

- Some Things We Know About Software Patents

- From Empirical Research

- John Allison—UT Austin

- Software patent = claims cover data processing (manipulation of data), either alone or in conjunction with hardware
- Universities patent a lot of software, and amount has been growing
- Rai, Allison, Sampat, University Software Ownership & Litigation: A First Examination (2009) (A study of over 7,000 university patents)
- These are highly technical programs, NOT business methods
- The kind that have a much better chance of surviving Alice § 101 scrutiny
- University patenting of software seems to be driven by propensity of a particular university to patent more generally
- Universities overall appear to treat all inventions the same when deciding whether to patent & enforce
- And universities do sometimes sue to enforce these software patents

Patents issued to the top 500 companies ranked by revenues from software and related services (Software Magazine—"The Software 500" each year 1998-2002—all patents owned by those firms in those years)

Allison & Mann, *The Disputed Value of Software Patents* (2007)

Includes both pure software firms and manufacturers that also patent software (20,000 non-IBM patents studied, estimates for 14,000 IBM patents)

Only 30% of the firms owned any software patents at all

Most depend on copyright and trade secret protection

Manufacturers own the bulk of software patents

The software patents have more total claims

More independent claims

More patent reference

- Continued on next slide

Patents issued to the top 500 companies ranked by revenues from software and related services (1998-2002)

- A LOT more nonpatent references
- More citations received (“forward citations”)
- Larger # of countries in which the patentee sought protection for the invention (what Lanjouw & Shankerman called “patent families”—a misnomer)
- *[All at < 0.01]*
- Note that Kimberly Moore found that # of claims, total prior art references, & citations received were positively correlated with payment of maintenance fees
- Our models controlled for different sectors in software industry, whether owner was a “pure software firm” [at least 80% of revenues from software] or not [electronics manufacturers that owned software patents], year, & firm fixed effects
- Clustered on firm standard errors

Continued on next slide

Patents issued to the top 500 companies ranked by revenues from software and related services

- Only thing that these firms' SW patents had *fewer of* than the firms's non-SW patents were foreign patent references, which is intuitive
 - AND, the non-patent prior art in these firms' SW patents came from arguably higher quality sources (academic & university publications, and trade publications—there was an editor or referee) than the non-SW
 - AND, both SW and Non-SW patents owned by these top software revenue-generating firms had a lot more of everything than patents from the general population
 - ALSO, no significant difference in objective quality/value measures of software patents held by small and large entities
- Finally, software patents owned by “pure software firms” had significantly more of all measured characteristics than did software patents owned by electronics manufacturers

Internet Business Method Patents

- Allison & Tiller, *The Business Method Patent Myth* (2003)
- From over intentionally overinclusive sample of 9,000 patents in PTO classes 705, 707, 709 (largest concentrations of Internet patents)
- After culling, there were 1,093 software patents clearly *targeted for use on the Internet* (from studying written descriptions—probably a bit underinclusive)
- Until effects of *Alice* kicked in, these patents looked basically the same in the 2000's
- Data set included both broadly claimed Internet business models
- And narrower patents on business techniques (e.g., “one-click”)
- Compared with contemporaneously issued random sample of 1,000 patents from the general population (“the average patent”) from Allison, Lemley, Moore, Trunkey, *Valuable Patents* (2004)

• Continued on next slide

Internet Business Method Patents (Allison & Tiller)

When compared with the average patent, and with patents in almost all other technology areas,

- Internet business method patents had substantially more claims & prior art references, more inventors, and spent more time in the PTO from both original app filing & from filing of the most recent app
- Used only univariate analysis—transformed skewed distributions and compared variable to variable—no regression
- We classified all non-patent prior art (NPPA) from the two sets of patents (2,093 patents)
- We found that NPPA in Internet business method patents were from sources at least as reliable and objective as the NPPA in the average patent
 - Academic journals, trade publications, university publications, etc., *compared with* probably less reliable & objective sources such as popular press, company press releases & other company pubs, industry association pubs, etc.

Litigation of software patents for use with the Internet (Allison, Tiller, Zyontz, *Patent Litigation & the Internet* 2012)

- A population of 1,093 Internet patents from *Business Method Patent Myth*
- The sample of 1,000 non-Internet patents from *Valuable Patents*
- Added a random sample of 10,000 non-Internet patents (also contemporaneously issued)
- Found all patents from these data sets that had been litigated (LitAlert & Lex Machina)
- We found that Internet software patents overall were litigated between 7.5 and 9.5 times more frequently than the average patent ("non-Internet patents"), depending on the regression model
- Internet patents covering broadly claimed business models were litigated at a significantly higher rate than those covering narrower business "techniques"
- Internet and non-Internet patents went to trial at the same rate

Software patents for use with the Internet issued during through the end of the 1990's (Allison, Tiller, Zyontz 2012)

- In litigation that went to judgment, non-Internet patents (from the general population) won overall (infringement & validity) more often than Internet patents,
 - BUT when other independent variables were included in a logistic regression model, there was no significant difference in win rates

Significance of the # of claims as a litigation indicator was completely driven by the # of independent claims (not dependent). (Confirms Allison, et al, *Valuable Patents* (2004))

Internet & non-Internet patents were the same age (4.5 yrs.) at time of litigation

Internet patents issued to individuals & small companies (but not universities) were litigated significantly more often than those issued to large companies (also true of other patents)