case study

data modeling & analytics

challenge

"Patent pools" are a licensing strategy that allows patent holders to leverage each others' work to create complex products when competing ownership of intellectual property blocks innovation. The US Department of Justice Antitrust Division evaluates the validity of patent pools to ensure they do not distort markets inappropriately. An unanswered question was whether patent pools were more likely to survive anti-trust scrutiny when there was also an established, open technological standard.

solution

Cory developed a set of algorithms to examine the changes in patent co-citation network density for a selected set of candidate patent pools (both successful and unsuccessful in DOJ evaluations). These algorithms were run against the full USPTO and NBER patent databases to objectively identify high-density patent "thickets": dense webs of overlapping patent citations. By examining the relationship between citation density and time, he constructed a model describing individual patent applications that preceded the creation of a patent pool.

The developed model was able to distinguish differences in network structure between successful and unsuccessful patent pools in several dimensions (time, number of components, existence of a standard, acceleration of network density, citation density compared to adjacent granted patents). The ability to establish objective criteria for thicket identification was key in determining correlation between patent pool characteristics and DOJ analysis outcomes.

benefit

By analyzing the full USPTO and NBER patent databases, Cory developed a model that was able to:

- Reduce patent pools of any technology to a set of key characteristics; and,
- Predict whether those patent pools would survive anti-trust scrutiny.

Additionally, the research established that patent pools are significantly more likely to survive anti-trust scrutiny in the presence of open standards. This allowed companies to alter their R&D lifecycles to include participation in standards-setting bodies and increase the likelihood that later patent pool applications will pass DOJ scrutiny, ultimately impacting the market viability of their IP assets.