



## Surprising Flaws Found in Boston University Paper on Software Patents

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A new paper<sup>2</sup> from Boston University reports that most “software firms” account for relatively little of the activity in software patenting.<sup>3</sup> The paper also implies that software patents are of little value to software startups.<sup>4</sup> Both of these conclusions appear specious or irrelevant.

The comments below use the paper’s own definition of “software patents.” This is not an endorsement of the definition as being the correct definition of “software patents.”

### The Paper’s Conclusion that “Software Firms” Account for Relatively Little of the Activity in Software Patenting

When determining patent activity of companies in a particular industry, one searches the USPTO assignment records to determine patents and/or patent applications that are owned by the companies that make up that industry. To obtain a true picture, the patent applications for inventions those companies make must be **assigned** to those companies in the USPTO records. If for some contractual reason many, or most, of the inventions made by companies in a particular industry are assigned to firms outside that industry, the person determining the patent activity by simply counting patents assigned to companies within the industry will get a false reading. That’s what happened with the BU paper. The paper’s assumption that all, or even most, patent applications for inventions made by “software firms” are owned by those firms is a false assumption. The paper goes to great lengths to analyze the patent activity of “software firms” that it defines<sup>5</sup> as “software publishing and software services firms,”<sup>6</sup> without addressing the above fact. For this reason, the conclusion the paper draws about the number of patents assigned to “software firms” is flawed.

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<sup>2</sup> *A Generation of Software Patents*, James Bessen, Boston University School of Law Working Paper No. 11-31 (June 21, 2011) (“*Bessen*”).

<sup>3</sup> *Id.* at pages 6, 7, and 16.

<sup>4</sup> *Id.*

<sup>5</sup> The paper’s definition of “software firms” is based on categories from the North American Industry Classification System for Computer Software (NAICS).

<sup>6</sup> *Bessen* at page 6.



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To illustrate the above, the North American Industry Classification System for Computer Software<sup>7</sup> lists firms in the “software services firms” category as:<sup>8</sup>

Applications software programming services, custom computer  
Computer program or software development, custom  
Computer programming services, custom  
Computer software analysis and design services, custom  
Computer software programming services, custom  
Computer software support services, custom  
Software analysis and design services, custom computer  
Software programming services, custom computer  
Computer software consulting services or consultants  
Web (i.e., internet) page design services, custom

In most, or perhaps even the vast majority, of the above service firms, the service is a custom service and the firm develops custom code for a client. Because the client pays for the code, the service contract between the service firm and the client usually provides that inventions made developing the code *are assigned to the client*. This means that to the extent there are software inventions made and software patent applications filed, they would be assigned to the client who more likely than not is outside the software services firm category (otherwise the client would probably do the job itself).

Consequently, less than all, and perhaps relatively few, software patents for software inventions made by “software service firms” (a category that comprises a major portion of the paper’s definition of “software firms”) are actually *assigned* to them. The very nature of their work usually results in software inventions they make being assigned away. The BU paper doesn’t account for this, resulting in a flawed set of numbers and a flawed conclusion.

Furthermore, as to “software publishing firms,” which is the second category of firms in the definition of “software firms,” the conclusion reached by the paper fails to consider whether these firms are likely to *make* inventions. The basic tenet of patent law is that only *inventions* can be patented. A corollary to this is that most inventions are made through research, and through the development of products (R&D). Software publishing firms employ some of the most talented and creative people in the country who provide software services that are critical to the nation’s competitiveness. But many, if not most, of these firms do little or no R&D. It’s not in their business plan to do so. Given that patents are granted only for *inventions*, and that most

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<sup>7</sup> See footnote 5.

<sup>8</sup> <http://www.epipeline.com/mktng/nl-articles/naics-code-541511.html#link01>



inventions are made by firms that do R&D, one would *expect* fewer software inventions (and therefore less software patenting) from the category “software publishing firms” than from firms that primarily develop products. To see this, consider the North American Industry Classification System for Computer Software<sup>9</sup> description of the *function* of “software publishing” firms:<sup>10</sup>

Establishments in this industry carry out operations necessary for producing and **distributing** computer software, such as designing, **providing documentation**, assisting in **installation**, and providing **support services** to software purchasers. These establishments may design, develop, and publish, or publish only.<sup>11</sup>

From the above NAICS quotation, some software publishers do perform R&D, but R&D is certainly not the focus of all, or even most, of these firms. Many of these firms, as seen from the above NAICS quotation, perform distributing software, providing documentation, assisting in installation, and providing support services. From a careful inspection of these functions, the conclusion is that although the work of these firms is critical to the country, one would not expect to find a major number of software inventions (and, concomitantly, software patents) arising from this category of firms. So the paper’s conclusion is, again, flawed.

### **The Paper’s Conclusion that Software Patents are of Little Value to Software Startups.**

This conclusion in the paper is also flawed, for at least three reasons.

The first reason is that the paper states<sup>12</sup> that only 24% of venture backed startups had any patents within four years of receiving funding, apparently concluding that this indicates a lower patent propensity for startups. However except for possibly one or two inventions that form the basis for a startup, time would have to be allowed for most startups to conceive and reduce inventions to practice before patent applications would be filed. This, and an understanding of the backlog at the USPTO, would lead one to conclude that even 24% of startups having their patent applications examined and issued within four years illustrates a good

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<sup>9</sup> See footnote 5.

<sup>10</sup> NAICS (334611/511210 to SIC 7372).

<sup>11</sup> Emphasis added.

<sup>12</sup> *Bessen* at page 6.



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rate of patent activity for startups. Most of their patent applications would be expected to be pending and not yet issued during that four year period. The opposite conclusion reached by the paper is not justified by the facts.

The second reason is that the paper states<sup>13</sup> that it has been reported that there is a positive correlation between patent applications and the probability of a startup achieving financing, IPO, and acquisition. The paper then makes a distinction between issued patents and pending patent applications, apparently concluding that this distinction somehow dilutes the positive correlation.<sup>14</sup> Again, in view of the time needed to make inventions and to file patent applications on, them, and in view of the backlog at the USPTO, financing, IPO, and acquisition of a startup usually occurs within the period of time that a patent application would be pending in the backlog and not yet issued. Hence the distinction the paper makes here is irrelevant.

The third reason is that the paper itself acknowledges that 67% of software startups backed by venture capital held patents.<sup>15</sup> However, the paper then suggests that the increase in patenting over the last decade for venture-backed software startups might have more to do with the changing behavior of venture capitalists rather than changing benefits for software startups.<sup>16</sup> However, the better reasoned conclusion would appear to be that venture capitalists, who are among the most seasoned business people in the world, understand that software patents are valuable to software startups. Consequently they tend to select for financing primarily startups that have software patent applications for their software inventions. This is by definition a benefit for software startups, contrary to the paper's opposite suggestion.

### Conclusion

The paper's conclusion that "software firms," account for relatively little of the activity in software patenting appears to be irrelevant to any conclusion about the value of software patents. The software inventions that "software services firms" (that comprise a large part of the definition of "software firms") make are usually assigned to their clients, who are often outside that industry. In addition, one would not expect a large number of inventions to be made by "software publishing firms." Many software publishing firms perform distributing software, providing documentation, assisting in installation, and providing support services. One would not expect inventions to be made in these functions.

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<sup>13</sup> *Id* at page 7.

<sup>14</sup> *Id.*

<sup>15</sup> *Id.*

<sup>16</sup> *Id* at page 19.



The paper's conclusion that software patents are of little value to software startups is contradicted by the fact that 67% of venture backed software startups file patent applications. The fact that software startups that obtain venture backing are primarily those that file software patent applications means that venture capitalists, who are some of the most seasoned business people in the world, see value in software patents for software startups.