





Patent Law Section 101 “Reform”: Myths and Facts

 MYTH	 FACT
<p>#1 Section 101 is harming American innovation and investment in R&D.</p>	<p>The data show that innovation is thriving throughout the U.S. economy, despite what critics purport to be “disastrous” Supreme Court decisions. R&D investment in the software and healthcare sectors and in the U.S. overall has grown substantially every year since the <i>Alice</i> decision.¹ The National Science Foundation reports that R&D spending in the U.S. increased by \$88 billion from 2013 (prior to the <i>Alice</i> decision) to 2017.² Contrary to conjecture that Section 101 law would decimate incentives to invest in software innovation, R&D spending in the software industry has significantly outpaced overall R&D growth, doubling since the <i>Alice</i> decision.³ This R&D growth is not surprising. Limiting patents to those that claim an advance in technology promotes innovation, improves patent quality and reduces unnecessary litigation. In contrast, patents on non-technological “inventions” (like business methods and aesthetic creations) harm R&D investment, increase litigation and create significant deadweight losses to the U.S. economy.</p>
<p>#2 The <i>Alice</i> test is harming investment in startups.</p>	<p>Investment in startups is booming. In 2018, venture capital funding of software startups hit a historic high of \$45 billion, 40 percent more than in 2014, and, according to the National Venture Capital Association, last year was a “banner year” for VC funding across all sectors. This strong VC investment extends to all the areas alleged by proponents of legislation to be particularly impacted by the Supreme Court decisions. Almost \$400 million was invested in bio-diagnostics in May 2019, alone.⁵ And startups developing other cutting-edge technologies such as Artificial Intelligence (AI) are also flourishing. As noted by the U.S. Office of Science and Technology Policy, America has more AI startups than any other nation – nearly double our closest competitor – and is home to three-quarters of the top 100 new AI companies in the world.⁶ Investment in AI startups is soaring, with “[m]oney for AI’s advancement... pouring in from the private sector.”⁷ Investment in AI R&D more than tripled between 2013 and 2016, growing from \$1.2 billion to \$3.9 billion in just three years.⁸ And, according to the <i>MoneyTree</i> Report, investment in AI companies skyrocketed 72 percent in 2018, reaching \$9.3 billion last year.⁹ That’s an almost 800 percent increase in just five years, with almost all of that growth coming after the <i>Alice</i> decision.</p>

¹ PWC 2018 Global Innovation Fact Pack, slide 28, 30, <https://www.strategyand.pwc.com/media/file/2018-Global-Innovation-1000-Fact-Pack.pdf>.

² National Science Foundation, U.S. R&D Increased by \$22 Billion in 2016, to \$515 Billion; Estimates for 2017 Indicate a Rise to \$542 Billion (February 2019), <https://www.nsf.gov/statistics/2019/nsf19308/>.

³ PWC 2018 Global Innovation Fact Pack, slide 28.

⁴ National Venture Capital Association, *Venture Monitor*, 4Q 2018, https://files.pitchbook.com/website/files/pdf/4Q_2018_PitchBook_NVCA_Venture_Monitor.pdf. Even the areas frequently cited as being most impacted by the Supreme Court’s eligibility test seem to be doing quite well. In addition to the U.S. software industry growing rapidly, investment in medical diagnostics appears to be strong, with \$400 million invested in health diagnostic companies in May 2018, alone.

⁵ Search of Crunchbase dated June 2, 2019 for Health Diagnostics in May 2019, detailing Whole Biome, (\$35 million), Tempus (\$200 million), Thrive Earlier Detection (\$110 million), Endogastrics Solutions (\$15 million), Let’s Get Checked (\$30 million), and Sandstone Diagnostics (\$2.5 million).

⁶ U.S. Office of Science and Technology Policy, *Summary of the 2018 White House Summit On Artificial Intelligence For American Industry*, at 8 (May 10, 2018) (remarks of Michael Kratsios, Deputy Assistant to the President for Technology Policy); <https://www.whitehouse.gov/wp-content/uploads/2018/05/Summary-Report-of-White-House-AI-Summit.pdf>.

⁷ Sujai Hajela, *What critics get wrong about the ‘American AI Initiative’*, techcrunch (March 4, 2019) (citing CB Insights & PwC, Q4 2018 *MoneyTree* Report); <https://techcrunch.com/2019/03/04/what-critics-get-wrong-about-the-american-ai-initiative/>.

⁸ National Science Board, *Science and Engineering Indicators 2018*, at 8-66 (2018); <https://www.nsf.gov/statistics/indicators/>.

⁹ *Id.*

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#3

The Supreme Court's Section 101 decisions have given foreign countries a competitive advantage, while hurting U.S. businesses and the domestic economy.

The opposite is true. The majority of U.S. patents are issued to *foreign* entities,¹⁰ and nearly *two-thirds* of the applications filed in the U.S. are from foreign applicants.¹¹ This means that most of the patents (and most of the benefits) resulting from lowering standards for obtaining U.S. patents would go to foreign companies. Because patent rights are territorial, almost all assertions of U.S. patents are against American businesses. As a result, the bulk of the benefit of making it easier to get U.S. patents would go to foreign companies, while virtually all the costs of doing so would fall on U.S. businesses and consumers. This dynamic is aptly illustrated by Huawei's recent demand that Verizon pay \$1 billion in patent royalties.¹²

#4

The Supreme Court's *Alice* test is unpredictable and creates substantial uncertainty.

Patent eligibility determinations are actually *more* predictable than almost any other major area of patent law, which is why "[t]he Federal Circuit's affirmance rate in § 101 cases is *markedly higher* than its overall affirmance rate for all patent cases."¹³ The affirmance rate for all Section 101 appeals since *Alice* is above 90 percent, substantially higher than for the other statutory requirements (*i.e.*, those of Sections 102, 103 and 112).¹⁴ If the *Alice* test really were unpredictable or caused substantial uncertainty, the courts would not be able to maintain such a high affirmance rate. This rate is a strong indication that both the trial and appellate courts are applying *Alice* consistently and predictably. The truth is that the *Alice* test is clearer, more predictable and more certain than almost any other major doctrine in patent law.

#5

The *Alice* decision has created a crisis in the availability of patent protection.

The number of issued U.S. patents was 15 percent higher in 2018 than in 2013, the year before *Alice* was decided.¹⁵ And, for many cutting-edge technology fields relating to software and computing, Section 101 rejections are actually *lower* today than they were before the *Alice* decision. The data show that *Alice* has had little impact on the overall ability to obtain patent protection. As noted in a recent empirical study, "the vast majority of inventions examined by the office are not significantly impacted by 101."¹⁶ In fact, *less than 0.5 percent of all applications* are abandoned solely as the result of Section 101 rejections.¹⁷ And, the vast majority of these abandonments involve non-technological claims that – if issued – would harm, rather than promote, innovation and economic growth.¹⁸ Most of the applications rejected under Section 101 seek business method patents, which have been shown to *decrease* R&D investment¹⁹ and are litigated at a rate that is about *30 times* higher than patents for technological inventions.²⁰ These rejections are good for innovation, for domestic companies and for the U.S. economy.

¹⁰ U.S. Patent and Trademark Office, FY2018 *Performance and Accountability Report*, at 183 (Table 8) and page 186 (Table 10) (reporting 161,970 patents issued to U.S. residents and 177,564 issued to foreign residents in FY2018).

¹¹ *Id.* at 182 (Table 7) and 184 (Table 9) (reporting 190,559 applications by U.S. residents and 332,522 applications by foreign residents in FY2017) <https://www.uspto.gov/sites/default/files/documents/USPTOFY18PAR.pdf>.

¹² Paul Mozur and Edmund Lee, "Huawei Is Said to Demand Patent Fees From Verizon," *New York Times*, June 12, 2019; <https://www.nytimes.com/2019/06/12/technology/huawei-verizon-patent-license-fees.html>

¹³ Knobbe Martens, *How Unpredictable is the Alice Analysis?* (October 18, 2018) (emphasis added); <https://www.jdsupra.com/legalnews/how-unpredictable-is-the-alice-analysis-64374/>

¹⁴ Gugliuzza & Lemley, *Can a Court Change the Law by Saying Nothing?*, 71 *Vand. L. Rev.* 765, 794 (2018) (reporting a 90.4 percent affirmance rate); scholarship.law.bu.edu/cgi/viewcontent.cgi?article=1207&context=faculty_scholarship See also Gibson Dunn, *Federal Circuit Year in Review 2017/2018*, at 8 (reporting affirmance rates from August 1, 2017 to July 31, 2018); <https://www.gibsondunn.com/wp-content/uploads/2018/11/Federal-Circuit-2017-2018-Year-in-Review.pdf> (finding Section 101 affirmance rates in the 2017-18 court term to be higher than for Sections 102, 103, and 112).

¹⁵ Statista, <https://www.statista.com/statistics/256594/number-of-utility-patent-grants-in-the-us/>

¹⁶ Colleen Chien and Jiun Ying Wu, *Decoding Patentable Subject Matter*, 2018 *Patently-O Patent L.J.* 1, 17 (2018); https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3267742 (finding the bulk of Section 101 rejections have involved business method patents).

¹⁷ Josh Landau, *The Alice Drizzle—Barely Even Noticeable* (January 10, 2018) (finding that the Section 101 rejection was the sole reason for abandonment in only 3.3 percent of cases receiving an eligibility rejection, which translates to less than .5 percent of all applications filed); <https://www.patentprogress.org/2018/01/10/alice-drizzle-barely-even-noticeable/>

¹⁸ Chien and Wu, *supra* note [14] at 1.

¹⁹ There is evidence that business methods patents actually *lowered* R&D among firms that sought them and that investment by these firms increased as a result of the *Alice* decision. Sridhar Srinivasan, *Do Weaker Patents Induce Greater Research Investments?* (December, 2018); https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3185148. There is also no evidence that extending patent protection to business methods encouraged investment in R&D. See, e.g., Robert M. Hunt, "Business Method Patents and U.S. Financial Services," *Contemporary Economic Policy*, Vol. 28, No. 3, pp. 322-352, July 2010; (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1627385) (finding no evidence that patents protection for business methods after *State Street Bank* had a positive effect on research intensity in the financial services sector).

²⁰ Lerner, Josh. 2008. "The Litigation of Financial Innovations," *The Journal of Law & Economics* Vol. 53, No. 4 (November 2010), pp. 807-831; https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1267555

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#6

It is impossible to get U.S. patents on cutting-edge technologies like Artificial Intelligence.

This is simply not true. In AI – a favorite example of those arguing for legislation – the number of patents issued has *more than doubled every year* since *Alice* was decided.²¹ These patents are not only being granted, they are being actively enforced. Between 2000 and 2018 there have been 1,139 AI patent cases in the U.S.²² Nor is the U.S. at risk of being overtaken by countries like China. Of the top ten AI patent owners, five of them are U.S. companies, and none are Chinese.²³ Finally, almost four times the number of applications seeking AI patents are filed in the U.S. than in China or Europe.²⁴ In sum, the U.S. has a dominating lead with respect to major AI patent owners, patent grants and patent applications.

#7

Problems with Section 101 are causing a migration of R&D to China and Europe.

The same patent protection is available irrespective of where the R&D is performed. This is why U.S. companies are able to obtain so many foreign patents, and why most U.S. patents are issued to foreign applicants. Under the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), moving R&D offshore has absolutely no legal impact on what patent rights are available to an inventor in any of the signatory countries, and the patent laws of individual countries have no impact on decisions about where to locate R&D activities.

#8

U.S. companies cannot get 5G patents, which raises national security concerns.

The Center for Strategic and International Studies (CSIS) – which has studied the national security concerns around 5G extensively – concluded that “American and ‘like-minded’ companies routinely outspend their Chinese competitors in 5G R&D and hold 10 times as many 5G patents” and that “Chinese companies still depend on the western companies for the most advanced 5G components.”²⁵ As of August 2018, there were a total of 4,935 declared Standard Essential Patents (SEPs) with regard to 5G, which includes more than 3,000 U.S. SEPs.²⁶ And even if there were a problem obtaining 5G patents, lowering standards to make it easier to obtain U.S. patents will benefit Chinese companies like Huawei as much or more than their U.S. competitors, while harming American businesses and consumers. While the CSIS report cites concerns about potential problems with patent law, it is exclusively the laws of other jurisdictions and not the U.S., stating that the U.S. government “needs to ensure that U.S. companies do not face obstacles from antitrust or patent infringement investigations *undertaken by other countries* to obtain competitive advantage.”²⁷

¹⁵ Statista, <https://www.statista.com/statistics/256594/number-of-utility-patent-grants-in-the-us/>.

¹⁶ Colleen Chien and Jiun Ying Wu, *Decoding Patentable Subject Matter*, 2018 Patently-O Patent L.J. 1, 17 (2018); https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3267742 (finding the bulk of Section 101 rejections have involved business method patents).

¹⁷ Josh Landau, *The Alice Drizzle—Barely Even Noticeable* (January 10, 2018) (finding that the Section 101 rejection was the sole reason for abandonment in only 3.3 percent of cases receiving an eligibility rejection, which translates to less than .5 percent of all applications filed); <https://www.patentprogress.org/2018/01/10/alice-drizzle-barely-even-noticeable/>.

¹⁸ Chien and Wu, *supra* note [14] at 1.

¹⁹ There is evidence that business methods patents actually *lowered* R&D among firms that sought them and that investment by these firms increased as a result of the *Alice* decision. Sridhar Srinivasan, *Do Weaker Patents Induce Greater Research Investments?* (December, 2018); https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3185148. There is also no evidence that extending patent protection to business methods encouraged investment in R&D. See, e.g., Robert M. Hunt, “Business Method Patents and U.S. Financial Services,” *Contemporary Economic Policy*, Vol. 28, No. 3, pp. 322-352, July 2010; (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1627385) (finding no evidence that patents protection for business methods after *State Street Bank* had a positive effect on research intensity in the financial services sector).

²⁰ Lerner, Josh. 2008. “The Litigation of Financial Innovations,” *The Journal of Law & Economics* Vol. 53, No. 4 (November 2010), pp. 807-831; https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1267555.

²¹ See, e.g., George Leopold, *ML Patent Apps Still Soaring*, datanami, February 27, 2019 (reporting a 116 percent increase in 2018), <https://www.datanami.com/2019/02/27/ml-patent-apps-still-soaring/>.

²² Iplytics, *Who is patenting AI technology?* (April 2019), at 2; <https://www.iplytics.com/wp-content/uploads/2019/03/IPLYtics-AI-report.pdf>.

²³ *Id.* at 3.

²⁴ *Id.* at 4.

²⁵ James A. Lewis, Center for Strategic and International Studies, *How 5G Will Shape Innovation and Security: A Primer*, at 2 (December 2018) (hereinafter CSIS Report); https://csis-prod.s3.amazonaws.com/s3fs-public/publication/181206_Lewis_5GPrimer_WEB.pdf. See also Raymond Zhong, “China’s Huawei Is at Center of Fight Over 5G’s Future,” *New York Times* (March 7, 2018) (reporting that only 10 percent of 5G standard essential patents were in Chinese hands, while a single U.S. company – Qualcomm – held 15 percent); <https://www.nytimes.com/2018/03/07/technology/china-huawei-5g-standards.html>.

²⁶ Innovation Frontline, *5G Standard Essential Patents Landscape 2Q 2018, August 8, 2018*; <http://techipm-innovationfrontline.blogspot.com/2018/08/5g-standard-essential-patents-landscape.html>

²⁷ CSIS Report at 2 (emphasis added).