

March 20, 2019

The Honorable Thom Tillis  
Chairman  
Senate Judiciary Committee  
Subcommittee on Intellectual Property  
U.S. Senate  
Washington, DC 20510

The Honorable Chris Coons  
Ranking Member  
Senate Judiciary Committee  
Subcommittee on Intellectual Property  
U.S. Senate  
Washington, DC 20510

Dear Chairman Tillis and Ranking Member Coons:

The Computer & Communications Industry Association (CCIA) respectfully submits this statement for the record to the Senate Judiciary Committee's Subcommittee on Intellectual Property in regards to the Committee's hearing held on March 13, 2019, "Oversight of the United States Patent and Trademark Office."

CCIA is an international association that represents companies of all sizes in the high technology sector, including in computer software, e-commerce, telecommunications, Internet products services, semiconductors. CCIA members<sup>1</sup> collectively employ more than a million employees, generating over half a trillion dollars in annual revenue. More than \$80 billion was spent by CCIA members on research and development in 2018 and CCIA members are some of the largest applicants for and holders of U.S. patents, holding approximately 5% of all active U.S. patents.

We write to address references to certain studies that were made during the hearing. In particular, there were references made to a serial IPR petition study conducted by Steven Carlson and Ryan Schultz<sup>2</sup> and to a survey of VC investors conducted by David O. Taylor.<sup>3</sup> These studies have significant flaws that limit the value of any data and conclusions that can be drawn from them.

The Carlson-Schultz study suffers from four primary errors:

1. The study significantly overcounts serial petitions by including the original, non-serial petition in the number of serial petitions.
2. The study counts petitions that cover different portions of the same patent as serial or duplicative, even though the extra petition is typically required due to word limits imposed by the USPTO.
3. The study counts multiple petitions filed on the same day as serial petitions, even though the extra petitions are typically a result of USPTO-set word limits.

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<sup>1</sup> A list of CCIA members is available at <https://www.ccianet.org/members>.

<sup>2</sup> Carlson & Schultz, "Tallying Repetitive Inter Partes Review Challenges", *IPLaw360* (Sept. 14, 2018), available at <https://www.robinskaplan.com/~media/pdfs/tallying%20repetitive%20inter%20partes%20review%20challenges.pdf>.

<sup>3</sup> Taylor, "Patent Eligibility and Investment" (Feb. 24, 2019), available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3340937](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3340937).

4. The study counts extra petitions filed to be joined to a pre-existing IPR (so-called “follow-on” petitions) as serial petitions, even though they use the same art and arguments as the original petition and place no extra burden to the patent owner or the USPTO.

When properly understood, the high rate of serial/duplicative petitions quoted by the Carlson-Schultz study is much lower. In fact, two of the five companies Carlson and Schultz reviewed have never filed multiple petitions that did not fall into one of the above categories, and the remaining three companies have filed a total of 25 such petitions out of the 806 petitions the companies have filed in total.

The Taylor VC survey, while suffering from fewer outright flaws than the Carlson/Schultz study, requires significant scrutiny. In particular:

1. The survey relies on voluntary responses, biasing the characteristics of the respondents.
2. The survey’s wording refers to “patent eligibility”, rather than “patentable subject matter” or “subject matter eligibility”, raising questions regarding whether respondents understood the question to refer to § 101 or to patentability as a whole.
3. Several survey questions placed an unwarranted assumption regarding the availability of patents into the question, creating a framing effect that potentially biased responses.
4. The conclusions are not completely warranted by the study results, matching some results but ignoring others, such as the finding that 80% of software VC investors would not change or would only slightly change their investment behavior if software patents were completely eliminated.

Given these flaws, it is unclear what weight should be given to the Taylor study’s conclusions.

## **I. THE CARLSON-SCHULTZ STUDY**

### **A. Carlson and Schultz Overcount Petitions**

First, it is critical to correctly define what constitutes a duplicative petition. Carlson and Schultz define all petitions directed to the same patent as duplicative of one another. Using this definition, they found that, of 1139 petitions challenging 602 unique patents, 524 petitions were duplicative. However, the first petition against a patent is inherently not duplicative, a fact they failed to take into account. Eliminating this overcounting error reduces the study’s duplicative petitions count by 42%.

### **B. Carlson and Schultz Count Non-Overlapping Petitions**

Examining the remaining petitions alleged to be duplicative, CCIA considered filings on the same patent using different arguments as not duplicative where the challenged claims overlap only slightly (or not at all). Petitioners are often forced to file multiple petitions in order to sufficiently articulate the invalidity of all challenged claims due to strict word limits on IPR petitions. This is especially true for large patents with many claims or elements. A full evaluation would require examining each claim and each ground to determine the scope of

potential overlap. However, even simply excluding petitions that did not have overlapping claims, or that overlap on a single claim, further reduces the number of duplicative petitions.<sup>4</sup>

Correcting only these two methodological issues in Carlson and Schultz’s study produces drastically different results (see Figure 1). Even assuming that the Carlson and Schultz study correctly identified the remaining duplicative petitions, there is already significant doubt as to the accuracy of their final conclusion.

Figure 1: Study Corrected for Double Counting and Non-Overlapping Grounds

	Petitions	Carlson & Schultz	Corrected
Apple	348	195 (56%)	113 (32%)
Google	189	73 (39%)	38 (20%)
LG	144	50 (35%)	26 (18%)
Microsoft	139	83 (59%)	49 (35%)
Samsung	319	123 (39%)	70 (22%)

### C. Carlson and Schultz Count Simultaneous Petitions

The “multiple bites at the apple” allegation presumes that the only rationale for filing multiple petitions is that the petitioner desires to “burden[] patent owners in multiple waves of U.S. Patent and Trademark Office litigation.”<sup>5</sup> However, this story is divorced from practical realities present in IPR practice, particularly the word count limitations for IPR petitions. Petition word count limits are especially important when considering whether multiple petitions filed close in time are “duplicative.”

In addition to dealing with large claim sets, petitioners often wish to provide different prior art combinations that may better address various limitations. As a result, petitioners frequently file multiple petitions on the same day (or, more rarely, in close succession). These multiple petitions are effectively required by the PTAB’s word count limits in order to provide alternative grounds or to cover additional claims as described above. Because these multiple filings are the result of procedural limits imposed by the USPTO rather than the petitioner, they cannot properly be considered the same as the “duplicate” or “serial” petitions that Congress intentionally sought to avoid when drafting the America Invents Act.

<sup>4</sup> CCIA chose to include single overlapping claim petitions because a petitioner may effectively be required to include an overlapping claim when different dependent claim sets are best addressed by different prior art; inclusion of the common independent claim may thus be required. Additional non-duplicative petitions may exist where multiple independent claims overlap, but CCIA did not capture those petitions.

<sup>5</sup> Carlson & Schultz at 1.

After removing simultaneously and near-simultaneously (within several days of the first-filed petition) filed petitions and correcting for the errors described above, the number of duplicative petitions filed drops even further (see Figure 2).

Figure 2: Study Corrected For Double Counting, Non-Overlapping Claim Sets and Simultaneous Filings

	Petitions	Carlson & Schultz	Corrected
Apple	348	195 (56%)	32 (9%)
Google	189	73 (39%)	3 (2%)
LG	144	50 (35%)	12 (8%)
Microsoft	139	83 (59%)	20 (14%)
Samsung	319	123 (39%)	16 (5%)

In other words, the vast majority of “duplication” is the use of multiple petitions at the date of filing, primarily to deal with word count limitations, not the “serial, overlapping” petitions complained of by the authors. If the PTAB, like most district courts, did not limit word counts in invalidity contentions, then the majority of so-called “duplicative petitions” would disappear.<sup>6</sup>

**D. Carlson and Schultz Count “Follow-On” Petitions Designed To Be Joined**

Finally, many of the remaining petitions are simply “follow-on” petitions in which a petitioner files a carbon copy of an earlier petition, accompanied by a motion to join the earlier-filed proceeding. This does not add significantly to the burden on any party, as there is no new art and the new petitioners do not receive additional time to argue. While Carlson and Schultz may dislike this practice, it is explicitly contemplated by the statute and given the lack of any additional burden on any party can hardly be characterized as “duplicative,” “abusive,” or beyond the Congressional intent.

After removing the petitions which were filed in order to join earlier petitions, the remaining petitions could plausibly be alleged to be duplicative.

Figure 3: Study Corrected For Double Counting, Non-Overlapping Claim Sets, Simultaneous Filings, and Joinder

	Petitions	Carlson & Schultz	Corrected
Apple	348	195 (56%)	16 (5%)
Google	189	73 (39%)	0 (0%)

<sup>6</sup> District courts rarely limit the number of invalidity arguments at early stages of a case. The PTAB uses the institution mechanism to winnow the number of invalidity arguments; courts use their own techniques.

LG	144	50 (35%)	0 (0%)
Microsoft	139	83 (59%)	4 (3%)
Samsung	319	123 (39%)	5 (2%)

Even amongst the most frequent filers of IPR petitions, truly “duplicative” petitions of the type complained of are extraordinarily rare, with two of the top five filers never employing such a tactic. With less frequent filers, duplicative petitions would be expected to be correspondingly less common, as the opportunities for duplication are simply not present when one has only filed a handful of petitions.

## II. THE TAYLOR VC STUDY

### A. The Taylor Study Relies On Voluntary Responses

The Taylor study relied on voluntary responses from VC investors, sending out surveys to 14,641 individual investors and receiving 475 responses. Respondent demographics, as outlined in the paper, differ significantly from the population demographics. In particular, respondents are non-representative with respect to which stage of investment their firms focus in, being focused significantly more on early stage investment and significantly less on middle and expansion stage investment. Respondents are also non-representative in terms of industry, with information technology, life sciences, software, and medical device sectors being over-represented while many other areas of technology were under-represented, including energy and clean technology, manufacturing, transportation, defense, and digital media.

While it is difficult to draw a specific conclusion regarding how this non-representation biases responses, the fact that over-representation is most prevalent in software, IT, and healthcare—the industries alleged to be most affected by recent § 101 decisions—suggests that the population is also likely non-representative regarding the importance and impact of subject matter eligibility.

### B. The Taylor Study’s Wording May Be Unclear To A Non-Legal Audience

The survey used by Professor Taylor includes questions asking about “patent eligibility” without further defining the term.<sup>7</sup> Importantly, these questions were asked before respondents were asked about recent eligibility cases, which might have helped clarify how they should understand the concept of patent eligibility.

This is particularly concerning as the majority of survey respondents indicated they were unfamiliar with patent eligibility cases.<sup>8</sup> Because of this lack of knowledge, there is no way to know how the majority of respondents understood the term “patent eligibility”—whether it was

<sup>7</sup> For example, Question 1 was “1. Please indicate whether you agree or disagree: Patent eligibility is an important consideration when your firm decides whether to invest in a company developing technology.”

<sup>8</sup> Taylor at 29.

read as referring to patentable subject matter, or simply to whether a potential investment company had some technology that could be patented.

The second reading, potentially quite natural for a non-legal audience, would reduce the survey results to “is it important to you that your potential investments could possibly obtain a patent”, rather than providing any specific understanding of the impact of recent eligibility cases.

### **C. The Taylor Study Uses Unwarranted Assumptions To Frame Questions**

Several question prompts in the Taylor survey regarding why a firm might have changed its investments since 2009 include an unwarranted factual assumption, asking “[h]as a decreased availability of patents since 2009 contributed to...” whatever change in investment a given firm indicated.

CCIA disagrees that patents have become less available since 2009, as reflected by the fact that the number of patents granted has increased significantly, nearly doubling since 2009.<sup>9</sup> By asking a question framed in this fashion, the survey pushes respondents to make the assumption that patents have become less available and answer the question with that assumption in mind, regardless of reality.

This framing effect may have biased the responses to questions focused on the link between changes to the patent system and changes investors have made in investments.

### **D. The Taylor Study Reaches Unwarranted Conclusions**

The Taylor study makes the conclusion that the recent patent eligibility decisions have reduced VC and private equity investment in technological development, in particular in the life sciences, and had a significant overall negative effect. He also states that if more respondents were familiar with the eligibility decisions, the overall results would have been more negative.

These conclusions are not warranted. In some cases, they are contradicted by non-survey data summarizing VC investments; in others, they are unwarranted based on results reached within Taylor’s own survey. The link between familiarity with eligibility decisions and negative views of those decisions that Taylor reaches is also unsupported, as lack of familiarity may well be driven by lack of importance of the eligibility decisions to those investors’ investments.

Finally, Taylor ignores important results from his own data, such as that 61% of investors have not made any changes in investment decisions based on the eligibility cases, or that the majority of software investors would not change their investment if software patents were eliminated entirely.

#### ***1. VC Investment Has Increased, Both Overall and in Life Sciences***

Taylor’s study concludes that the eligibility decisions have “reduced venture capital and private equity investment ... particularly in the biotechnology, medical device, and pharmaceutical industries.”<sup>10</sup> However, data provided by the National Venture Capital

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<sup>9</sup> Crouch, “Patent Grants”, *Patently-O* (July 31, 2018), available at <https://patentlyo.com/patent/2018/07/patent-grants-2.html>.

<sup>10</sup> Taylor at 67.

Association (NVCA), an industry group, shows that investment in these areas has continued to rise, and in fact has become a larger component overall of VC investment.

VC funding for drug discovery, defined as “researchers and developers of new drugs”, has remained steady at between 3% and 5% of all VC investment over the past decade, even as overall VC investment has quadrupled. Notably, VC investment in this area remained high after the *Mayo* and *Myriad* decisions, without any visible negative impact on investment from those decisions.<sup>11</sup>

However, drug discovery is not the only area of life sciences in which venture capital invests. Biotechnology, one of the most promising areas of new life sciences development, has gone from 2.5% of all VC investment to more than 10% of all VC investment in 2017,<sup>12</sup> even as overall funding quadrupled—an approximately 1600% increase in biotechnology VC funding. The vast majority of this increase happened after the *Mayo* and *Myriad* decisions, showing that these decisions do not appear to represent a significant barrier to investment in biotechnology.

The sole life sciences sector that has seen a decline is the established pharmaceuticals sector; however, this sector is explicitly defined as investment into “manufacturers and distributors of established drugs/pharmaceuticals.”<sup>13</sup> This reduction is thus not relevant to concerns about investment into the development of new and innovative treatments, and cannot be attributed to eligibility cases such as *Mayo* and *Myriad* as it almost entirely occurred prior to those cases being decided.

Figure 4 illustrates the increase in overall life sciences VC funding as a percentage of overall U.S. VC funding.

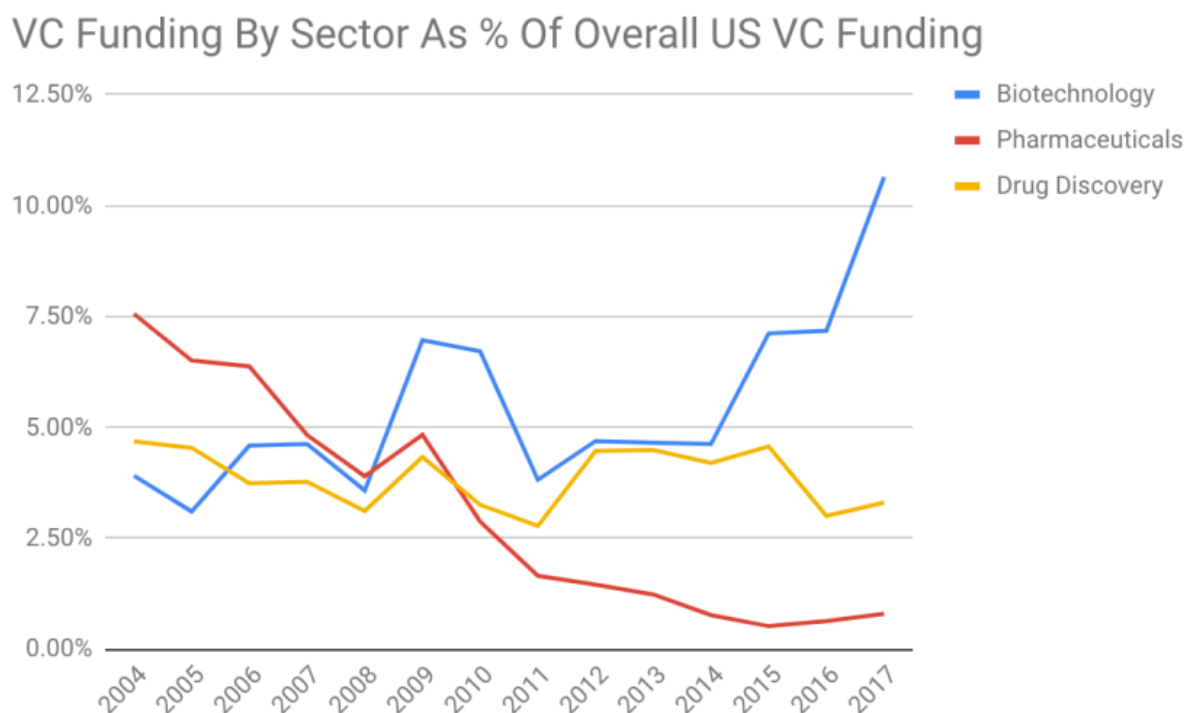
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<sup>11</sup> See NVCA/Pitchbook Yearbook 2018 at 65.

<sup>12</sup> See NVCA/Pitchbook Yearbook 2018 at 64-65.

<sup>13</sup> See NVCA/Pitchbook Yearbook 2018 at 65.

Figure 4: VC Funding By Sector as a Percentage of Overall U.S. VC Funding



Particularly since, as mentioned, overall U.S. VC funding has quadrupled in that time period, there does not appear to have been a negative impact from the eligibility cases on VC investment in life sciences or overall.

## 2. *Increased Familiarity Is Unlikely To Lead To Increased Negativity*

Taylor's respondents were mostly unfamiliar with recent eligibility decisions, although their business is investment in new companies. In fact, 62% of respondents were unfamiliar with any of the eligibility cases Taylor asked about.<sup>14</sup> Taylor suggests the possibility that, as more investors become familiar with these cases, they may change their views to more negative views. However, he fails to account for the probability that the lack of familiarity is an effect of a lack of negative impact—that investors do not become familiar with cases that do not impact their business. Increasing familiarity, in this scenario, would not increase negative views or impacts, as those investors simply are not affected by the eligibility decisions. This is consistent with the fact that the vast majority of all patent applications are completely unaffected by the eligibility decisions<sup>15</sup> and that, of those that even discuss the eligibility decisions, the rejection is overcome more often than it prevents the grant of the patent.<sup>16</sup>

<sup>14</sup> Taylor at 82.

<sup>15</sup> Landau, "The 'Alice Storm' Is More Of A Drizzle", *Patent Progress* (Dec. 15, 2017), available at <https://www.patentprogress.org/2017/12/15/alice-storm-drizzle/>.

<sup>16</sup> Landau, "The Alice Drizzle—Barely Even Noticeable", *Patent Progress* (Jan. 10, 2018), available at <https://www.patentprogress.org/2018/01/10/alice-drizzle-barely-even-noticeable/>.



### 3. *Important Results Are Ignored*

The conclusion also ignores significant results from the survey. For example, 61% of survey respondents indicated that the eligibility cases have **not** affected their decisions to invest or not to invest in a company. This is not industry-specific; the rate varies only slightly between industries, with a high of 39% saying yes for pharmaceuticals and a low of 32% in software and Internet industries.<sup>17</sup> This suggests that eligibility decisions do not present a significant barrier to investment, and that there is no sector-specific issue.

In line with this finding, the majority of respondents who invest in software and Internet companies indicated that if patents were entirely eliminated, it would not affect their investment behavior. An additional 27% said they would only somewhat decrease investment, meaning that 80% of all software and Internet investors felt that a complete elimination of patents would not significantly impact their investment in that sector. These numbers are similar to the responses from investors in communications companies, energy companies, and construction companies, suggesting that it is not a software-specific result.<sup>18</sup>

This is unsurprising. Overall, VC investors indicated that, while the availability of U.S. patents was important to them, it was much less important overall than the quality of the people and the quality of the technology in the company, and comparable to the value of first mover advantage. (The availability of foreign patents was unimportant, suggesting that—contrary to some other reports—the U.S. patent system remains viewed as the gold standard patent system worldwide.)<sup>19</sup>

### III. CONCLUSION

Patents serve a useful purpose in our society. Insufficient patent protection will result in reduced investment, but too much protection will reduce investment by raising risk on innovators to unsustainable levels. Achieving that balance is critical and proper use of data is essential to ensuring that the balance is maintained. CCIA suggests that these studies are of, at best, limited value to such an endeavor.

CCIA appreciates the Subcommittee's consideration of this letter and is available to discuss its conclusions at the Subcommittee's convenience.

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<sup>17</sup> See Taylor at 47-48.

<sup>18</sup> See Taylor at 88.

<sup>19</sup> See Taylor at 87.

Sincerely,

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