How to patent your AI solution

...and why that's important.

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A call for more AI patents

In 2020, more than 60% of all patents issued by the US patent office were software related (IPWatchdog, 2021). However, especially in Europe, there still exists the notion that software or AI is entirely not patentable. So how come the Americans don't seem to have this issue? They approach software patenting very differently. Instead of trying to patent the code itself, they reframe the patent around the process the software implements. Therefore their method, process and apparatus is, as so often, much more targeted on succeeding rather than perfectly complying with the hurdles set. While European companies largely view patents as evidence of technical innovation and follow the legal procedures very methodically when filing, US companies see the much more practical and real-life benefits of software patents and through framing and persistence find a way in getting their patents accepted.

But there is good reason for European companies and start-ups to adapt the US approach. While there are certain administrative, financial and more pressingly legal hurdles, the benefits from a valuation, insurance and marketing standpoint are often reason enough for tech start-ups around the globe to pursue these efforts.

Patents as valuation boosters and proof of innovativeness

Certainly, the most apparent reason for filing a patent is the protective effect, providing the owner with the exclusive right to utilise the invention for a certain period of time.

However, especially for start-ups, there are even more decisive reasons from a legal and valuation perspective. Patents are a proof of a company's innovative strength. Its potential to be used as a marketing tool during a fundraising or sales process can show great potential reward for a relatively small price of application. Investors value patents (at times irrationally) high as especially in exit scenarios, they can become very valuable. As it is rarely worth it to sue small start-ups on patent infringements, competitors tend to sue after the purchase by a larger company - which in return is willing to pay a higher acquisition price to hedge itself from this risk through a patent.

Furthermore, from a legal perspective patents are a valuable asset to possess. Patent suits rarely have an interest in reaching a verdict but mostly get settled by out-of-court settlements, as the paid fine is seldomly more valuable than the cost-to-business of such a legal dispute. Hence, a patent that can be used as a negotiation tool and possibly an exchangeable good in an out-of-court settlement can be immensely valuable.

Patents also allow inventors to publish without fearing commercial competition. It is very difficult these days to hire engineers if you don't let them publish - therefore it may seem reasonable to patent their discoveries to enable them to publish.

Lastly, patents can simply be seen as assets that can be sold, licenced, pledged or transferred - and should be valued as such.

How to patent your AI solution

While the process of applying for a patent sounds like an administrative nightmare, if done correctly, as little as one day's work from the company's side is necessary.

The process starts with iterating what ideas can/should be patented, before consulting with a patent attorney on the dimensions and possibility of success of an application. Thereafter the necessary documents are prepared by the consulting lawyer (min. 2 weeks) while iterating and afterwards filing the patent application at the respective patent office. As so often, one can expect the US patent office (min. 9 months) to have a final decision a lot quicker than the European counterparts (min. 18 months). However, from a legal perspective a confirmation of filing is insurance enough. If the feedback is negative you can revise based on the suggestions of the patent office (while not adding new subject matter) or withdraw the application. The minimum duration of the process can take as little as one year and realistically 18-24 months. However, the essential part is the filing date.

You don't patent the AI/software - but the methods/processes it implements

The most difficult part in filing a software patent is understanding what part of a product or concept can be patented. The basic criteria are simple:

- Novelty: the invention must not have existed before.
- Innovation: the invention must not be obvious to a person skilled in the field.
- Disclosure: the invention must be sufficiently clear and complete for it to be carried out by a person skilled in the art. No vague descriptions.
- Clarity: the claims shall define the exact matter for which protection is sought. No concepts but clear inventions.

Where it gets difficult is the term of technical character:

An invention needs a technical reference that solves a technical problem with technical means. The definition of technical character is very vague and must be decided on a case-by-case basis. In order to have a technical character, a computer program must produce a "further technical effect" when run on a computer. A "further technical effect" is a technical effect going beyond the normal physical interactions between the program (software) and the computer (hardware) on which it is run[1].

In a **very** simplified way: Is there any interaction of the core of the invention with the physical world?

The difficulty lies in formulating the software patent claims in such a way that the claims clearly identify the technical character of the invention. Good patent lawyers are able to transform a non technical software invention into a technical one by a slight modification of the invention. What is the smallest possible switch one can implement to find a technical aspect?

You can patent AI systems - it is all just a question of framing

Legally, in Europe computer programs are excluded from patentability if claimed as such, as it is considered a purely mental product like a mathematical proof or rules for a game. However, the exclusion does not apply to computer programs having a technical character[2]. By framing your product correctly this is a hurdle that can be easily bypassed. Therefore, you emphasise not the software as the invention but the technical character innovation that this software enables, and thereby bypass the hurdle.

The key difficulty there lies in pinpointing the technical innovation provided through the software. Where does the software actually enable technical innovation? As this is a highly hypothetical question, it is impossible to set a fixed guideline. There are, however, tips that help you detect or define this technical character in AI applications:

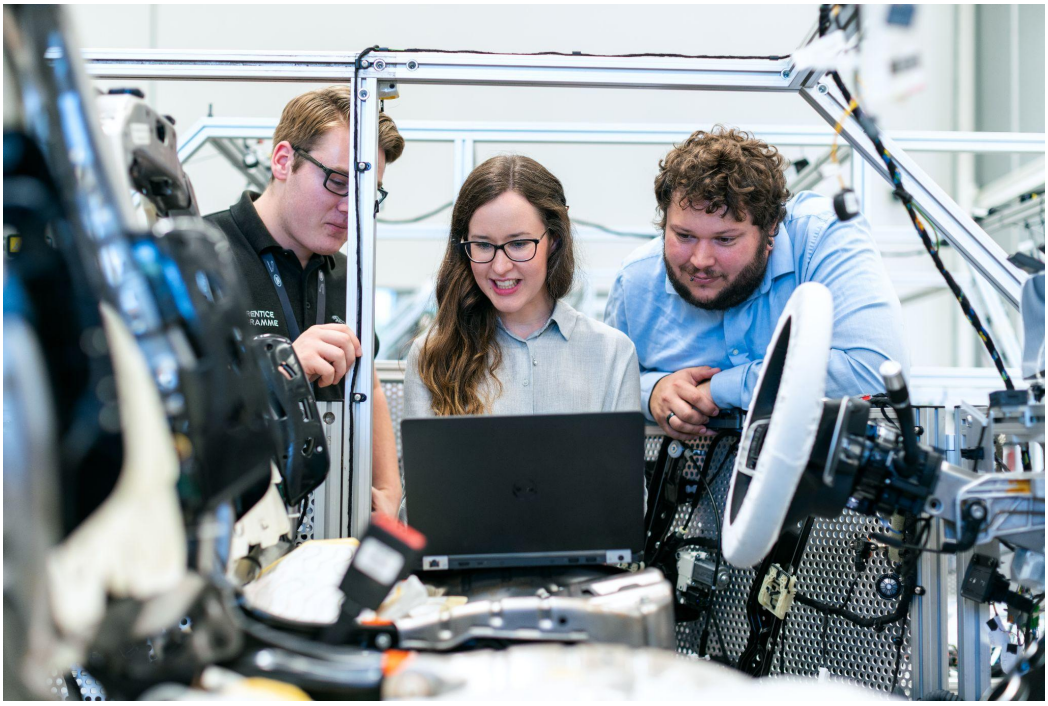
Keep technical people in the loop:
When determining how to patent one's software, it is paramount to always involve a person who actively understands the operational sense in which this technology is used. This allows much more efficient determination of the technical character of the product.

Look at comparable cases:
There are significant collections of specific software inventions (like this one here) that have been found to be either technical or not - use them.

There is always a way

If you believe there exists no way to patent your product on the basis of it being a "non technical" software product - Google similar patents and you will almost always find an American who has already done so. The key is getting creative and finding the way of least resistance to framing the product in such a way that the patent claims relate to a technical aspect.

Tips & Tricks



When filing for patents there are certain approaches that might seem counter-intuitive and inefficient at first but are reasonable at closer inspection:

-> File early, file regularly, file effortlessly

After companies have decided that patenting makes sense in their case, speed and range are essential. The first-to-file principle matters. Whoever was first in filing has a very high likelihood of getting the right. Therefore, it makes sense to invest the time and money early on to file within the first weeks of the start-up and do so repeatedly for every new idea and also do so globally from day one. As the US patent office is still the quickest and leading global gatekeeper, go for them first and don’t wait on the EU counterpart to respond before filing. If done correctly and with a bit of experience the necessary administrative tasks from the company's side are minimal and effortless (less than a day’s work).

-> Do not search for other patents

While it might seem intuitive to search for competitors' patents before filing one's own, this solely increases the overall cost to the company in the long term. Better, let the patent office do the work. See it as a subsidised market research. The patent office either way has to do a comprehensive patent search to verify the novelty of the registered patent - the company saves a lot of money and time in not having to do this market search. Furthermore, some jurisdictions like the US require the disclosure of known prior art. So the results of your own previous research may make the examination procedure more difficult. While it might seem intriguing to see the probability of success of a patent beforehand, there are enough tweaks that can be undertaken to make sure the patent is not rejected on the basis of similarity.

-> Freedom-to-Operate reports are a waste of time

A Freedom-to-Operate (FTO) report identifies whether a product can be used without infringing another party's valid intellectual property rights. External FTO analyses are usually very costly. Therefore, a careful pre-evaluation should be carried out in order to determine the exact scope
and the necessary extent of an intended FTO-analysis. Often, an internal research may turn out to be sufficient. At least, a thorough pre-evaluation is mandatory to avoid excessive FTO costs as the output is often highly conjectural. Keep in mind that regardless of the effort you devote to your FTO-analysis, there always remains a risk of infringement.

-> Patent often and specifically

From a financial point of view it seems reasonable to claim an idea as broadly as possible. However, as the broadness of a patent claim increases, this simultaneously decreases the probability of acceptance through the patent office. Furthermore, broader claims might trigger attacks (nullity or opposition procedures) even by non competing companies. Also, broader claims leave a much larger target surface for any attack. And if a single part of a patent is ruled to be unpatentable, the entire patent may be endangered. Therefore, rather file often, with more precision (more depth in the claims), delivering a higher defensibility and higher probability of success of adoption by the patent office.

-> Everything you do is marketing

From a technical point of view, patents are legal documents that prove the innovation of a company. However, in a more practical sense, especially for start-ups, they are marketing tools. Use them as such. When applying for patents, give it an investor friendly title, while not limiting the claims by the title. The title of a patent must in some sense reflect the technical innovation, however, can again be framed in a way that sounds much more attractive to investors. Anytime you present your product to investors, highlight that you have patented it. Only so often people will fully dig in and understand which technical aspects you actually have patented - but at the same time trust the product more and value it higher.

-> The pre-publication problem

If the content of an invention is published before the patent application - it can no longer be patented (in the USA there is a one year grace period). The feature of novelty is missing.

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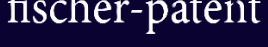
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