Thoughts on Claim Feature Based Patent Portfolio Benchmarking

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Abstract

The claim feature based approach to patent portfolio benchmarking focuses on the analysis of patent claims, and in particular on features constituting a claim. It offers the advantage of deriving measures directly from the claims without the necessity to compare complete claims with each other. It seems that it is at least in principle possible to derive a suitable patent metrics from the claim feature statistics thus allowing a valuation of given patent portfolios.

1 introduction

In recent past some effort has been spend on developing tools for statistical benchmarking of patent porfolios. Among countless possible ways to define proper patent metrics, those based on patent ciations (especially forward citations) have received increased attention in literature ([1], [2]) and software (vide e.g. AcclaimIP's *Patent Score*, SciVal or PatentSight's *Ciation Index*). The major drawback of the citation based methods, however, stems from the fact that citations mostly refer to the content of the patent description rather than to the respective claims, which usually define the respective scope of protection and thus also its value.

In contrast, the claim feature based approach focuses on the analysis of the patent claims, and in particular on the features constituting a claim. Using claim feature statistics for patent valuation offers the advantage of deriving measures directly from the claims without the necessity to compare complete claims with each other.

The aim of this short essay is to show that it is at least in principle possible to derive a suitable patent metrics from the claim feature statistics being useful for a valuation of given patent portfolios.

2 Claim Feature Statistics

The task description of a patent benchmark usually specifies a suitably restricted technical field and at least two competing companies. Once the relevant patent portfolios of said competitors in said field have been identified, their relative strength is to be estimated.

A particular premise of the claim feature statistics in this respect is, of course, the general possibility of extracting single features from a given claim. This requirement is, however, easily fullfilled, as such claim extraction is commonly done e.g. in claim charts used in opposition or litigation proceedings. In such a claim chart the respective claim is partitioned into several distinct features in order to compare the claim with a given state of the art disclosure or a given potentially infringing form.

It is a common observation that claim features are not unique but usually reappear in many patents. This basically follows from stepwise innovation processes. Usually any new generic technical solution is followed by smaller supplement solutions or inventions. Thus, as an example, if a generic technical solution is described by features X1 to Xn in a corresponding patent claim, then probably all (or at least some) of those features will still be used in a claim directed to a technical improvement descibed by an additional feature Y.

Therefore the following dependency can be assessed: A higher relevance of (an aspect of) a certain technical solution S implies a higher number of occurrences of a claim feature X describing S in different patents.

In terms of time behaviour one expects the number of citations of a feature X in different claims to increase, as long as the corresponding innovation intensifies. Later on that number is expected to decrease again. The decrease occurs as soon as the technical aspect relating to X will become a commodity. At that time the innovation continues taking already some different path.

Using patent terminology: At frist a given feature X1 will probably be found in the characterizing part of a claim, later on in the preamble of a claim and finally somewhere in the description, at best. In terms of a simple example: An early basic patent P1 will have a claim with a feature X0 in the preamble (referring to an even older patent P0 citing X0) and a feature X1 in the characterizing portion. A later patent P2 claiming an invention influenced by the teaching of P1 will probably cite X1 in the preamble, and a new feature X2 in the characterizing portion of the claim, and so on.

It seems therefore apparent that, in the context of assigning value to patents or patent portfolios, two factors are of particular relevance: firstly, the overall number of occurences of a feature in patent claims is an indication of its innovation relevance; and secondly, an early mentioning of the feature in claims is a sign of the value of the corresponding claim.

3 Conclusion

Following the arguments presented above, patent portfolio benchmarking based on patent feature statistics seems to be, in principle, possible. Its concrete implementation could comprise the following steps.

As a first step as many features as possible should be extracted from the patent claims. This can be performed either manually by a human expert or by a properly taught artificial intelligence or any other suitable algorithm (in fact, software solutions like ClearstoneIP's Claim Chart Generator are already available).

As a second step the most important of the features should be chosen for further analysis. The importance can be measured by the number of occurences of a given feature in patent claims.

A metrics value assigned to a given patent portfolio can then be defined based on the relaitve earliness of the citations and the importance of the features cited in the respective claims.

References

[1] M. Hosein Fallah et al., *Forward Paetnt Citations as Predictive Measures for Diffusion of Emerging Technologies*, PICMET 2009 Proceedings, Oregon USA

[2] H. Ernst, N. Omland, *The Patent Asset Index – A New Approach to Benchmark Patent Portfolios*, World Patent Information, Vol. 33, 2011