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Disagreements among technical experts with regard to patent essentiality

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Standard development organisations (SDOs) oversee standards and specify SDO members' obligations. Some SDOs require their members to disclose patents that may be or may become essential to a standard. Only a subset of these disclosed-essential patents end up being actually essential to the standard.

It is critical to identify the actually essential patents from the disclosed-essential patents for two reasons. First, SDO members commit to granting irrevocable licences to their actually essential patents on FRAND terms and conditions, so parties to a potential licence must evaluate their own and their counterparty's actual, patented contributions to the standard. Second, in FRAND litigations, the number and share of actually essential patents owned by both parties are almost always significant pieces of evidence that economists and judges rely on to identify FRAND terms and conditions.

Despite the importance of identifying actually essential patents among disclosed-essential patents, there is no agreed method to achieve this identification. Instead, patent valuation professionals normally rely on technical evidence and studies, which examine the essentiality of patents disclosed by major standard contributors. In such studies, technical experts report the number of patents belonging to each contributor that they believe to be actually essential, out of the portfolio of disclosed-essential patents that they have studied. As technical experts work independently and may have their own technical opinions or biases, their determinations of the actually essential patents often do not align. The authors of this article investigated this disagreement and highlighted potential problems with relying on any individual study.

Methodology

We began with a comprehensive set of studies of patents disclosed as potentially essential to the European Telecommunications Standards Institute's Global System for Mobile communications (GSM), Universal Mobile Telecommunications System (UMTS) and Long-Term Evolution (LTE) cellular standards. We analysed the share of each contributor's patents that each study found to be actually essential, using a statistical tool known as a 'chi-square test', which examines whether differences in

these shares across studies are systematic or are due merely to chance. We found that the studies were remarkable for the extent to which they disagreed about the share of actually essential patents, for any given contributor. Across all cellular standards, those disagreements were statistically significant more than 50% of the time.

Previous studies

This widespread, statistically significant disagreement is evident in the technical experts' opinions on patent essentiality in the recent *TCL v Ericsson* litigation (Memorandum of Findings of Fact and Conclusions of Law, Case 8:14-CV-00341-JVS-DFM). The *TCL* court relied on a patent counting study performed by an expert firm, Concur IP, under the supervision of TCL's technical experts, Zhi Ding and Paul Kakaes. The Concur IP study attempted to estimate the number of handset patents that are actually essential to the LTE standard, by enlisting a team of engineers to review over 5,200 patents and checking the results. Despite working together on the same project for the same client, Ding and Kakaes frequently disagreed on whether the patents that they reviewed were essential. Based on our analysis of publicly reported data regarding their studies, Ding and Kakaes disagreed more than 25% of the time.

We also compared Ding's results with a study conducted by PA Consulting. First, we identified the disclosed-essential patents that were reviewed by both PA Consulting and Ding. We then grouped the results by major contributors and counted the number of patents that both PA Consulting and Ding found to be actually essential. Among the patents that either study found to be actually essential, Ding and PA Consulting agreed less than 30% of the time.

Part of this disagreement may be explained by the relatively cursory technical and legal review; in the case of the Concur IP study, the review was limited to 30 minutes per patent, According to Justice Birss in *Unwired Planet v Huawei*, that level of review is insufficient and unreliable (Approved Judgment of Justice Birss for Unwired Planet International Ltd and Huawei Technologies Co Ltd, Huawei Technologies (UK) Co Ltd, and Unwired Planet LLC, 5 May 2017).

New methods

In light of these disagreements and findings of unreliability, we developed a comprehensive method to estimate the likelihood of essentiality for each major contributor's portfolio and standard. We took into account systematic differences in essentiality probabilities across the studies, contributors and standards. This method aggregates all available information across the studies, and thus forms the single best estimate of essentiality for any given contributor's portfolio. This "best estimate" is therefore the single best observable proxy for the unobservable beliefs held by each party to portfolio licensing negotiations.

We relied on this method as part of computing the relative strengths of industry patent portfolios to predict the payments observed in SEP licenses, in the recent *Apple v Qualcomm* litigation. The results show that expectations of each portfolio's essentiality rate are an important component of the portfolio's relative strength.

Comment

Technical studies show significant disagreements in their patent essentiality judgments. If a patent valuation analysis is performed by relying solely on one technical study, the results are likely to be unreliable and may be biased. To overcome the limitations of these technical opinions when valuing SEPs, a more informed approach would be to consider multiple technical studies systematically. Where possible, patent valuation analysts, litigators and the courts should rely on structured statistical analyses using the results of multiple technical studies. This approach better encompasses the opinions

of technical experts in their individual studies and is more likely to produce unbiased patent essentiality results.

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