Surprise! Patent Approval Rate Lower Than You Think

Lisa Shuchman, Corporate Counsel
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Note: This article has been updated to correct the number of applications filed at the PTO.

Critics of the U.S. Patent and Trademark Office have long complained that examiners are too lax and issue too many low-quality patents, with some claiming that more than 95 percent of patent applications are eventually approved.

Now, a professor and two PTO economists have conducted a study, titled “What is the Probability of Receiving a U.S. Patent?,” finding that only 55.8 percent of the 2.15 million patent applications filed at the PTO between 1996 and 2005 were ultimately issued as patents.

“This is far from the previously suggested number,” said Deepak Hegde, one of the study’s authors, who is also an assistant professor at New York University’s Stern School of Business and a visiting scholar at the PTO.

In addition, the allowance rate—the percentage of applications that become patents—showed a sharp decline during that time. In 1996, close to 70 percent emerged as patents, the study found. But by 2005, that number fell to 40 percent.

“We expected the allowance rate to be lower than what was being cited, but we were surprised by the extent of the decline,” Hegde told CorpCounsel.com.

The patent office has often been blamed for fostering an environment that has enabled patent trolls to file more and more lawsuits asserting weak, low-quality patents. Just this week, five U.S. senators sent a letter to the U.S. Department of Commerce calling on the PTO to improve patent quality. And last year Judge Richard Posner of the U.S. Court of Appeals for the Seventh Circuit wrote in a blog post, published with the late economist and Nobel laureate Gary Becker, that “the problem of patent trolls is a function in part of the promiscuity with which the patent office has issued patents in recent years.”

While the study’s evidence refutes the oft-repeated claim that patents are handed out too freely, it confirms another frequent allegation: Applications filed by large firms are more likely to emerge as patents than those filed by small firms.

Success rates for individual inventors and smaller U.S. entities, which the PTO defines as a
company with fewer than 500 employees, were noticeably lower than for large U.S. companies during the period studied. Small U.S. companies saw 48 percent of their applications eventually issue as patents; for large companies the rate was 57 percent.

Measuring patent allowance rates has been difficult in the past because the PTO does not publish detailed information about patents that are not granted. But Hegde and his coauthors, Alan Marco, the PTO’s chief economist, and Michael Carley, a PTO economist, had access to all patent application data and were able to track what happened to each application during that time, Hegde said.

“Our findings challenge the conventional wisdom that the PTO allows nearly all of the applications it receives, and rubber stamps applications without scrutiny,” the study says. “We also find no evidence for the claims that the PTO is becoming more lenient in granting patents.”

The study has been accepted for publication this winter in the Yale Journal of Law and Technology.

Because patent applications take on average between three and five years to process, and even longer in some technology fields, the authors chose not to look at more recent applications for which a final decision would not yet have been made. They chose 2005 as their cutoff because almost all applications filed that year had received a final determination by June 30, 2013.

The reason for the sharp decline in success rates during the decade studied is in part because of the increased amount of time it took to reach a final determination on an application, Hegde said. There was a growing backlog of applications during that time, as the number of applications increased while resources dedicated to examination stayed the same. Many inventors experienced delays in getting even intermediate decisions and they abandoned their applications, perhaps sensing the wait would not be worthwhile, Hegde said.

The economy also played a role: Keeping a patent application in process is an expensive proposition, and companies and inventors tend to find this hard to justify during tough economic times, Hegde said. In 2000-01, the U.S. economy saw an economic downturn. And in 2008-09, a time when many of the applications filed in 2005 were still pending, the larger financial crisis hit. During both periods, many inventors abandoned applications, he said.

Finally, internal procedures implemented at the PTO in response to critics and with the aim of improving patent quality were implemented in that time frame, which set the bar higher for approving patent applications, Hegde said.

The lower success rate for small businesses is a measure of the time and cost needed to prosecute a patent application, Hegde said. Only about 10 percent of applications sail through the process without changes, and the rest require several rounds of back-and-forth with examiners.

Continuations-in-part, a process in which an application may be resubmitted with additional claims, can prove difficult for individual inventors and small businesses, whereas large companies have the resources required to do the extra work and wait longer for a determination.

Large companies also are more willing to file a request for continued examination (RCE), a process in which an applicant can pay fees to have an examination reopened after an
application has been rejected. The applicant can then continue to make a case for a patent, hoping in time to wear down the examiner. Such continuations have been harshly criticized.

Hegde noted that the PTO does try to keep costs lower for small inventors and businesses. Application fees are lower than those paid by large companies, and microentities pay even less. Still, companies that do not have their own patent counsel are likely to give up on an application more easily than those with huge resources, Hegde said.

One finding for which the authors could not offer an explanation is that applications related to drugs and medicine had a much lower success rate than applications for electronics and computers. In 1996, the approval rate for drug and medical patents was 64 percent, whereas for electrical and electronic patent applications, the approval rate was 75 percent. In 2005, the rate for drugs and medicine had declined significantly—to 23 percent. Electrical and electronic patents fared better, although their approval rate also declined, to 54 percent.

“Drugs and medicine could have a lower success rate because those patents deal with chemicals, which are easy to differentiate,” Hegde said.

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