Effective Patent Valuation based on abstract indicator models

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Finding and analyzing indicators is like reading the traces of a public community: Why can the indicator based model be an appropriate approach for evaluating and even valuating patents and be even more effective than other established approaches for valuating patents.

Reading a patent and judging its technology is of cause an appropriate way in order to determine it's potential use and if you are experienced in analyzing patent claims it may enable you even to figure out if the patent is able to lock out most competitors, an intensive research may give you an idea if there may be a chance to win an invalidity claim against the patent.

Besides this important information this all gives you an idea about the technological and maybe even legal standing of the patent you are analyzing. But finding a market value after knowing all this is still not possible as long as the environment like potential licensees or potential buyers for this patent are not investigated. But this is even more speculative and more difficult as the evaluation of the technology that is described in the patent.

So what is the appropriate approach for this and what is the benefit of the so called indicator model that are often described in the literature?

The answer is that indicators like e.g. the amount of foreign forward citations per year are nothing else but reading traces in the sand. An indicator is nothing else but the sum of different actions that have taken place with the patent. So many forward citations prove that many other inventors have read the patent and decided that it is more or less relevant. Does the amount of citations rise over the years (citations per year) it is obvious that the relevance is rising. Reading traces means in this case, the environment is having a rising attention regarding the patent, this means obviously a rising market attractiveness. This information is not trivial at all but it is not directly available by reading the patent itself. The idea of analyzing indicators is to see the inventors, patent attorneys, examiners and researchers – so many very qualified people - as a big community of experts.- And the community decides and documents that there for example is a patent that is so relevant for the intended invention that it needs a differentiation and that it lowers the width of the own claims. Seeing indicators as the result of a more or less public opinion of experts make clear why a method of building and analyzing indicators is so strong and temper proof.

The challenge is the interpret these signals correctly. Studies that have been done show e.g. a correlation of a patent value to the citations, the amount of claims, inventors, assignees of patents. But correlations are not always linear and not as obvious as they seem. Having a look on the forward citations (other patents that cite the patent that is currently rated): The first question is: How old is the patent. It is making sense that a 15 year old patent had much more time to be reviewed by the community and in the sense more time to get cited than a patent application that just had been published. And of cause it is making a difference who is citing the document. If the patent attorney and the assignee of both patents are identical it is obvious that the patent is well known and it is obvious that a new invention is building on previous developments. Some

companies IP departments consequently cite their own patents because they know about the high quality impact. So these "inside-citations" and the age of a patent have to be considered by analyzing this indicator. Finally the forward citations are a positive quality indicator with different manifestations as mentioned above.

Another example: The amount of assignees. On a first sight it may be a good idea to cooperate during an innovation process. This may be true but this idea is not directly linked with the inventions that are patented. The reason is: Many assignees always double the effort of utilization. Licensing negotiations have to be done with at least two parties, at least two parties have to decide if the patent should be sold or not and maybe the utilization of a patent follows different strategies. Finally both parties know about the difficulties that are waiting and for this reason they try to keep the technical contribution for the community patent as small as possible in order to have enough space for own patents or for a back door if the collaboration with the partner may be ended once. This is why this is for example a negative indicator.

Some indicators may have both manifestations: The amount of oppositions/Litigations during the opposition period may led to two different interpretations: 1. the patent is strongly related to the state of the art, 2. The patent bothers one or even multiple competitors because it threatens their own current RnD activities. In this situation it must be decided if the first or the second scenario is more realistic. The answer can be found by correlating the amount of oppositions/litigations with another indicator, e.g. the citations that have been done during the examination phase. Did the examiner find different patents or non patent literature that led to reduce the amount of claims significantly and there are many oppositions/litigations documented later during the opposition period, scenario 1 may be more realistic. So the indicator leads to a negative quality impact. If the examiner didn't find anything and all claims remained as they were before and there are additionally forward citations, it is a good indicator for the scenario 2, a positive quality impact on the patent.

On the other hand there are three challenges regarding the analyzing of indicators:

- **the availability:** The bibliographic data must be available in a certain database. The difficulty rises for patents outside the European or US American market, because the quality of bibliographic data is not everywhere the same. It is necessary to make sure that patents are having a comparable mathematical basis when indicators are analyzed.
- **the interpretation of data in different countries**: Unfortunately there are different "habits" in different countries that are related to the different legal situations. So it is described in the literature that the US patent are cited are citing in the average 20 times more often than in Europe.
- **the quality impact**: It was shown above that an indicator may have different manifestations. It must be properly analyzed the context of an indicator or a mathematical rule has to be determined.

But all these challenges can be contained and the quality of data is rising constantly that means that the results become more and more better.

Finally maybe the most interesting aspect of this approach is that it is a model - an abstract pattern. Having an abstract pattern and a rulebook to interpret and to explain it, it doesn't matter if this a chemical or an automotive patent – it is

adaptable to all patents when it is determined once. The rulebook and the indicators behave similar in all branches. There is only one exception: Secret Patents that are locked away because they affect the national security. In these cases the community has no access to the patent so there are not enough traces that can be read.

After 5 years of intense research 26 different indicators could be identified and verified only based on bibliographic data of a patent or a patent application. The more indicators are available the lower is the risk that one indicator may contain wrong data or is just not available. The more indicators that are available, the more stable the whole picture becomes. The indicators cover the different fields assignee, environment technology and legals. So all relevant investigation fields of a patent are addressed.

The indicator model is predestined for a software supported evaluation – all bibliographic data can be sourced by different databases and processed automatically. The software algorithm can process and display the data graphically, e.g. in portfolio representations. This makes it possible to perform detailed analysis of complete patent portfolios, no matter if these are own or foreign patents.