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High Technology Entrepreneurs and the Patent System:

Results of the 2008 Berkeley Patent Survey



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SUMMARY			
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Abstract

The present article offers a description and analysis of the 2008 Berkeley Patent Survey. The survey summarized the responses of 1,332 early-stage technology companies, including companies belonging to the biotechnology sector, founded since 1998 in the United States. The findings help inform the ongoing debate about how entrepreneurs use and are affected by the patent system.

Keywords

Patent; startups; technology; biotechnology; software; hardware;

Summary

In the present article, the authors investigate how entrepreneurs use and are affected by the patent system. They show that, besides the classical theory that the exclusivity rights granted by patents incentivise businesses to innovate due to the high financial gain, the 2008 Berkeley Patent Survey (survey) revealed more reasons for patenting.

The survey was based on a set of research questions addressing a variety of topics concerning patenting and technology entrepreneurship.¹ An extensive amount of research was undertaken and numerous interviews were conducted with experts in the field and with active entrepreneurs.² During the process, theoretical and empirical literature on the subject was examined and the research team held discussions with scholars, start-up founders and others to better understand the entrepreneurial

¹ Stuart J.H. Graham, Robert P. Merges, Pam Samuelson, and Ted Sichelman. High technology entrepreneurs and the patent system: results of the 2008 Berkeley Patent Survey, 1264

² Ibid, 1265

environment.³ Over three-quarters of the respondents identified themselves as being the chief executive officer, president or chief technology officer of a firm.⁴

The survey distinguished between two groups: To the first group belong companies described as the average entrepreneurial company; the second group contains the highest quality companies, those that are keen to generate innovations, grow and succeed in securing venture capital funding.⁵

The *Dun & Bradstreet* database (D&B) was selected to target companies on technology class with a proximate window into the overall population of companies in the USA.⁶ To target the firms responsible for innovative output in the economy, the *VentureXpert* database was selected due to the fact that it covers a substantial share of venture-backed companies in the USA.⁷

The medium respondent is described as a start-up company, with a 2007 revenue of \$300,000, nine employees (half of whom are scientists or engineers) which did not have an initial public offering or has not been acquired.⁸ The respondents declared that most of their funding came from friends and family and commercial banks.

Patent holding in technology start-ups

To achieve more accurate results, the respondents were asked to report the number of U.S. patents or filed applications held by the company from three sources: patents coming from founders that were applied for prior to the company founding date, those acquired by the company from sources other than its founders and those filed by the company itself after its founding date.⁹

The survey showed that the likelihood of start-ups holding a patent was not connected to age effects, but the business model, strategy, technology or other factors, such as the cost of patenting and enforcement.¹⁰ Among the D&B sample, biotechnology and medical device companies were much more likely to hold patents and applications than software and internet firms.¹¹ Even among the venture backed firms, where the patenting rates are higher, the difference among these industries persisted.

The respondents reported that patents offer relatively mixed to weak incentives to engage in innovation. However, the authors found that patents do play a significant role in technology entrepreneurship: Besides the traditional idea of diminishing competition from third parties in the technological marketplace (especially for biotechnology, medical device and hardware firms)¹², patenting can secure the necessary investment to develop and grow, increase the odds and quality of a liquidity

³ Ibid, 1265

⁴ Ibid, 1268

⁵ Ibid, 1269

⁶ Ibid, 1269

⁷ Ibid, 1270

⁸ Ibid, 1271

⁹ Ibid, 1275

¹⁰ Ibid, 1276

¹¹ Ibid, 1278

¹² Ibid, 1287

event and serve strategic roles in negotiation and the defence against patent infringement suits.¹³

Patents and entrepreneurship

The **first finding** of the survey is that patents help start-ups in technological competition. The respondents had to indicate how important (or unimportant) the following seven factors were to the company in securing a competitive advantage from its technology innovators: (1) first mover advantage over competitors, (2) secrecy, (3) patents, (4) copyrights, (5) trademarks, (6) difficulty of reverse engineering and (7) other production, implementation or marketing capabilities.¹⁴

The respondents classified first-mover advantage as the most important factor followed by a group containing secrecy, complementary assets and patenting.¹⁵ Software and internet start-ups, when compared with companies in other sectors, tend to rate all methods queried in the survey as less important.¹⁶

The survey has shown that the value of patenting among start-ups in the fields of biotechnology and medical devices together with venture-backed IT hardware companies stands in contrast to the importance described by the fields of software and Internet regarding competitive advantage.¹⁷ One of the reasons that can lead early stage companies to patent is securing competitive advantage from their technology innovations.¹⁸ It is reported in the survey that, for the biotechnology industry, patenting is the most important mean of capturing competitive advantage. For early stage hardware companies, patents play a significant role in assuring competitive advantage. The software industry, however, reported that patenting is the least important factor regarding the capture of competitive advantage from technology.¹⁹ It also demonstrated that the role of patents in technology competition differs by innovation focus. It was shown that, in general, patenting is almost twice as important for product innovators than for process innovators.²⁰

The **second finding** is that start-ups have different motivations to file for a patent. The most important reason to patent reported is to prevent others from copying products and services.²¹ The second and third most important reasons are to improve chances of securing investment and improve chances/quality of liquidity followed by enhance company reputation/product image; improve negotiating position with other companies; prevent patent infringement actions; and obtain licensing revenues.²²

¹³ Ibid, 1287

¹⁴ Ibid, 1288

¹⁵ Ibid, 1289

¹⁶ Ibid, 1295

¹⁷ Ibid, 1292

¹⁸ Ibid, 1288

¹⁹ Ibid, 1290

²⁰ Ibid, 1293

²¹ Ibid, 1297

²² Ibid, 1299

The survey also showed that the motives that lead companies to seek for patent protection differ by industry.²³ For software companies, for instance, the most important motive is to enhance the company's reputation/product image, while for the biotechnology and medical devices industry it is preventing others from copying products or services.²⁴

Another important finding refers to the role of patents with respect to the financing of start-ups.²⁵ As described by the authors, several of the interviews conducted for the survey showed that patenting has an important role in supporting different forms of entrepreneurial capital investment due to the fact that many investors value patents as an input into their investment decisions.²⁶ Among the D&B companies that negotiated with venture-capital firms, 67% of the respondents indicated that patents were an important factor with respect to their funding decisions.²⁷ Between the venture-backed sample the rate is even higher: 76% of the respondents indicated the importance of patents.²⁸

In line with the other findings of the survey, the importance of patents to investors differs by industry and type of investor.²⁹ In general, the biotechnology and medical devices industry reported a higher rate of importance than software and IT firms.

The **third finding** is that technology entrepreneurs vary in their reasons for not seeking patent protection.³⁰ The most common reason cited for not patenting among technology start-ups is the cost of filing and enforcing patents. These two reasons are followed by the ability of competitors to invent around; the belief that the technology was not patentable; choosing trade secrets as a form of protection; not wanting to disclose information; and no need for legal protection.³¹

Among the biotechnology start-ups, the main reason cited for refraining from patenting is the reluctance to disclose information while for the software industry it is the cost for filing and enforcing a patent.³²

How entrepreneurial companies deal with patents held by others

Since start-ups are likely to experience resource constraints, the threat of patent disputes is of greater concern. The survey demonstrated that suits may come in the form of bullying by larger competitors trying to take the start-up out of business.³³ However, patents in the market environment also have a positive effect for start-ups

²³ Ibid, 1302

²⁴ Ibid, Fig. 3

²⁵ Ibid, 1304

²⁶ Ibid, 1305

²⁷ Ibid, 1307

²⁸ Ibid, 1307

²⁹ Ibid, 1308

³⁰ Ibid, 1309

³¹ Ibid, fig. 4

³² Ibid, table 2

³³ Ibid, 1315

due to the fact that, since the other companies are disclosing information, it is a form of new companies to improve their technology and know-how.³⁴

When analysing how start-ups deal with licensing technology from other patent holders, the survey showed that patent licences were taken to gain technology, information and know-how or to settle disputes.³⁵ 81% of the biotechnology respondents indicated that they intended to gain technology information or know how, a close result compared to the 79% of software firms following the same objective.³⁶

Among venture-backed IT hardware companies, 39% reported having taken a patent licence, but only 12% of the venture-backed software firms reported the same.³⁷ These industries, however, reported that one out of four of their last patent licences were to avoid or settle a patent dispute.

To sum up, the article suggests that start-ups use patents in strategic ways, such as to defend against infringement suits. The article also reveals the reasons for which start-ups refrain from patenting their technology, for instance the high cost of patent enforcement.³⁸ According to the survey, it is clear that technology start-ups are generally more likely to file for patents than previously believed.³⁹ Among the industries analysed, patents have a more important role for biotechnology and hardware companies than for software and internet start-ups.⁴⁰ The article also showed the importance of patents for attracting entrepreneurial capital and for improving the likelihood of a successful exit event, like going public.⁴¹

³⁴ Ibid, 1316

³⁵ Ibid, 1316

³⁶ Ibid, 1317

³⁷ Ibid, 1318

³⁸ Ibid, 1326

³⁹ Ibid, 1325

⁴⁰ Ibid, 1325

⁴¹ Ibid 1326