Do Patents Facilitate Financing in the Software Industry?

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Abstract

This paper is the first part of a wide-ranging study of the role of intellectual property in the software industry. Unlike previous papers, which focus primarily on software patents – which generally are held by firms that are not software firms – this paper provides a thorough and contextually grounded description of the role that patents actually play in the software industry itself.

The bulk of the paper considers the pros and cons of patents in the software industry. On the positive side, the paper starts by emphasizing the difficulties that pre-revenue startups face in obtaining any value from patents. Litigation to enforce patents is impractical for those firms. Efforts to obtain patents divert the firm's focus from the central task of designing and deploying a product, and the benefits of excluding competitors are limited for firms that cannot themselves exploit the relevant technology. Once the firm is larger, a number of potential benefits appear. First, despite concerns that patents are not effective to appropriate innovation in the software industry, a substantial number of software startups do have patents of sufficient strength to exclude competitors. Because the principal targets of those patents are much larger firms, that finding is important because it suggests that patents are more beneficial to small firms than to large firms. The paper then considers indirect effects related to the use of patents in cross-licensing transactions and in providing information about the firm. The first benefit may be substantial to firms that obtain patents, but the paper dismisses use in cross licensing as a net benefit to the industry: absent some other benefit, all firms would be better off saving the costs of obtaining patents. The information benefits, in contrast, seem to be net improvements in the system of innovation. The question, however, is whether those benefits are sufficiently substantial to justify the costs of obtaining the patents.

The paper then turns to the prominent claims advanced by Larry Lessig, Jim Bessen, and others that the enforcement of software patents has hindered innovation in the software industry through creation of a patent "thicket." The paper rejects those claims for two broad reasons. First, notwithstanding the empirical analysis of R&D spending in papers by Bessen, Maskin, and Hunt, I argue that direct evidence of high R&D spending in the software industry undermines claims that software patents cause firms to reduce R&D spending. Second, I argue that the actual structure and practices of the

industry belie any claim of a patent thicket. Relying on interviews that I conducted and publicly available information, I show that young firms in the software industry are not in any significant way constrained in their development activities by the existence of large patent portfolios in the hands of incumbent firms.

The paper also contextualizes the role of patents by examining the relatively weak protections that copyright and trade secret can afford. At bottom, neither of those systems can provide a useful mechanism that would allow small firms to appropriate the values of their inventions. If such protection is a significant positive benefit of the patent system, it is equally true that neither copyrights nor trade secrets are (or can) contribute significantly in that respect, however useful they might be in other roles (such as preventing piracy).

The paper closes by considering critically the possibility of middle-ground responses that would limit patent rights in the industry but not abolish them entirely. First, I criticize a possible registration system that might provide the information benefits discussed in Part III without the costs of excluding competitors. I argue that such an approach would be impractical both because it would be difficult to disentangle the information benefits from the right to control technology, and because of my sense that software firms would have an inadequate incentive to participate in such a system. Finally, I consider the possibility of special limits on the rights of "trolls," small non-operating firms formed solely to litigate patents. I argue that trolls serve a useful function as specialized intermediaries and that in fact they may have a positive role in promoting innovation in the industry.