technical problem solved by the invention is constructed thereupon.
5. Finally it is evaluated whether the difference between the prior art and the invention was obvious to a person skilled in the art.

In other countries less formalized approaches are employed to evaluate whether an invention is obvious or not. However, common to the evaluation of inventive step is the fictitious character "the person skilled in the art", which is presumed to be a skilled practitioner in the relevant field of technology, who possesses average knowledge and ability and is aware of what was common general knowledge in the art at the filing date of the patent application.

Industrial applicability

In Europe an invention must also be industrially applicable in order to be patentable. Industrial applicability should be understood in the broad sense, as including any activity that can achieve a technical result in any industrial field. As such, most inventions will be regarded as industrially applicable. In the US the standard is slightly different. Instead the requirement is that the invention must have utility. The outcome is however similar, and most inventions fulfill this requirement.



CHAPTER 5

Can software be patented?

Many countries have chosen to exclude specific subject matter from patentability for a variety of reasons. Examples are mathematical methods, business methods and computer programs. The latter exception has caused confusion and an ongoing debate for many years.

The **confusion** is due to the mix-up of the terms "computer program as such" and "computer implemented method" – the former is excluded from patentability – the latter is not. But the mix-up has resulted in the misconception that software related inventions cannot be patented. The truth is, however, that many computer implemented inventions are patent eligible.

The **ongoing debate** revolves around whether software related patents discourage, rather than encourage, innovation.

Patentability of software related inventions

Besides novelty and inventive step an invention must be technical and non-abstract in its nature in order to be patentable. This applies equally to an invention which is partly or fully implemented by means of software. I.e. any invention that makes a non-obvious "technical contribution" or solves a "technical problem" in a non-obvious manner is patentable even if that technical problem is solved by running a computer program.

Almost any electrical appliance today has some kind of software implemented functionality and in many cases it is such a new functionality that gives the technical contribution over the prior art. Software related inventions are therefore the reality across many technical fields and patents are granted every day worldwide covering a physical entity having software implemented functionality.

Purely abstract or mathematical methods are not patentable. However, a software implemented mathematical method can be patented if the use of the method provides a technical contribution over the prior art, i.e. if it can be demonstrated that a particular use of the mathematical method is novel and brings about a further technical effect in the real "physical" world. In this case the patentability requirements are the same as for any invention: Novelty and inventive step.

Thereby not said that all software related inventions can be patented, and securing a patent to a software related invention can be challenging. Patent applications categorized as "Computer implemented inventions" covering pure software related inventions isolated from a physical entity typically have a significantly lower allowance rates compared to other technical fields. The challenge in this regard is often to demonstrate that a software related invention brings something beyond mere computer implementation of a well-known method.

The US and Europe have different approaches to software related inventions. In Europe the question of patentability depends on whether the invention is capable of bringing a further technical effect, whereas in the US focus is on whether the invention is capable of providing a useful, concrete and tangible result. Hence, in Europe the manipulation of an abstract idea is not considered technical whereas in the US the manipulation of an abstract idea is not considered concrete or tangible. Even though the approaches are different, the interpretations often generate similar results in terms of patentability in Europe and the US.

Ongoing debate

In the free software community software related patents are opposed because they allegedly impede or prohibit the distribution of free software. Other arguments for not allowing software patents are the possible creation of patent thickets which may have a general negative effect on innovation, that software are basically mathematical abstractions, that software patents would be disposed to create market monopolies and exclude completion to a greater extent than other patents and that software changes faster than other technology and is therefore ill-suited for patent protection.

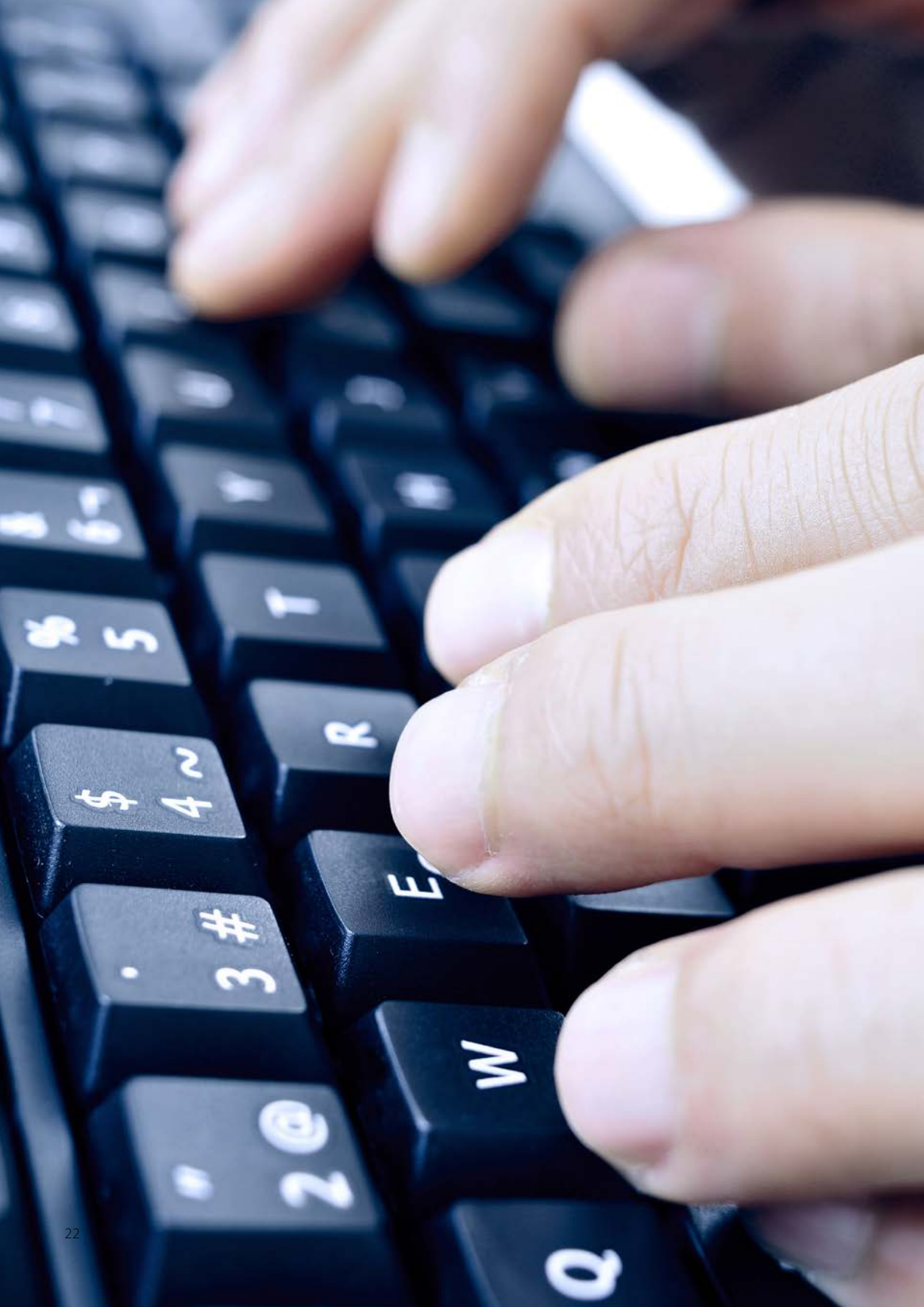
However, it should be remembered that perhaps the most fundamental economic justification for software patents is logically the same as for other inventions; inventing is the result of an effort and if there is no return on the invested time and money potential inventors would be less likely to invent. In the long run this could affect technological progress negatively. Patent protection can be vital to monetize, protect and obtain ownership of innovation within software development. For a software related invention the commercial relevance is the same as for any invention: If the value of the market share that would be lost without a patent exceeds the cost of the patent, the patent can be considered to be a good investment.

Copyright vs. patent protection

Patent protection and copyright protection are two different types of legal protection which can cover computer programs. Each type of protection serves its own purpose:

Copyright protection
Computer programs are protected as works of literature under the Berne Convention. This allows the software creator to prevent another party from copying the program. It is not required to register source code in order for the computer program to be copyright protected. Copyright protection only narrowly covers the source code in that copyright only prevents the direct copying of some or all of a specific version of a computer program, but does not prevent other software developers from writing their own versions of the underlying methodology.

Patent protection
In contrast, a patent covers the underlying methodology embodied in a specific computer program, or the function that the computer program is intended to serve, independent of the language or code that the computer program is written in. As a patent gives the owner the right to prevent others from using the invention claimed in the patent, a patent provides a much broader protection than copyright.



CHAPTER 6

Filing – when and where?

The date of filing and the content of a patent application are among the critical factors to be considered when formulating an effective patent strategy. There is often a natural wish to file a patent application as early as possible. In some circumstances this may be the sensible thing to do, but several factors should be considered before deciding when to file.

Priority date

After filing a first patent application, the applicant can within one year – the priority year – file additional patent applications claiming priority from the first application (the priority application). The date of filing of the first patent application is known as the priority date, and the priority date is decisive for determining the state of the prior art. Thus, anything published before the priority date may be taken into account when determining novelty and inventive step. Furthermore, the priority date can be used for determining who has first filed a patent application. If two parties claim patent rights to the same invention, the rights to the invention will be awarded to the party who has filed the patent application first ("first-to-file" principle).

An updated patent application can claim priority from one or more earlier patent applications, provided that the earliest patent application is filed less than one year prior to the filing of the updated patent application. If the updated application introduces completely new aspects of an invention, the new aspects will not enjoy the right of priority. However, the updated application can contain new data supporting the invention and still retain the priority date.

Early filing of a patent application gives rise to an early priority date and the benefits associated therewith. However, at least two factors may favor a late filing date, namely the requirement for an enabling description and the wish for a longer patent term.

Enabling description of the invention

It is a requirement that the patent application discloses the invention in such a way that a skilled person can carry out the invention based on the disclosure thereof in the patent application. In many countries it is not sufficient to describe how an invention can be

carried out, it is also a requirement to demonstrate that the invention in fact has been carried out.

If the patent authorities consider that the requirement of an enabling disclosure is not fulfilled, the patent application risks being rejected for lack of an enabling disclosure. Such an objection can be difficult to remedy after filing.

It is not a requirement that a patent application provides actual proof that the invention works. However the application should at least render it credible.

When to file documentation supporting the invention

The need for an early priority date may thus have to be weighed against the fact that a broader and/or stronger patent protection can be obtained, when the applicant is more capable of providing a detailed disclosure of the invention.

During the priority year it is possible to file an updated application, which may comprise additional data supporting the invention. Thus, up to one year from the priority date it is possible to supplement a patent application with additional data supporting the invention while maintaining the priority date.

After the priority year has passed it is no longer possible to add additional data to a patent application. However, in some instances it is possible to file additional information on the invention directly to the patent authorities. It varies greatly between different countries to what extent additional data can be supplied after filing of the patent application.

In general data can only be supplied after filing if they support the assertions already made in the patent application. In many East Asian countries, post filing data is very limited, whereas the practice in Europe and US is much more liberal.

Patent term

With a few exceptions a patent expires at the latest 20 years after filing provided that all fees have been paid. For that reason it may be desirable to delay patent expiry by filing the patent application as late as possible. The term of 20 years is calculated from the actual filing date of the patent application, and not from the priority date. Thus, for the longest possible patent term it is desirable to exploit the full priority year.

Where to file

The priority application can be filed in any country, which is a member of the Paris Convention. Currently, 176 countries are parties to the Paris Convention and thus a priority application can in principle be filed almost anywhere.

Some countries have legal restrictions regarding where to file priority applications, but for Scandinavian inventions the applicant generally has freedom to choose where to file. For practical reasons priority applications originating in Scandinavia are frequently filed with the Danish, the Swedish or the European Patent Offices.

During the priority year a decision must be made about where to file patent applications. The international (PCT) route is often chosen, because the need for deciding where to file can be delayed (see more details in chapter 7 "Patent application drafting and prosecution").

Eventually, the applicant must, however, decide in what countries to seek patent protection. Several factors are important for this decision. First of all, it is important to cover the main markets, which may depend on the particular invention. It is important to remember that patents may be valid for up to 20 years, and thus it is possible that emerging markets can be main markets before expiry of the patent. Furthermore, it may be desirable to have patent protection in the home countries of the most relevant competitors. Another factor to consider is potential production countries. For almost all inventions patent protection is sought at least in Europe and the United States. The countries then most often considered for patenting is India, China and Japan closely followed by South Korea, South Africa, Canada and Australia. Brazil and Russia are also common countries in which to seek patent protection.

CHAPTER 7

Patent application drafting and prosecution

This chapter describes many of the activities an applicant must deal with, from drafting a patent application and until a patent is finally granted.

Before filing a patent application

It is recommendable to obtain a pre-filing evaluation of an invention, which for example can be prepared by a patent attorney. This evaluation is essential for determining whether to apply for patent protection, and is also very helpful for drafting the patent application. The knowledge obtained from such an evaluation can result in a more effective protection of an invention. A pre-filing evaluation can for example be used:

- to determine whether an invention is patentable
- to determine the probable scope of a patent
- as inspiration, before launching new development activities
- as a basis on which to assess the possibilities of new activities in the area
- to assess the commercial viability of a new product
- to acquire knowledge of the relevant operators within a given field
- to obtain information on whether the rights of others will be infringed

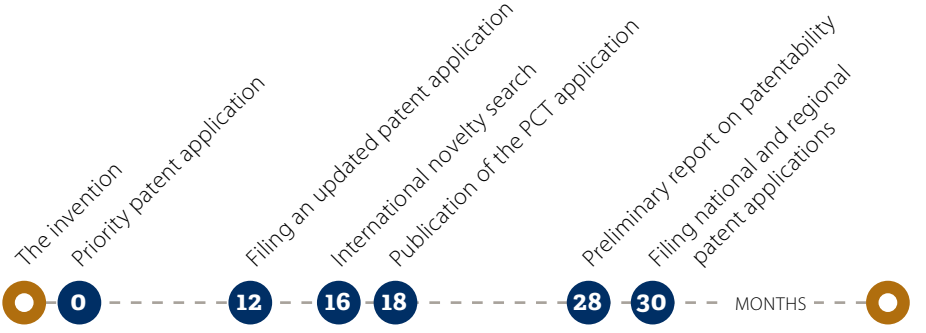
The patent application

The single most important document in the patent process is the patent application. Accordingly it is of paramount importance that the patent application is of good quality. A good quality patent application is characterized by the following features:

- Broad patent claims
- Narrow claims specifically defining the preferred aspects of the invention
- Claims of intermediate scope
- Alternative claim language
- Concise claim language that clearly defines the scope of protection
- Carefully-drafted claim structure providing basis for multiple combinations
- Enabling disclosure of the invention
- Examples to support the claims
- Prioritized fall-back positions
- Description of technical effect of alternatives

In addition it is preferable that the patent application is setting the scene for the invention and tells the story about the invention, preferably based on sound scientific reasoning. This will facilitate other peoples' understanding of the invention, including the examiners'. It is also important to draft the application in an understandable language using common terms within the given field. The terminology should be consistent and any unclear terms should be defined. The most relevant prior art may also be briefly discussed.

As described in the previous chapter (Filing – When and where) it is generally advantageous first to file a priority patent application and then follow up with an updated application in the priority year. Preferably, both the priority application and the updated application should contain the features listed above. Thus, even if an update can be made, the priority application should also be of good quality.



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0 months Priority patent application

The first patent application describing an invention is a priority-founding patent application, establishing the priority date. In order to establish the best possible priority basis for the filing of an updated patent application, a priority patent application should be an application of good quality and contain the features described above.

In case new, important knowledge concerning the invention is acquired within the priority year, it is recommended that such new aspects be described in a new priority patent application or in an updated patent application to be filed before expiry of the priority year.

It is recommended that a priority patent application be subjected to a novelty search carried out well in advance of the expiry of the priority year by a patent authority, for example, by the European Patent Office (EPO). A novelty search performed by a patent authority during the priority year renders it possible – before filing an updated patent application – to judge the novelty of the invention and the inventive step thereof on the basis of the patent claims filed.

The Patent Cooperation Treaty (PCT)

When taking advantage of the PCT system, an applicant needs initially only to file a single, updated international patent application (the PCT application). The PCT application can later be converted to national patent applications in the approx. 150 countries which are presently members of the PCT.

12

12 months Filing an updated patent application

It is possible to update a priority application, if this takes place no later than 12 months after the filing of the priority application. The updated application can be filed nationally in the countries of interest and/or as an international application (PCT application) depending on the strategy chosen.

Filing a PCT application secures an applicant the right to file national or regional patent applications in PCT contracting states at a later stage. One advantage of filing a PCT application is that the application will initially be prosecuted in a centralized, international phase of the procedure, and only later entered into the national or regional phase. The entry into the national or regional phase involves the filing of national or regional patent applications, which is one of the most expensive single steps of patent

prosecution. The cost of filing national or regional patent applications can be postponed by initially filing a PCT application. Prior to filing a PCT application, it should be considered to file national patent applications in the few states not party to the PCT.

In the following the procedure for prosecution of a PCT application is outlined in more detail.

16

16 months International novelty search

After having filed an updated patent application as a PCT application, an international search report is issued about 16-18 months after the priority date. This report identifies relevant prior art references, and also provides a first written opinion regarding patentability.

18

18 months Publication of the PCT application

The content and filing of a priority application is kept secret at the time of filing. Also the updated PCT application is not made publicly available right away. The public will not become aware of the filing of a patent application until 18 months after the priority date, when the PCT application is published. At the same time the priority application will also become available.

28

28 months Preliminary report on patentability

Depending on the strategy chosen and the contents of the first written opinion, applicant may choose to file a demand for preliminary examination of the PCT application. In general, it may be advantageous to demand preliminary examination if it is foreseen that the application will enter national phase in many countries and the first written opinion raises objections, which can be overcome by arguments and/or amendments. It is also recommendable to demand preliminary examination if a positive opinion is important for future investors.

A demand for preliminary examination must be filed no later than 22 months after the priority date and gives applicant the opportunity to discuss patentability with the patent authorities in writing and sometimes also by telephone. The preliminary examination is concluded with issuance of an international preliminary report on patentability by the PCT authorities.

Having prosecuted the PCT application in the centralised PCT phase can benefit the PCT application when it subsequently enters the national

phase, as many national patent authorities will be inclined to recognise the conclusion of the preliminary report on patentability drawn up in the PCT phase even if they are not obliged to do so.

30

30 months Filing national and regional patent applications

At about 30 months after the first priority date, the PCT application must enter national phase in the individual countries or regions in which it has been decided to seek patent protection. The cost for filing national and regional patent applications depends on the number of applications filed and the number of translations into a national language that are required.

CASE: WINDAR PHOTONICS

An example of successful commercialization of university based research

Windar Photonics A/S started as a spin-off company in 2005 from the Technical University of Denmark (DTU) with Jørgen Korsgaard Jensen as the founder and COO. In 2015, the company announced its admission to trading on the AIM market of the London Stock Exchange. Consequently, Windar Photonics A/S has progressed from being a small-scale development project to gaining admission to the stock market in just 10 years, which is an extraordinary achievement.

Windar Photonics A/S develops and manufactures cost efficient and innovative Light Detection and Ranging (LIDAR) wind sensors for use on wind turbines. LIDAR wind sensors are designed to remotely measure wind speed and direction, thereby increasing the power output of a wind turbine and reducing strain on vital components.

The successful development of Windar Photonics was initiated when researchers DTU eliminated the noise problems normally associated with the use of a semiconductor laser in a LIDAR, which made it possible to reduce the cost and size of the LIDAR system. The technical breakthrough laid the foundation of a patent application, which was filed in 2007 with DTU as applicant. Subsequently, Windar Photonics acquired the rights to the patent in order to safeguard the company's technologic competitive advantage in Europe, USA, China, and India. Today, Windar Photonics is in a great market position due to the early university based investment in a patent application.

The early patent filing protected the core principle of the university based research, which, in combination with the continued cooperation with DTU made the company attractive to external investors, who brought the funding necessary to expand the company from a startup to an innovative production facility. The company's competitive advantage was further strengthened in the succeeding years, as the steady technological development and extended cooperation between Windar Photonics and DTU resulted in a gradual expansion of the company's patent portfolio. The lucrative initial public offering (IPO) at the London Stock Exchange in 2015 proved that the company had succeeded in transforming the technological foundation laid by the academic research into a marketable high-tech product.

CHAPTER 8

Going public? How and when to publish

One very common prejudice against the patent system, is that it prevents free sharing of information by preventing scientists from publishing their science. The fact is that the patent system forces inventors to publish their findings, because patent rights are only granted in exchange for a written description of the technology behind the invention. The word "patent" comes from the Latin word "patere" which means "to lay open" – in other words to make what is disclosed in the patent available to the public. In the absence of patents, many private corporations would never publish their research.

There is nothing that prevents a scientist from filing a patent application and publishing their research in peer-reviewed scientific journals so that they can reach their publication goals and be judged by their scientific contributions.

But a key requirement to obtaining a patent on an invention is novelty. The invention can only be patented if it is new, i.e. not disclosed to the public and not part of the prior art. Publishing an invention before filing is therefore detrimental to patentability. This cannot be emphasized enough. And this applies to all kinds of publications, whether an article, an abstract, a lecture, a brochure, a pamphlet, sales materials or offering a product for sale. All of these are considered publications as they all serve to convey the information about the product to the public.

An invention is considered public or prior art if it was available in any way – written, orally, displayed, or just temporarily published on the internet – to at least one person of the public, i.e. just one person not bound by confidentiality. This means that you may ruin the novelty of your invention – and thereby your chance of patenting – by doing any of the following:

- showing the product at a conference or trade exhibition
- handing out marketing material such as brochures describing the product

- sending project applications including description of the product to reviewers
- sending abstracts including description of the product to conferences
- publishing abstracts including description of the product on your website

Showing, speaking or writing about the invention with any person not bound by confidentiality may be a serious showstopper for patenting and the exclusive rights to the invention. Even a meeting with potential investors and partners should also be regarded as a potential publication unless the investor or partner has signed a confidentiality agreement.

It also goes the other way around – showing, speaking or writing about a product may be considered as a launch or marketing of the product. At any product launch there is a risk of infringing other people's intellectual property rights which include trademark, design, and patent rights.

Before going public you should therefore consider:

1. Is patent protection of the product / invention relevant?
2. Does the product infringe other people's rights, or is there freedom to operate?

File before publication

If patent protection is relevant, the best advice is to file an application before going public. Once a priority application is filed, it is normally safe to publish the invention and a subsequent display or description of the product will not be prior art, and will not influence the novelty of the invention. The priority patent application provides protection against publications made during the priority year but only to the extent that the later pursued patent claims are supported by the priority filed application. If the priority patent application is a high quality patent application with the necessary level of details, definitions, support and fall back positions, then a publication during the priority year should do no harm. But if the priority application was a "quick and dirty" patent application, then there is limited protection against a publication during the priority year.

Publications during the priority year should therefore only disclose the details included in the filed application. Any new developments and features not included in the filed application may form basis for a new application, and should not be made public before the potential new application has been filed.

A Smoking Gun

Is a display or an oral discussion really novelty destroying, when the authorities evaluating the patent application have no chance of knowing what has been displayed or said at every conference or trade show worldwide?

A display or a discussion with potential public access is novelty destroying. It may not be discovered by the authorities, and a patent may be granted. However, the disclosure will be a threat to the validity of the patent in the whole lifetime of the patent. Hence, the patent right will be associated with uncertainty, as will enforcement of the patent.

Grace period for inventors

If you have accidentally disclosed your own invention, all hope is not lost. Some countries provide a grace period for inventors' own disclosures, i.e. the inventors cannot accidentally destroy the patentability chances for themselves. The grace period is between 6 and 12 months and begins at the first public disclosure. If the application is filed in this period, the publication made by the inventors themselves will not be considered prior art. The invention may thus still be patentable, despite the public display by the inventors – but only in the countries with the grace period. The grace period is governed by national law and therefore varies between countries. In the US the grace period is 12 month.

Marketing

From the filing date of a patent application it is permitted to label the product of the application with "Patent pending". Products produced by a patented method may also be labeled, and the labeling can be on the product itself, on the packaging, as a package insert, data sheet, or brochure.

Labeling is advisable, even for marketing in countries where it has no legal effect, because the labeling is a preventive sign to potential infringers and competitors. In countries like the US, India, Australia, and Great Britain, the presence of labeling may further have an impact on an infringement case, as well as the potential amount of damages.

When labeling patent protected products in the Danish market, the patent or application number should be directly or indirectly derivable from the label. This may easily be obtained by labeling "Patent" or "Patent pending" with a reference to a homepage where the information can be found.

Freedom to Operate

At any product launch or marketing there is a risk of infringing other people's intellectual property rights. By infringing IP rights, you risk being reported to the police or getting a visit from the bailiff who may turn up in the middle of the trade exhibition and confiscate the products.

Before marketing or launching a product, logo, or trademark, it is therefore advisable to perform a freedom to operate analysis to clear the existing IP rights within the field, cf. chapter 11.


BUS
LANE

CHAPTER 9

International patenting

The world of patents is an international world. Few applicants file their applications in one country only. That applies especially for Scandinavian applicants because their home markets are relatively small.

Because of the international aspect, the patent world is home to some of the oldest international conventions that still exist. The first Paris Convention was signed in 1883! The Paris Convention defines very basic concepts of patenting, for example the priority year and the equal right of nationals from all of the contracting states.

Most applicants from Scandinavia get in contact with the Patent Cooperation Treaty, in short the PCT, which today includes approx. 150 countries and sets forth a uniform standard for the format of applications and how they are filed, searched and examined during the first 2½ years of a patent's lifetime (see detail in chapter 7).

Finally there are a number of regional patent treaties that regulate the filing and grant of patents by regional patent offices in Europe (EPO, the European Patent Office), in the former SNG republics (EAPO, The Eurasian Patent Office), and in Africa (ARIPO and OAPI).

Another important international treaty is the 1994 TRIPS treaty (Agreement on Trade Related Aspects of Intellectual Property Rights), which was prepared under the auspices of the World Trade Organisation and requires the signatory states to provide patent protection in all fields of technology (with a few exceptions).

Because of all the international efforts a lot of harmonization has taken place. Patent applications across the world face practically the same prior art, they are all published 1½ years after filing, they have a basic patent term of 20 years and all need to fulfill the same basic patentability requirements: novelty, inventive step/non-obviousness, enablement, and clarity.

Despite these efforts there are still a number of differences in the practice of the various patent offices around the world. In the following, we will focus on the most important local specialties. One important aspect to keep in mind is that a patent application must from the very beginning be drafted so that it fulfills the patentability requirements in all the relevant countries in which it is to be filed. Drafting a patent application for the home market is not enough.

Europe

The European Patent Office, the EPO has a centralized procedure for filing patent applications that can subsequently be registered (validated) in the individual European countries. The office covers 38 European countries from east to west and north to south. The EPO is independent of the European Union and includes non-EU member states such as Switzerland and Norway. In the future, the EPO will also be tasked with registering the so-called Unitary Patents (aka the EU patent).

Since its start in 1978, the EPO has been a huge success.

The EPO is known for being the most expensive patent office in the world with fees at least twice that of any other patent office. However, the EPO is also known for its very high and consistent quality of examination of patent applications.

Things to keep in mind when filing EP applications is that the EPO has a very strict amendment practice. In particular the EPO has a very strict approach to making combinations of different elements from different parts of the patent application. In order to make sure that a patent application is prepared for this strict practice it is necessary that the application contains sufficient description of relevant fall back positions and combinations of different features from the application.

The EPO also has a similar strict approach to priority. This means that a patent claim in an application must find almost verbatim basis in the priority application in order to maintain the right to priority. Consequently, if a priority application was filed with very few details and the invention was published during the priority year, it may prove challenging to draft claims that are entitled to priority and thus avoid the publication as prior art. Therefore it is advisable to start with a complete patent application that has all the relevant fallback positions.

The United States of America

The US is the biggest market in the world for many technological areas. It can be covered by one single patent application, so for most applicants, the United States is the most important country to get a patent in.

US patent law has evolved independently and separately from the rest of the world. Realizing the need for harmonization, the US congress has passed several bills over the past 20-25 years to harmonize US patent law with the rest of the world. Today, US patent applications are published after 1½ years, US patents (normally) have a patent term of 20 years, the prior art basis is almost the same and they have recently applied the "first-to-file" principle.

Unfortunately, the patent practice has not been harmonized with the rest of the world. A series of decisions from the Supreme Court of the United States over the past 10 years have made life hard for applicants in the United States. The non-obviousness/inventive step bar has been raised from a relatively low level to one of the highest in the world. This has especially influenced software related inventions.

The pendulum has taken a huge swing but it is bound to swing back and find a new position balancing society's different interests and requirements. Meanwhile, getting patents granted in the United States is challenging but not impossible. Patents are being granted, but the scope of protection is often more narrow than in Europe. More effort is needed during prosecution of the case at the US Patent Office, often in the form of interviews with examiners to understand their concerns. It is possible that the challenges will be solved by new decisions from the Supreme Court or by another change in US patent law.

Far East Asia

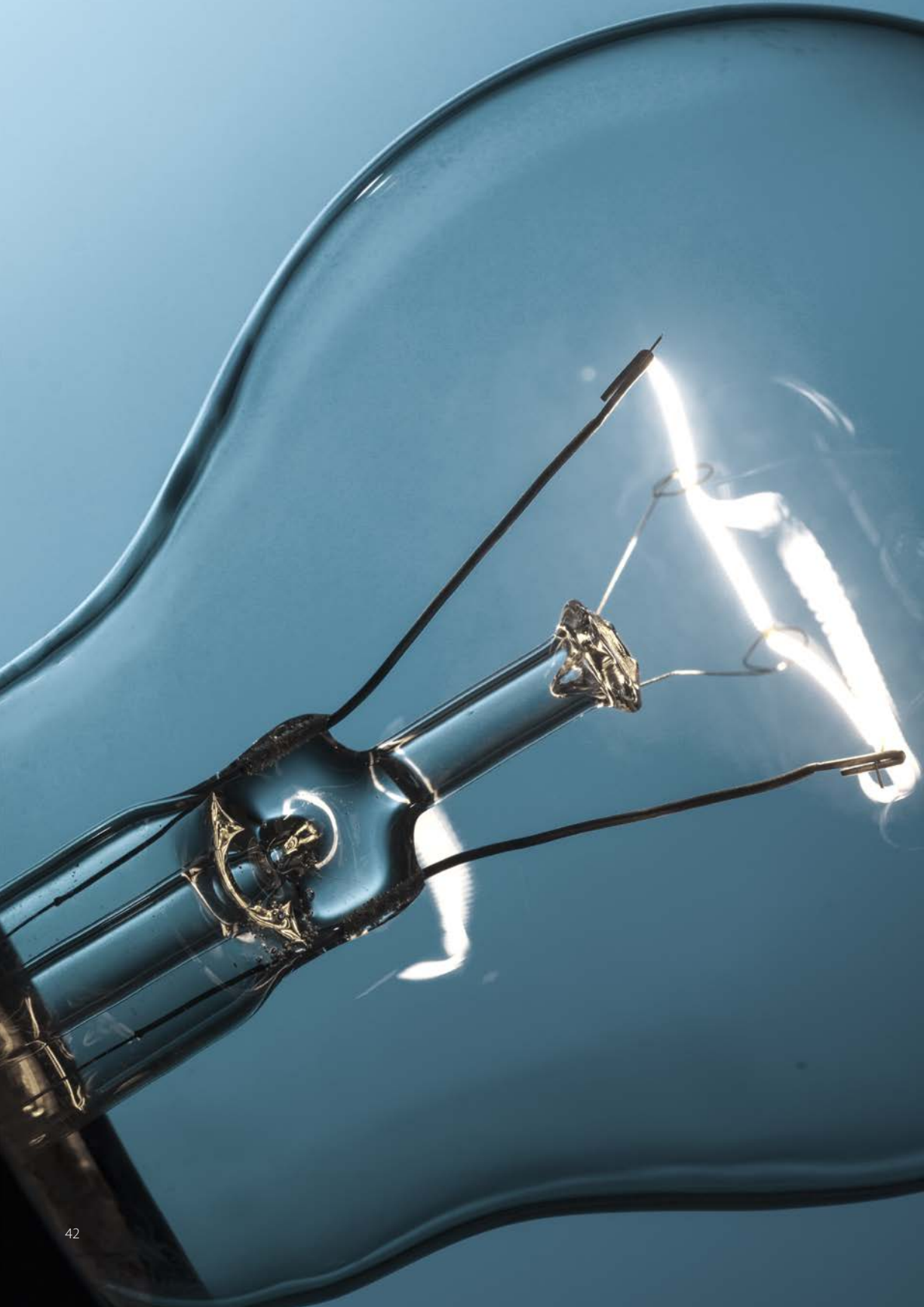
One notable difference between patenting in Europe and in Far East Asia is the requirement for support of the invention. Whereas in Europe it is sufficient for a patent application to describe the invention in a manner, so that the skilled person can perform the invention, it is a requirement in most countries in Far East Asia that the patent application contains several working examples including data. However, this applies mostly in the biotech field.

It is also worth noting that Taiwan is not party to the PCT and thus to obtain patent protection in Taiwan, a national application must be filed before expiry of the priority year.

Latin America

Several Latin American countries are not party to the PCT, most notably Argentina. Thus, for patent protection in e.g. Argentina a national application must be filed before expiry of the priority year.

In many Latin American countries, most notably in Brazil, the patent authorities have chosen a very strict approach in relation to patents in certain fields. Furthermore, prosecution times are very long. It is not uncommon that Brazilian patents are granted as long as 10-15 years after filing.



CHAPTER 10

Alternative IP protection

Patents are not the only intellectual property assets and alternative types of IP protection exist. When deciding on an IP strategy, all kinds of IPR should be considered to obtain full coverage of a company's intellectual property.

Trademark

A trademark is a recognizable mark or expression which can distinguish products (or services) of the trademark owner from other similar products or services in the market. A trademark therefore identifies the brand owner of a particular product or service, and creation and protection of trademarks helps to establish corporate identity and enforce the position in the market.

A trademark can be a word or several words, a name or a slogan, a logo or a figurative 2D or even 3D mark, and the trademark may be located on a package, a label, a voucher, or on the product itself. Trademarks have been around for centuries – the story goes that blacksmiths (sword makers in the Roman Empire) are known as being the first users of trademarks. Today trademarks are intensively used to promote corporate identity and trademarks are therefore often seen on company buildings.

A trademark can be retained forever – provided it is used and renewed. This is a major difference compared to other types of registered IPR. A trademark is therefore one of the most important assets of a business, because it protects a brand and is thereby the most essential element in any marketing strategy.

Registration is the first step towards protecting a trademark, because in most countries trademark rights are only acquired through registration. The symbol ® should only be used when a trademark is registered, and only in countries covered by a registration, whereas

the symbol TM may be used to indicate ownership of an unregistered trademark. These symbols not only allow buyers to differentiate products or services from others – they indicate to competitors and those thinking of pirating that legal rights exist.

Design

The term "design" is short for "industrial design right" which is an intellectual property right used to protect the visual appearance and design of the whole product or part of the product. Hence, design protection is used to protect the **aesthetic** features of a product, and the design right can prevent commercial use of similar designs. This is in contrast to patent protection which seeks to protect the technical and functional features of a product.

Designs may be used together with trademarks to protect the entirety of a product. A design must be novel and have individual character to qualify for design protection. Design protection can be obtained by filing a design application with a relevant authority. The European Union (EU) can be covered by a single design application. Designs come with a grace period of 12 months giving a proprietor an opportunity to publish the design and test the position of the design on the market before applying for registration of a design.

Design protection is often underestimated as an IP asset. One reason is that when registering a design in EU there is a legal presumption of validity, i.e. the proprietor is released from the burden of proof and is not required to show that the design is novel and has individual character. The legal presumption is a huge advantage in case of a conflict, because the burden of proof lies on the opponent who must substantiate that the design right lacks novelty and individual character. Additional advantages of design rights in EU are the "no use obligations" and "no principle of specialty". This means that the proprietor is not required to make use of a registered design, and the design protection is not limited to any particular field. This is in contrast to trademarks which come with both use obligations and principle of specialty. All in all the combination of trademarks and designs can provide an important scope of protection for a product.

Copyright

Copyright is an intellectual property right which is applicable to many forms of creative work. A copyright is granted by the law of the specific country and provides the creator of an original work exclusive rights for its use and distribution, however only for a limited time. These exclusive rights are limited by limitations and exceptions governed by copyright law. A key limitation on copyright is that it only protects the original expression of ideas, and not the underlying ideas themselves.

Copyright law varies between different jurisdictions and copyright is generally considered to be a territorial right, i.e. it does not extend beyond the territory of a specific jurisdiction.

Utility model

A utility model is sometimes referred to as a small patent, petty patent, simple patent or short term patent, and is in many ways **similar to a patent** in relation to the application procedure and the interpretation and protection conferred. In order for a utility model to be valid it must possess novelty and inventive step – just like a patent. However, the "bar" for inventive step is generally lower for utility models. This is in line with the idea behind utility model protection, namely to provide a possibility for a small inventor having made a simple invention to get a quick and inexpensive protection.

Not all countries have utility models and the regulation varies between countries. In most countries utility models are rare, but in China, Germany and Denmark the system is widely used. Even though the duration of protection of a utility model is generally shorter than for patents; a utility model typically gives **10 years of protection**, a utility model application will be registered without examination and this procedure usually only takes about 1-3 months.

The quick registration procedure is a **major advantage** of the utility model system. Although a registered utility model is an unexamined right, a proprietor obtains an **enforceable right** within months. This is a notable difference compared to patents, where the enforceable patent right is obtained with the grant of a patent, typically several years after filing of the patent application. In case of potential infringement of the utility model right, the filing of a utility model branched off from a pending patent application is a strategic IP weapon in order to pursue a preliminary injunction to stop the infringement quickly rather than waiting for the grant of the patent application.

A **further advantage** of utility models is the possibility of pursuing double protection with parallel patent and utility model applications. Since the bar for inventive step is lower for utility models, a utility model can be branched of a pending patent application as a precautionary measure so that protection is maintained even though the inventive step of a co-pending patent application is impugned.

CHAPTER 11

Freedom to operate

The concept of "Freedom to operate", often abbreviated "FTO", is used worldwide to describe the situation that a product may be marketed without infringing third party IP rights. An FTO analysis is the tool used to evaluate whether patents belonging to a third party may block access to the market in one or more countries, so-called dominating patents.

Unfortunately, considerations about FTO often disappear among all the other tasks to be carried out when developing and marketing a new product even if the entire investment may be lost if the product cannot legally be brought onto the most interesting markets because of the patent rights of others. Or the FTO analysis is postponed until the product is fully developed, maybe in order to be entirely sure that the costs of the FTO analysis are not wasted if the development comes to a halt.

This is, however, really a shame because an FTO analysis at an early stage of the development provides more possibilities of navigating safely, relative to others' patents, either because there is a possibility of negotiating access to the dominating patents through licenses or acquisitions without having one's back against the wall, or simply because the development may work around and thereby avoid the dominating patents.

Psychology of the FTO analysis

Perhaps very understandably, human factors come into play when companies postpone an FTO analysis.

The optimism involved in the development of a new product and drafting of broad patent applications may vanish in a second, if the FTO analysis ends with a pessimistic message about problems in bringing the product onto market before the competitor's patents have expired. The consequence may be that it is easier to postpone the FTO analysis until later rather than facing any negative information at an early stage.

The FTO analysis may also disclose that the competitors are at the same phase of their development – or worse, that their development has reached higher levels than your own, which could completely remove all faith in the future.

Economy of the FTO analysis

Similar considerations come into play when an FTO analysis is considered in a financial setting. All costs relating to product development and patenting may be viewed as investments in the future whereas the costs of an FTO analysis could rather be regarded as a tax on the development as the outcome may be negative.

However, it ought to be the other way around because an early FTO analysis provides a much better starting point to avoid trouble with third party patents. In an ideal world, the FTO analysis is among the first investments when development of a new product has been decided, because the company's future market position will thus be strengthened.

A focused FTO analysis drafted in close cooperation with the company's developers who know the product well is usually no more expensive than drafting of a first patent application for the product.

Results of the FTO analysis

It is obvious that the result of an FTO analysis will provide knowledge about any dominating patents, however, it is an often overlooked fact that at the same time you get knowledge about the competitors' stage of development as well as behavior in the patent field, and last but not least are provided with a number of details from the patent literature that may be used as inspiration in your own development. There is no reason for reinventing a variant of the wheel if it has already been described in the patent literature.

Dominating patents are not necessarily restricted to similar products, but may also be patents which – although they are focused on other products – have nevertheless been issued with a scope of protection that is so broad that it also covers the very product under development.

Experience shows that every FTO analysis usually identifies at least 1-2 patents having a scope of protection directly covering the company's product and therefore requiring some kind of action. No matter whether the action is an attempt to gain access to the patent right, rethinking the product, or an attack on the patent, there are far more options if these patents are identified early in the process.

Focused FTO analysis

A focused FTO analysis consists of 3 phases:

1. The search phase – identification of potentially dominating rights
2. The analysis phase – analysis of any dominating rights
3. The assessment phase – are the dominating patents valid?

Before initiating the search phase, it is natural to analyze the product, the competitors and competing products in detail in cooperation with developers and marketing specialists at the company. Thereby it will be possible to tailor a search strategy for potentially dominating rights which on the one hand is so "broad" that it may be expected that all potentially dominating patents are identified and on the other hand is so focused that noise from completely irrelevant patents is minimized. However, contrary to a novelty search in which only novelty-destroying documents are searched for, an FTO search cannot be allowed to stop until ideally all potentially dominating patents have been identified. Therefore it cannot be avoided that the search result will subsequently have to be sorted manually.

Analysis phase

In this phase, a close cooperation between patent experts and developers and marketing specialists is necessary in order to separate irrelevant patents from dominating patents in the best possible way. Often the difference between the scope of protection of the identified patent rights and the company's product resides in the details, and here the developers are the experts.

At the end of the analysis phase, the field of dominating patents has been narrowed down to the following:

- Granted patents whose scope of protection covers the product
- Pending patent applications whose broadest claims cover the product

In principle, an FTO analysis could stop here, but it is often very relevant to consider whether the scope of protection that the dominating patents contain, is actually a valid scope of protection. Alternatively, you could be forced to avoid patents which subsequently turned out to be invalid.

Assessment phase and FTO strategy

The patentability of every dominating patent and patent application should be assessed starting from known references and novelty searches in order to give a final overview of the probable valid scope of protection. Then the FTO strategy may be determined.

An FTO strategy should contain a strategy describing how the company should relate to the patent rights with a dominating scope of protection. Typically the dominating patents are divided into two categories – those whose valid scope of protection will certainly dominate, and those whose present scope of protection is deemed to be invalid and where it is unlikely that they will dominate if they were attacked in an invalidity law suit.

With respect to the first group, either the strategy is directed to obtain access to the patents via licenses or acquisitions, or alternatively to try to work around the scope of protection.

With respect to the second group, the goal is to avoid long and costly litigation. In this connection, the FTO strategy will contain considerations for an early attack on the patent in order to limit the scope of protection so that it is not dominating. Alternatively, the strategy may merely involve preparations of documenting the invalidity of the patent right in order to be prepared for a later dialogue with the patentee. The final strategy depends on the importance of the case, knowledge about the patentee and other factors such as the needs of business partners and investors for feeling assured that the third party patent rights are not a problem.

Repeat the FTO analysis at regular intervals

After finalising the FTO analysis, when everybody breathes a sigh of relief, the time has come for deciding when to repeat it.

And it should almost always be repeated

- because the competitors do not stop filing patent applications,
- because the development of the product may change direction, and
- because patent applications are secret for 18 months after filing.

The most simple way to stay updated is to monitor the field regularly, for example every quarter or every six months in order to discover any potentially dominating patents as early as possible.

CHAPTER 12

IPR strategy and business plan

On war, von Clausewitz defines "strategy" as the overall plan for the entire war whereas "tactics" rather are the plans for the individual battles. These concepts may easily be applied to a company structure. An IP strategy must follow and support the business plan of the company, ensure the earnings by a targeted protection of commercially relevant markets, and at the same time prevent the closure of an interesting market because of other parties' patents. In the IP strategy, various phases are determined whereas the more detailed tactics may be determined at the entry of the individual phases.

What kind of IP strategy does the company have?

All companies with IP rights, be it patents, trademarks, designs or business secrets, have an IP strategy – it may, however, be between the two extremes: the ad hoc "strategy" which is close to pure tactics, and the all-encompassing IP vision. The "ad hoc method" entails that decisions on the protection of inventions and trademarks are not made until the invention has been conceived, or the product is on the market, or that the blocking effect of others' patents is not considered until a lawsuit is threatening. Although this may work in the short term, experience shows that this often leads to a portfolio of rights growing wild and a lack of overview leading to an inefficient use of resources and first and foremost to uncertainty.

A good IP strategy requires knowledge of the various possibilities for protecting the company's IP and addresses all the company's IP requirements, both now and in the long term. Moreover, the IP strategy includes the time aspects of every element of the strategy so that they meet the needs of the business plan.

As a minimum, the IP strategy should address the following elements:

Protection of own inventions and products

In development companies, many innovations and improvements emerge, and far from all inventions should be protected by a patent. The IP strategy should address where protection is "nice-to-have" and where it is "need-to-have" and should preferably specify the areas having so great importance to the company that several layers of protection for a product are desirable.

In a small company, the distance from an invention to a decision-maker is small, but in larger companies a procedure should be set up in order to make sure that inventions made by various people in the company are actually identified by those who are to decide on the type of protection.

At the same time, the IP strategy should include a strategy for the publication of inventions, be it for example scientific articles or presentations at trade fairs, to avoid spoiling the possibility of patenting by publishing the invention before patent protection has been sought.

Secrecy

Some of the innovations and improvements may advantageously remain the secret of the company, and secrecy should therefore be an element of the IP strategy which should also include a plan so that the secrets remain secret.

Geography

As there are about 200 countries in the world where it is possible to obtain patent rights, a company may quickly get ruined buying patent protection unless the most relevant markets have been defined in the IP strategy, and a plan has been drawn up with respect to the choice of countries, preferably in the form of prioritized lists of countries in which protection is desired for essential inventions and for less essential inventions, respectively.

Portfolio management – patent term extension

An IP strategy should be reconsidered at an interval of a few years and should in particular be brought up to date when changing the business plan. Existing rights which had great importance at the establishment may have lost their importance because of lack of market or lack of development success and should be abandoned or minimized geographically so that the budget is used for the rights that are most relevant commercially.

Furthermore, the IP strategy should include considerations as to the timing of the filing of for example patent applications so that the patent term of 20 years matches the timing of the products on the market in the best possible way.

Freedom to Operate

The classical conflict within IP is an infringement case: The product is on its way to the market, but has it been ensured that there is a direct market access (freedom-to-operate or FTO)? In other words, have other companies blocked the way to the market with their dominant rights which – with a temporary injunction the day after the introduction of the product – may give rise to serious, expensive and protracted legal problems to be dealt with?

External parties and contracts

Inventors as employees are normally by law or contract obliged to assign their inventions to the company, but this is not necessarily true for consultants and PhD students although they are paid by the company. The IP strategy must define the agreements there are to be with external parties already at the start of the cooperation, so that it is avoided that relevant inventions are owned by others than the company itself.

Licensing

It is not always that the company uses its own patents to the full extent, and possibilities of additional earnings by offering licenses for own rights to other companies may advantageously be considered in an IP strategy.

Marking

Patent rights must be used actively, for example in a marketing context, and all relevant people in the company should be aware of the various rights. In this connection, it is also essential to mark products so that buyers are aware that the products are protected by patent or trademark, and the IP strategy should specify routines of marking so that they comply with the legislation in the relevant markets.

CASE: THÜRMER TOOLS

"We are 118 years old – but we just got started!"

Anyone entering the office of Thürmer Tools in Hvidovre is met by large black-and-white portraits of four generations of Thürmer leadership looking solemnly down at the employees, emphasizing that the family history is a very visible part of the company culture. The present CEO of Thürmer Tools and fourth in the row of photostats on the wall, Erick Thürmer, dreams of having a portrait of his son hanging on the wall in the future to represent a fifth generation of the Thürmer family.

It all began with Fritz Carl August Frantz Thürmer who in 1897 invented the square cutting die and was awarded Danish Patent no. 908 for the invention. Based on the patent he established his own factory Thürmer & Co in Copenhagen in 1898 and in the years to come a range of inventions mainly related to thread cutting tools were conceived and patented by Fritz Thürmer. Before the terms "disruption" and "innovation" were known, Fritz Thürmer single-handedly revolutionized the production of the external thread thereby disrupting the thread cutting industry with his innovative solutions.

Second and third generation of the Thürmer owner-managers were first and foremost businessmen who reorganized, modernized and expanded the family business. On several occasions the family company was sold to external investors and bought back again some time after. During the late twentieth century the company was slowly transformed into a wholesale company and production was gradually moved to China.

The fourth generation of owner-managers, Erick Thürmer, joined the family business in 2003 as part of yet another buyback deal. But Erick wanted to set his own entrepreneurial fingerprints on the family business and turned to the roots of the family. In the spirit of his great grandfather Fritz, Erick in 2015 relaunched the Danish production of thread cutting tools in Hvidovre, Copenhagen, and now he aims to revolutionize the production of customized thread cutting tools by utilizing 3D printing in metal.

Erick Thürmer began working with 3D printing in metal in 2013 and already in 2014 Thürmer Tools applied for their first patent directed to a thread cutting tap having new features and new functionality, which is only obtainable with a 3D metal printer. The pending patent application is an investment in the future. So far, the patent application has not directly generated revenue in the company, because 3D printing in metal is not

yet a mature technology. But everyone knows that 3D printing is a technology of the future, which is expected to revolutionize manufacturing globally. Erick has therefore made the headlines in numerous magazines and newspapers and has been invited as a speaker on numerous occasions. The overwhelming attention has catapulted Thürmer Tools from the purchaser level to the CEO level of their customers. So far, filing a patent application related to 3D printing has therefore been an incredible marketing investment for Thürmer Tools.

By rebooting the family company Erick follows in the patent footsteps of his innovative great grandfather – and he also plans to expand the patent portfolio in the years to come in order to capture the value of the innovation that will be generated when the profound knowledge of thread cutting tools, established in Thürmer Tools through 118 years in the business, is combined with the new world of 3D printing.

As the fourth generation of Thürmer leadership, Erick Thürmer is ready to take on the fourth industrial revolution. Investing in a patent portfolio is a way to increase the likelihood that a picture of his son will hang next to his ancestors on the wall of a Thürmer driven company in the future.

CHAPTER 13

Licensing patents

Collaboration and licensing

Collaboration

Collaboration between companies and with consultants or universities is beneficial to development. Through collaboration, a company can draw on highly specialized skills that are not available in-house. It can lead to new discoveries and new inventions of great value. For many companies, it is strategically and economically advantageous to buy specialized knowledge externally rather than hiring staff with such skills.

There are many strategic reasons for collaboration between companies and between companies and universities. First of all, there can be a need to temporarily access the special skills of the partner. But there can also be collaborations where both parties can get a strategic advantage of co-operation, for example, by combining the two sets of special skills and developing new technology that can be used by both partners for different purposes or in different markets.

Where the business strategy determines the extent to which the company collaborates with external parties, it is part of the IP strategy, how collaboration agreements are drafted with regard to ownership of inventions, responsibility for patent prosecution, ownership of data, publications, etc.

A collaboration agreement typically includes provisions on ownership of inventions and further developments of inventions, as well as the party responsible for possible patenting the rights of the two parties for development results, and of course, who the parties are.

Licensing

Companies and applicants may enter into licensing agreements of two types – licensing of rights from another company or institution – and out-licensing, where its rights are licensed to another company.

The extent to which a company in- and out-licenses, is defined by the overall IP strategy. What is the strategy for that part of the IP, which the company does not need itself? What does the company do when others own the IP, which is necessary for a product or project, or the IP which can make a product more valuable?

Licensing agreements are typically concluded in the context of collaboration agreements, which also set the terms for licensing the parties' patent rights.

A license agreement creates freedom to operate in exchange for pre-agreed economic conditions. A license may be exclusive or non-exclusive. If a company in-licenses a tool or piece of technology to develop a product, there is no need for exclusivity. Typically the company will be able to have its own patents on the final product. Then there is only a need for a non-exclusive license to ensure freedom to operate.

In other cases, an entire project is in-licensed, for example, from a university or a small business, where the larger company is to invest in further development of the technology and bring the product to the market. In this case, the license agreement is typically exclusive and the licensee typically has the right to enforce the patent against infringers.

In addition to regulating the financial terms of the agreement (down payments, milestone payments, royalty rates, minimum royalties, etc.), the agreement regulates for how long royalties are to be paid and for which countries. It is always a good idea to make some test calculations to check that royalties can actually be calculated in one and only one way. The mathematics can be very complicated, assuming a royalty rate for countries with patent coverage and a different royalty-rate in countries without patent coverage (often called know-how royalties). This can be combined with a time limit on the know-how royalties and perhaps a step increase in royalties with increasing sales. It will in many cases be worthwhile to agree on a very simple royalty structure.

A license agreement also contains provisions on which party is responsible for the patent process, and the extent to which the other party must be heard. What will happen if the claims must be restricted significantly? What will happen if the parties do not agree on the patent strategy, or if they do not agree on the patent attorneys to use?

CHAPTER 14

What is your patent worth?

It is widely recognized that knowledge plays an increasingly important role in modern economies, and intangible assets often constitute a significant portion of the value of technology companies. Intangible assets include intellectual capital and intellectual property. Understanding the value of a patent portfolio is a complex task, which requires knowledge from three different disciplines: patent law, technology and finance. Inadequate valuation of patents may lead to sub-optimal and potentially very costly decisions.

Understanding the purpose of valuation is essential to an accurate valuation. Reasons for valuating a patent or patent portfolio include raising new capital, transferring rights (assigning and licensing of rights) as stand-alone transactions, transferring rights as part of bigger commercial deals, including mergers and acquisitions, quantification of damages in disputes and reviewing the patent portfolio of a company. A range of quantitative and qualitative methods for valuating patents are available, which should be used in accordance with the purpose of the valuation, but also in accordance with the characteristics of the patent.

Some basic valuation methods are: the cost approach, the income approach and the market approach.

A **cost approach** is a simple method particularly applicable for recently developed inventions, for which development cost or development effort data are available. The cost approach estimates what it would cost to replace the patent, if possible. Hence, it can be used when alternative solutions can be envisaged and the development costs can be estimated.

An example of a credible valuation based on the cost approach could be a computer software patent in a company, which has developed several similar patentable solutions. The company is capable of estimating the approximate development for a functional equivalent.

An **income-based** approach values the patent on the basis of the future income deriving from the successful utilization of the technology. In other words, if a patent is used active-

ly to generate revenue it might be possible to give a reasonable forecast of future income during the lifetime of the patent. The main weakness of income based approaches – the inability to forecast a residual value beyond a certain period of time – does not concern patents, whose lifetime is limited.

In this category, the **discounted cash-flow methods** are widely used by IP firms. These methods take into account the remaining years of the patent and calculate a total value, which is then discounted back to a present value. More specifically, this means that for the remaining lifetime of the patent a future net stream revenue has to be estimated, i.e. the additional revenue generated by the patent. The incremental costs of the patent also have to be taken into account in the net value. When discounting the total value back to a present value the average interest rate can be used. Pharmaceuticals and products covered by license agreements are examples where the future cash-flow may be predictable.

For new patents with an unconfirmed impact on the market, the valuation is of course a particularly difficult task. A relevant quantitative approach for this situation may be the **market approach**, i.e. estimation based on transaction statistics for similar patents on the same or comparable markets. The market approach is similar to what is commonly used in e.g. real estate valuation, i.e. analysis of a number of parameters for a comparable object to evaluate the relative value.

All of the methods above need to be complemented with a **qualitative analysis**. In particular, a new or future patent is left out of qualitative assessment since estimations of future revenue are very uncertain and there are no statistical data on the patent itself. Qualitative valuation aspects include e.g. legal aspects, technology level, scope of protection, commercial potential and enforceability of the patent claims. A qualitative valuation requires excellent knowledge about the technology, market and competition, but also an understanding of the technical and legal aspects of the patent. Typically, the inventor could have the former and a patent attorney the latter.

Under qualitative valuation there are also additional aspects related to synergy within a portfolio that need to be taken into account. The overall strategy or the total value of a patent portfolio is often more relevant than the value of the individual patents, typically since complex technologies require a number of patents to operate on a market and competitors try to fence and block each other. Another reason that the value of the portfolio may exceed the sum of the individual patents is that a challenge of the validity of one patent in a portfolio may be compensated by neighboring patent rights.

Patent valuation is a complex task, which needs expert knowledge from several different disciplines. There is no simple and clear answer. However, even if the task may seem overwhelming, there are a number of concrete aspects that should be taken into account.

Aspects to take into account when valuating a patent

- Developing a clear and complete definition of the patent and its scope of protection.
- Understanding the purpose of the valuation (raising capital, licensing, defensive use etc.).
- Making sure a proper valuation method is selected – can any of the traditional approaches be applied? Whoever performs the valuation should be able to explain the specific analytical procedures that were performed and support it with good arguments.
- Analyzing the qualitative aspects and assess whether they are in line with the quantitative valuation, or whether they provide additional or reduced value.
    - Technical aspects: scope of protection, commercial potential, other dominating rights, next-best technology, remaining lifetime etc.
    - Legal aspects: validity, enforceability, actual or threatening litigation etc.
- Considering synergies among patents and potential additional value generated by trademarks.

CHAPTER 15

Due diligence

It may be nerve-racking when you are placed under scrutiny by a possible investor or business partner or when the company is up for sale. Due Diligence or just abbreviated to DD has become a commonly used term for the investigations made in order to assess risks and values in a business transaction. Due diligence may be carried out within any relevant field, such as finance, IT, staff, production and not least IPR, such as patents and trademarks, in order to have a safe basis before a business transaction.

The stress factors in a due diligence may be considerably reduced if the process is thoroughly prepared including submitting the IP portfolio to a pressure test in the same way that we expect others to do.

An IP portfolio is always created prospectively given certain circumstances and conditions, but it is analyzed retrospectively. Therefore, an IP strategy and the associated rights which were initially the best possible, may be under fire when assessed retrospectively in relation to another commercial landscape than the original one.

As a rule, the due diligence analysis should assess the actual IP portfolio and the possibilities it may give to a future commercial strategy, and it should not focus on the strategy which was originally chosen. Nevertheless it is essential to realize that an investor or a buyer will often arrange the due diligence analysis to specifically look for factors which may help talk the price down, and even when the IP portfolio is of high quality, there may be issues to be discussed.

A constructive due diligence requires dialogue

The best way forward for all parties to a due diligence is to enter into a constructive dialogue from the beginning and all the way through the analysis. This ensures that misunderstandings do not overshadow the facts as the portfolio holder may explain his strategy and present the portfolio, and the analysts may ask questions about unclear areas or more importantly: ask for details that they know may be essential for their client.

Due diligence in practice

Irrespective of the purpose of the due diligence analysis, it should always provide an answer to one or more of the following essential questions:

- Who are the rightful owners of the patent rights?
- Where are the patent rights in force and for how long?
- What do the patent rights cover?

As a starting point, the due diligence analysis uses the material provided by the patent owner, as well as all other information about the patent family which may be obtained from publicly available sources.

Data room

If there is a substantial amount of material, or if it is desired to gain extended control of the access to the material, it may be advantageous to create a data room.

The data room may either be a physical room or a virtual data room created with commercially available software.

Ownership

The name of the owner is shown on the front page of every single patent or patent application and the names of the inventors are also indicated. However, an important initial prerequisite for a due diligence is that no patent authorities check whether the correct inventors are indicated, and not all patent authorities check that the inventors have actually assigned their rights to the owner shown or – which is just as important – whether the inventors have the right to assign to the owner shown.

The due diligence analysis should therefore contain a review of the ownership and among other things investigate whether the correct inventors are mentioned.

Where are the rights in force and for how long?

Another element of the due diligence analysis may be to find out in which countries the various rights are in force and for how long they will be in force.

Generally, patents have a duration of 20 years from the filing date; however, patent rights in the US filed before 8 June 1995 may have a duration of 17 years from the date of grant. Furthermore, patents in the US and Korea may be extended by the time the examination of the application has been delayed because of official delays, which is normally called patent term adjustment, and may be from a few days up to several years of extension beyond the 20 years.

What do the patents cover?

Ultimately, the value of a patent family is a combination of the geographical protection as defined by the number and the relevance of the countries in which the patent protection is in force, and the remaining duration of the patent family, and not least the scope of protection as defined in the patent claims.

Determination of expected scope of protection

Many patent applications are granted with a more limited scope of protection than at their filing. The patent claims may have been drafted a bit too optimistically at the outset, or formal requirements may be the reason for amending the patent claims before grant.

In connection with a due diligence analysis of pending patent applications, it is essential to include an analysis of the expected scope of protection of an issued patent. As regards granted patents, the same analysis is carried out with the purpose of determining whether the granted scope of protection can be maintained if the patent is challenged in an invalidity case.

When the expected scope of protection has been established, the next step during this phase is to assess whether this scope of protection covers relevant commercial activities for the buyer, and whether the scope of protection can also be maintained when interpreting the patent claims in a possible later infringement case as well as how they keep competitors at a suitable distance.

Trade secrets and know-how

In connection with a due diligence, it should be considered whether knowledge relating to trade secrets and other know-how should be transferred. If this is the case, the analysis should include an assessment of the ownership of the knowledge in question, and an assessment as to whether the relevant steps have been taken in order to secure the secrecy of the trade secrets, e.g. password protection, locked rooms and other measures relating to visitors and copying, or whether they have been published or in other ways dispersed to a larger group.

Checklist

Every due diligence process should be carried out as systematically as possible. This is encouraged by using checklists during the various phases, such as *e.g.* the below checklist covering documents which must be ready for investigation:

- ✔ Portfolio list, divided into families of both owned and licensed rights
- ✔ Applications and granted rights
- ✔ Priority documents
- ✔ File history, including responses and amended patent claims
- ✔ License agreements covering both licensing in and out
- ✔ Relevant publications, seminars and other publications
- ✔ Non-disclosure agreements and agreements relating to transfer of material
- ✔ Relevant invention disclosure documents
- ✔ Relevant laboratory books
- ✔ Relevant employment agreements and consultancy agreements
- ✔ Assignment deeds and security agreements
- ✔ Correspondence relating to enforcement of rights

CHAPTER 16

Enforcing patent rights

Patents provide their owner with the right to stop a third party from carrying out the invention, i.e. infringe the patent. If a third party infringes the patent, legal action can be brought before a court of law to stop the infringement and seek damages. While patent applications are examined and granted or refused by patent offices, any action to stop infringement is brought before a court of law.

Legal actions at court require the involvement of a lawyer. Often in patent cases, the lawyer collaborates with a patent attorney as the lawyers are not necessarily technically savvy.

When a patent proprietor starts legal action against an alleged infringer, the alleged infringer normally countersues for invalidity. Therefore, enforcing a patent almost always puts the patents life at risk.

In many countries it is possible to get an injunction. This means that the court issues and order to a third party to stop the infringing actions or the infringing products immediately. An injunction is a very powerful tool for patent proprietors. Often it can be granted very quickly, in some countries even without the participation of the alleged infringer. In such cases the injunction is preliminary and must be confirmed during trial. The patent proprietor must then place a bond in case the court decides that the injunction was wrongfully granted, for example if the patent turns out not to be valid.

In many countries, patent litigation takes place before specialized courts that have some sort of technical expertise and are experienced in handling patent matters. Patent cases can take several years to conclude although some countries can expedite the cases and decide them within about one year. In all cases it is possible to appeal an adverse decision to an appellate court, which will add even more time.

Despite the existence of a European patent system for many years, enforcement of patents is still a national exercise, as patents are national rights. This also means that a decision from one court, in e.g. Germany has no direct effect on the situation in other countries, even if the patents, the parties, and the accused product are the same. Thus, in order to stop an

infringer in Europe, in principle a case needs to be brought in each and every European country where infringement takes place. As each court is independent and has its own way of reasoning, it happens that the same case has different outcome in different European countries. Compare this to the USA, where an infringer can be stopped in all 50 states by filing one action at one court.

The European situation is going to change within the next couple of years with the Unified Patent Court. 24 of the 28 EU countries have established a super-national court that will hear patent cases with effect for all 24 countries. In this way, European patent litigation will be streamlined and harmonized.

CHAPTER 17

Glossary

Claim
The patent claims define the protection conferred by a patent.

Due diligence
Investigations made in order to assess risks and values in a business transaction. A due diligence on patents assesses the ownership, the coverage, weaknesses and strengths of a patent portfolio and the possibilities it may give to a future commercial strategy.

Enablement
A patent application must enable a skilled person to carry out the invention based on the description thereof in the patent application.

Enforcement
Prohibiting others from unauthorised exploitation of one's patented invention. Enforcement is accomplished through legal action.

Filing date
Date of filing the patent application. The patent term of 20 years is calculated from this date.

"First to file" principle
A patent right is normally granted to the inventor who first filed a patent application for the invention.

Freedom to operate (FTO)
An entity has freedom to operate (FTO) for a given method or product if no third party has IP rights covering the method or the product or parts thereof.

Grace period
Period in which an inventor's public disclosure of an invention does not destroy the novelty of the invention – only available in selected countries, e.g. United States, Canada, and Japan.

IP/IPR
Abbreviation of intellectual property/intellectual property rights. Intellectual property includes patents, designs, utility models, trademarks, brands, copy rights and trade secrets.

Industrial applicability
Criterion for patentability – most inventions are capable of being exploited in a field of industry.

Infringement
Unauthorized exploitation of an invention by carrying out actions which fall within the claims of a patent.

International preliminary report on patentability (IPRP)
Report on patentability of a PCT application prepared by the international patent authorities as conclusion of the international phase.

International Search Report
Report on the result of the novelty search prepared by the international patent authorities. The international search report is accompanied by a written opinion on the patentability of the PCT application.

Inventive step
Criterion for patentability – an invention is associated with an inventive step if it is not obvious to a skilled person based on the prior art. Simple and predictable routine developments are not associated with an inventive step.

License
A patent proprietor may grant a third party a license to use a patented invention. The license may be exclusive (i.e. the only license) or non-exclusive. The license may grant the third party rights to use the entire invention, or it may be restricted to some fields only. The license may also be subject to geographical restriction.

National patent application
Application for a patent in a single country. A PCT application must enter national/regional phase as e.g. a national patent application after completion of the international phase.

Novelty
Criterion for patentability – an invention is novel, if the combination of technical features defining the invention has not been publicly disclosed before the filing of a patent application for the invention.

Novelty search
Search aimed to identify relevant prior art. A PCT application is subjected to a novelty search published as the International Search Report.

Paris convention
An international convention from 1883 defining the basic principles of patents and equal treatment of applicants of different nationality.

Patent application
Request for being granted a patent for an invention – a patent application after its publication can create a provisional protection of the invention.

Patent term
The duration of a patent – the patent term – is with a few exceptions 20 years from the filing date provided all required actions are taken and all required fees are paid.

PCT
Patent Cooperation Treaty – international treaty governing a unified system for filing and preliminary examination of patent applications.

PCT application
International patent application filed under the provisions of the PCT. Typically, the PCT application is an updated patent application claiming priority of a priority application.

Prior art
Anything published or otherwise made available to the public before the priority date. To be patentable, an invention must be novel and inventive over the prior art.

Priority application
First patent application describing the invention – an updated patent application can be filed within one year of filing the priority application.

Priority date
Date of filing the priority application.

Priority year
The year following the filing of the first priority application.

Preliminary examination
Assessment of the novelty, inventive step and industrial applicability of an invention described in a PCT application.

Publication
A patent application is made publicly available 18 months after the priority date.

Regional patent application
Application for a patent in a group of countries having a common patent granting process. Examples of regional patent applications include European patent applications, Eurasian patent applications (EAPO), and African patent applications (ARIPO, OAPI have overlapping countries). A PCT application must enter national/regional phase as e.g. a regional patent application after completion of the international phase.

Scope of protection
The subject matter covered by a patent. The scope of protection is defined by the claims.

Second generation patent
A patent application directed to an improvement of an invention described in an earlier patent application from the same applicant. Often it is filed before the earlier patent application is published.

TRIPS
Agreement on Trade-Related Aspects of Intellectual Property Rights. The TRIPS agreement requires WTO members to provide protection of copyrights, geographical indications, industrial designs, integrated circuit layout-designs, patents, new plant varieties, trademarks, and confidential information (know-how).

Unified Patent Court, Unitary Patent
An international unitary patent system including the majority of EU member states allowing for enforcement of a patent in the whole territory of these member states. The Unitary Patents are granted by the EPO. The system is an alternative to national registration (validation) of European patents.

Updated patent application
Patent application filed before the end of the priority year – updates one or more priority patent applications filed during the priority year. Frequently the updated patent application is a PCT application.

Validate
The process of registering a European patent before the national patent offices after the patent has been granted.

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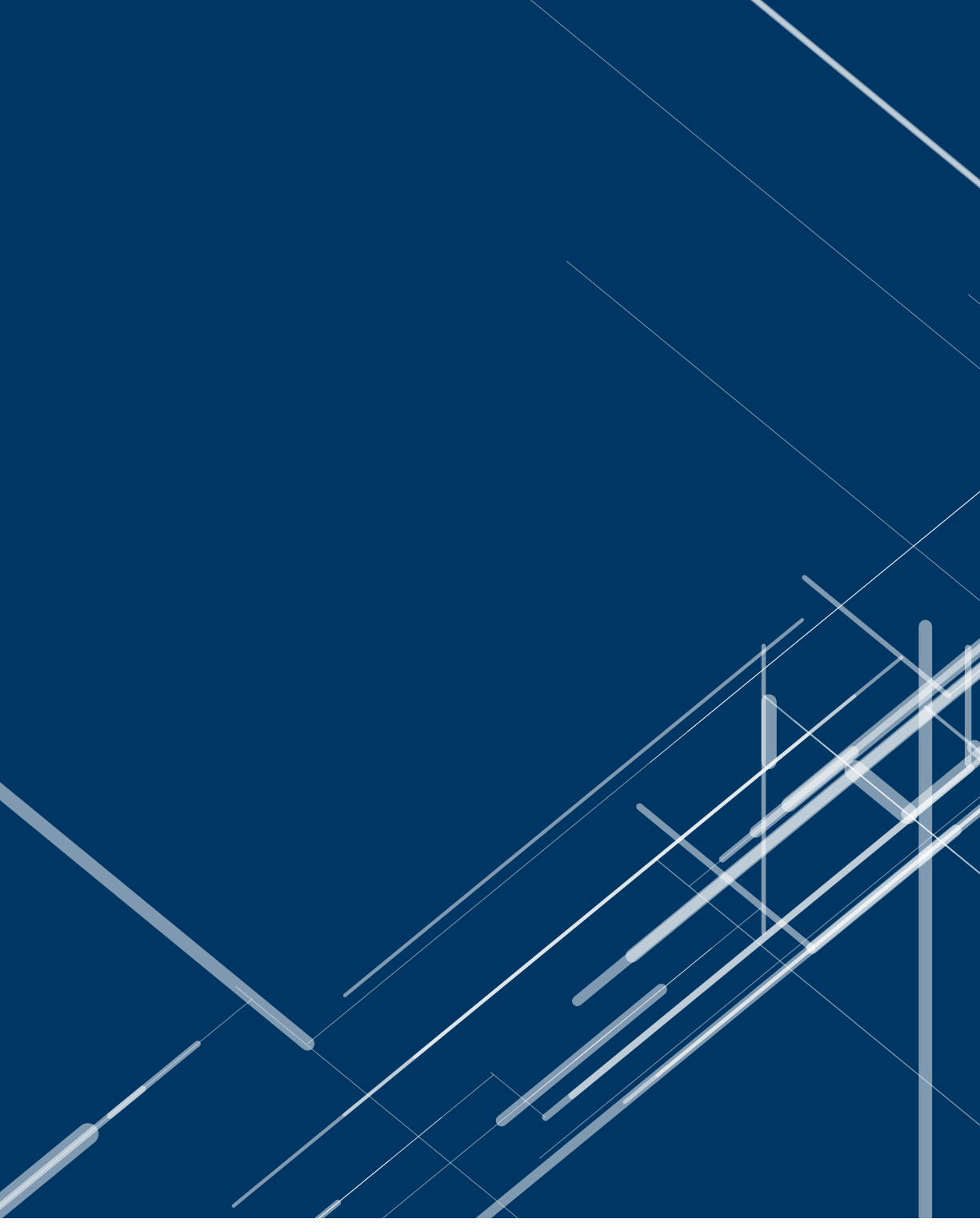

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