DELL Technologies

October 15, 2021

Andrew Hirshfeld
Performing the Functions and Duties of the Under Secretary of Commerce for Intellectual Property and Director of the USPTO
P.O. Box 1450
Alexandria VA 22313–1450

via https://www.regulations.gov (Docket Number PTO-P-2021-0032)

Re: Dell Comments on Patent Eligibility Jurisprudence Study

Dear Mr. Hirshfeld:

On behalf of Dell Technologies Inc., thank you for the opportunity to submit comments on the state of the law on patent eligibility in the United States. By way of background, Dell is a significant stakeholder in the patent system. Dell and its affiliated businesses have over 33,000 patents and patent applications, and we consistently rank near the top of the annual Patent 300 List[1] published by the Intellectual Property Owners Association and Harrity Analytics. And beyond our patent portfolio, Dell is a recognized technology leader. Our products and technologies have been awarded top honors by industry publications including PCWorld, IDC, Fortune, ChannelPro, ITPro, and CRN. In 2020, Dell won an Emmy award for its groundbreaking storage technology. Dell also services the world's top telecom providers, retail brands, auto brands, and nearly all of the Fortune 500 companies. Dell invests billions of dollars annually in research and development. Dell has active investments in, and partnerships with, scores of early-stage startups and leading innovative companies.

But Dell is also frequently the target of unwarranted patent infringement allegations. In some of these cases, the patents asserted against Dell include claims directed not at the inventor's actual invention, but rather at algorithms, mathematical formula, and other basic building blocks of software developments. Section 101 helps ensure that patents promote rather than impede innovation. It does this by guarding against patent claims that would grant an unwarranted monopoly on abstract ideas rather than concrete applications of those ideas.

Responses to specific questions

Section I—Observations and Experiences

1. *Please explain how the current state of patent eligibility jurisprudence affects the conduct of business in your technology area(s). Please identify the technology area(s) in your response.*

Our experience with patent-eligibility jurisprudence in the years since *Alice* was decided has been highly positive. Particularly in the field of software-enabled technology in which many of

[1] https://harrityllp.com/patent300/

Dell's inventions are situated, patent eligibility jurisprudence does not negatively affect the day to day conduct of the business. In the instances where patent rights come into play in the ordinary course of Dell's business, we have found the state of the law to be amply predictable. We have not found ourselves in a situation where the viability of a commercial transaction has been significantly hampered by uncertainty caused by patent eligibility jurisprudence.

To the contrary, the law on patent eligibility helps Dell by ensuring that pure mathematical algorithms are not patent-eligible. As noted above, this protection allows Dell engineers to engage in their daily software development work without worrying that the basic tools of innovation are subject to a third party statutory monopoly. Section 101, in other words, promotes progress by ensuring that patent grants are limited to concrete applications of an idea, not to ideas in the abstract.

2. *Please explain what impacts, if any, you have experienced as a result of the current state of patent eligibility jurisprudence in the United States. Please include impacts on as many of the following areas as you can, identifying concrete examples and supporting facts when possible:*

    a. *Patent prosecution strategy and portfolio management;*

Dell's experience prosecuting patents post-*Alice* has been positive. The U.S. Patent and Trademark Office has promulgated examination guidelines that have established consistency and quality with respect to Section 101 rejections amongst the examination corps. Generally speaking, when an examiner rejects a Dell patent application under Section 101, we can address the problem by amending claims in a way that often improves the quality and clarity of our claims.

    b. *patent enforcement and litigation;*

Post-*Alice* case law has been a critical way in which we have defended ourselves against patents directed to abstract ideas and mathematical algorithms. Plaintiffs who file patent infringement lawsuits against Dell are required to assert claims that are reasonably concrete and bound to practical applications of ideas, rather than to abstract ideas or mathematical algorithms themselves.

On the enforcement side, we have successfully asserted several of our patents in litigation since the *Alice* case was decided. In none of those cases was Section 101 patent eligibility a significant issue.

    c. *patent counseling and opinions;*

When Dell is faced with an allegation of potential patent infringement, we may consider questions of patent eligibility as part of our overall analysis. *Alice* and its progeny have not detracted from our ability to obtain methodical and reliable legal advice. To the contrary, we have found recent case law to provide sufficiently clear guidance, allowing us confidence to proceed in a manner consistent with the advice.

d. research and development, product development, and innovation

Dell has, for its entire history, invested significant amounts in research and development. We spend our R&D budget on innovations and solutions that we believe are most valuable to our customer base, which includes (for example) a growing number of service providers, such as cloud service providers, software-as-a-service companies, consumer webtech providers, and telecommunications companies. These service providers turn to Dell Technologies for our advanced solutions that enable efficient service delivery at cloud scale.

We also invest in early-stage, privately held companies that develop software, hardware, and other technologies or provide services supporting our technologies. Our investment areas include storage, software-defined networking, management and orchestration, security, machine learning and artificial intelligence, Big Data and analytics, cloud, Internet of Things ("IoT"), and software development operations. Our investment in such companies has not been hampered by any uncertainties surrounding whether their technologies are patent eligible.

In the fiscal year that ended in February 2021, Dell Technologies (including its subsidiaries) expended $5.3 billion in research and development costs. That number was up from $5.0 billion the previous year, which again was up from $4.6 billion the year before.

The law on patent eligibility did not negatively affect Dell's innovation-related efforts. As noted above, Dell has not experienced significant barriers to obtaining patent protection on its technology. And the protection against patents covering abstract ideas allows our engineers to concentrate on innovating without being hamstrung by the threat of patents on pure mathematical algorithms. The post-*Alice* case law has provided Dell with the predictability our business needs to develop new products and technologies every day.

e. Other areas.

Dell has not seen significant impact of patent-eligibility case law in the other areas identified in this question.

3. *Please explain how the current state of patent eligibility jurisprudence in the United States impacts particular technological fields, including investment and innovation in any of the following technological areas:*

a. artificial intelligence;

Dell supplies products and solutions aimed at facilitating its customers' deployment of AI-powered software and devices. For example, Dell provides complete hardware and software, available as a service and configurations ready to power its customers' AI-related needs. Dell's offerings in this area are supported by its own innovation as well as by a broad and deep supplier network. In no part of this ecosystem has patent-eligibility case law factored in as a significant impediment to Dell's business strategies. And Dell's patent prosecution in the AI area, as explained above, has not been deterred by *Alice* or its progeny.

b. *other computer-related inventions (e.g., software, business methods, computer security, databases and data structures, computer networking, and graphical user interfaces).*

With respect to the day-to-day conduct of Dell's business, patent eligibility has had no substantial impact on our development and sale of innovative products and solutions, as explained at length elsewhere. With respect to our patent prosecution activity, as noted earlier, Dell is a prolific patentee in the space of computer-related inventions. We have been successful in obtaining patent protection for our many innovations, notwithstanding *Alice* rejections.

We are aware of research suggesting that business method claims are more at risk of rejection following *Alice*.[2] As outlined in this paper, outside the specific areas of medical diagnostics and business method patents, Section 101 was not a significant factor in patent office rejections. The authors' thesis is consistent with Dell's experience. Overall, Dell's ability to obtain patent protection for our software inventions has not been adversely affected by *Alice* and its progeny. To the contrary, Dell substantially benefits from the decreased availability of abstract patent rights that impede true software innovation.

4. *Please explain how your experiences with the application of subject matter eligibility requirements in other jurisdictions, including China, Japan, Korea, and Europe, differ from your experiences in the United States.*

Section 101 case law has not significantly affected Dell's ability to obtain U.S. patent protection with a scope approximating that which is available in other countries. Dell is not aware of differences in other countries' laws that materially increase the availability of patent protection for abstract ideas. And any such protection would pose an unwelcome and unwarranted barrier to Dell's innovative work.

5. *Please identify instances where you have been denied patent protection for an invention in the United States solely on the basis of patent subject matter ineligibility, but obtained protection for the same invention in a foreign jurisdiction, or vice versa. Please provide specific examples, such as the technology(ies) and jurisdiction(s) involved, and the reason the invention was held ineligible in the United States or other jurisdiction.*

We are not aware of any material instances where this has occurred.

6. *Please explain whether the state of patent eligibility jurisprudence in the United States has caused you to modify or shift investment, research and development activities, or jobs from the United States to other jurisdictions, or to the United States from other jurisdiction. If so, please identify the relevant modifications and their associated impacts.*

[2] Colleen Chien and Jiun Ying Wu, *Decoding Patentable Subject Matter*, 2018 Patently-O Patent L.J. 1 (2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3267742.

Section 101 case law has not caused Dell to modify or shift investment, R&D activity, or jobs between jurisdictions.

7. *Please explain whether the state of patent eligibility jurisprudence in the United States has caused you to change business strategies for protecting your intellectual property (e.g., shifting from patents to trade secrets, or vice versa). If so, please identify the changes and their associated impacts.*

Section 101 case law has not materially impacted Dell's business strategies for protecting intellectual property. Dell generally seeks patent rights, tailored to the scope of the invention, when its engineers invent subject matter that satisfies the requirements of Sections 101, 102, and 103 of the Patent Act. This strategy has not changed in recent years.

8. *Please explain whether you have changed your behavior with regard to filing, purchasing, licensing, selling, or maintaining patent applications and patents in the United States as a result of the current state of patent eligibility jurisprudence in the United States. If so, please describe how you changed your behavior.*

Dell's practices with respect to filing, purchasing, licensing, selling or maintaining patent applications or patents in the United States has not changed as a result of patent eligibility rules.

9. *Please explain how, in your experience, the status of patent eligibility jurisprudence in the United States has affected any litigation for patent infringement in the United States in which you been involved as a party, as legal counsel, or as another participant (e.g., an expert witness). For example, please explain whether this jurisprudence has affected the cost or duration of such litigation, the ability to defend against claims of patent infringement, the certainty/uncertainty of litigation outcomes, or the likelihood of settlement.*

Patent eligibility jurisprudence has played an important role in protecting Dell against broad patent claims purporting to cover the basic mathematical tools central to Dell's daily innovation. *See, e.g., PersonalWeb Techs. LLC v. EMC Corp. et al.*, 8 F.4th 1310 (Fed. Cir. 2021). To the extent patent eligibility is a determination that can be made as a legal matter, it is amenable to decision at an early stage of the litigation, potentially saving both parties millions of dollars in litigation fees. Thus, the law on patent eligibility significantly saves resources in the case of abstract patents. And when addressed early in litigation, patent eligibility increases certainty as well, by eliminating the need to wait many years for trial and appeal before knowing whether the asserted patent claims satisfy Section 101.

We acknowledge the concern of others that patent eligibility law increases rather than decreases uncertainty. We disagree that the modern law on patent-eligibility lacks clarity, any more than the law on claim construction or the law on obviousness. Modern case law sets forth a clear and

predictable set of patent-eligibility tests for software-based inventions.[3] It is true that some issued patents will be found to be ineligible under this analysis. But concern for improvidently granted patent rights should not outweigh the harms to the patent system in enforcing a monopoly on abstract ideas.

To the extent some believe the current case remains unpredictable, Dell welcomes efforts to identify legislative or administrative solutions, provided that the critical benefits of Section 101 are not lost in the process.

Section II—Impact of Subject Matter Eligibility on the General Marketplace

10. Please identify how the current state of patent eligibility jurisprudence in the United States impacts the global strength of U.S. intellectual property.

In Dell's experience, patent-eligibility jurisprudence does not materially differ between the United States and other countries. Nearly every major economy rightly precludes patentees from obtaining broad, preclusive patents based on abstract ideas and mathematical formulas.

11. Please identify how the current state of patent eligibility jurisprudence in the United States impacts the U.S. economy as a whole.

Patent eligibility jurisprudence is critical to the vibrancy of the U.S. economy because it prevents individuals from obtaining a broad monopoly on foundational building blocks of innovation. Without rules precluding patents based on abstract ideas and mathematical algorithms, companies like Dell that drive productivity and progress would be weighed down by oppressive intellectual property rights that impede, rather than advance, the progress of science and technology in this country.

12 - Please identify how the current state of subject matter eligibility jurisprudence in the United States impacts the global strength of U.S. intellectual property and the U.S. economy in any of the following areas: a. Quantum computing; b. artificial intelligence; c. precision medicine; d. diagnostic methods; e. pharmaceutical treatments; and f. other computer-related inventions (e.g., software, business methods, computer security, databases and data structures, computer networking, and graphical user interfaces). In responding to this question, please provide concrete examples and supporting facts when possible.

Innovation in this country is thriving. Following the Supreme Court's 2014 decision in *Alice Corp. v. CLS Bank Int'l,* investment in R&D has skyrocketed. R&D spend has significantly increased as a percentage of gross domestic product in every year between 2015 and 2019 (the last year for which data are available), increasing by $112 billion in that time period after

[3] *See, e.g.*, *Amdocs (Isr.) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1300–01 (Fed. Cir. 2016) (holding claim eligible because it "entails an unconventional technological solution ... to a technological problem," and the solution "requires that arguably generic components ... operate in an unconventional manner to achieve an improvement in computer functionality").

adjusting for inflation.[4] That is true not only for the economy overall, but also (according to a 2018 PwC study) specifically in the healthcare, computing and electronics, software and internet, automotive and industrials industries—the industries with the highest levels of R&D spend overall.[5]

This trend is by no means limited to large enterprises. To the contrary, investment in startups is booming, with 2021 set to be "another consecutive record-setting year."[6] Far from being discouraged by the *Alice* decision, investors have dedicated ever-larger pools of funds to startups over recent years, with "large and late-stage investments remain[ing] the main drivers behind overall strong deal value."[7]

Nor have specific industries suffered because of the *Alice* decision. For example, in Q2 of calendar year 2021, funding for artificial intelligence firms reached a record high of $20 billion, up from $9 billion in the same quarter two years earlier.[8] Importantly, the highest number of artificial intelligence deals were in the healthcare space.[9] Q2 of 2021 likewise saw significant investment in startups in the medical device, diagnostic equipment, pharmaceutical, and software industries.[10]

Statistics in the artificial intelligence field belie the claim that the *Alice* decision is hurting the United States in comparison to other countries. According to CB Insights, "the US leads as an AI hub, attracting 41% of deals. US-based companies also accounted for 41% of deals in the previous quarter. US deals are up 39% year-over-year."[11] China stands in a distant second place with 19% of global deals.[12]

Moreover, the notion that *Alice* disproportionately harms U.S. firms makes no sense when one considers that the majority of U.S. patents are issued to foreign entities.[13] Thus, any initiatives that would broaden patent eligibility beyond its current scope would disproportionately help *foreign* entities to exclude U.S. manufacturers from domestic markets.

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[4] National Patterns of R&D Resources: 2018–19 Data Update, *available at* https://ncses.nsf.gov/pubs/nsf21325/assets/data-tables/tables/nsf21325-tab001.pdf; *see generally* https://ncses.nsf.gov/pubs/nsf21325.

[5] PWC 2018 Global Innovation Fact Pack, slide 28, *available at* https://www.strategyand.pwc.com/gx/en/insights/innovation1000/2018-global-innovation-1000-fact-pack.pdf#page=29

[6] National Venture Capital Association, *Venture Monitor 2Q 2021*, *available at* https://nvca.org/wp-content/uploads/2021/07/Q2_2021_PitchBook-NVCA_Venture_Monitor-1.pdf, at 3.

[7] *Id.*

[8] CB Insights, *Artificial Intelligence in Numbers*, *available at* https://www.cbinsights.com/reports/CB-Insights_AI-In-Numbers-Q2-2021.pdf, at 7.

[9] *Id.* at 11.

[10] *See* CB Insights, *State of Venture Report Q2 2021, available at* https://www.cbinsights.com/reports/CB-Insights_Venture-Report-Q2-2021.pdf.

[11] CB Insights, *Artificial Intelligence in Numbers*, at 12.

[12] *Id.*

[13] United States Patent and Trademark Office, *FY2020 Performance and Accountability Report*, *available at* https://www.uspto.gov/sites/default/files/documents/USPTOFY20PAR.pdf, at Tables 8 & 10.

Additionally, according to a 2018 study, "the vast majority of inventions examined by the office are not significantly impacted by 101."[14] And even where an examiner rejects a claim under Section 101, most patent applicants have no trouble overcoming the rejection. Another 2018 study found that, after a patent examiner had rejected a claim under Section 101, the applicant was forced to abandon the application due to the 101 rejection in only 3.3% of cases.[15]

Section 101 is not dissuading patent applicants from seeking patent protection on new and emerging technologies. Patent applications directed to quantum computers grew at a compound annual growth rate (CAGR) of 41.75% between 2016 and 2020.[16] Machine learning applications increased at a rate of 46.01%.[17] And applications on computer systems based on biological models (which includes, for example, an application directed to "[o]ptimizing patient treatment recommendations"), grew at a CAGR of 67.28%.[18]

13 - Please identify how the current state of patent eligibility jurisprudence in the United States affects the public. For example, does the jurisprudence affect, either positively or negatively, the availability, effectiveness, or cost of personalized medicine, diagnostics, pharmaceutical treatments, software, or computer-implemented inventions?

Alice has promoted, rather than impeded, innovation, particularly in the software and computer-implemented inventions space. In *Alice* and its progeny, courts have become more diligent about limiting patents to those that claim an advance in technology. Properly circumscribing claims in this way promotes innovation rather than curtails it. The case law developed by the federal courts in recent years carefully threads the needle between rewarding inventors for concrete advances, while guaranteeing to the private sector the ability to develop novel products and solutions free of patents covering the building blocks of progress.

Thank you again for the opportunity to present our views on these important matters.

Very truly yours,

/s/ Krish Gupta

Krish Gupta
Senior Vice President – Intellectual Property & Litigation

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[14] Colleen Chien and Jiun Ying Wu, *Decoding Patentable Subject Matter*, 2018 Patently-O Patent L.J. 1, 17 (2018), *available at* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3267742.

[15] Josh Landau, *The Alice Drizzle—Barely Even Noticeable* (January 10, 2018) (finding that the Section 101 rejection was the sole reason for abandonment in 2,164 out of 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/.

[16] IFI Claims Patent Services, *Top Ten Fastest Growing Technologies*, *at* https://www.ificlaims.com/rankings-tech-growth-2020.htm, at 18.

[17] *Id.* at 21.

[18] *Id.* at 30-31.