ERICSSON

Date: 2021-10-15

The Honorable Andrew Hirshfeld
Commissioner for Patents, Performing the
Functions and Duties of the Under Secretary of
Commerce for Intellectual Property and
Director of the United States Patent and
Trademark Office
P.O. Box 1450
Alexandria, Virginia 22314

RE: USPTO Patent Eligibility Jurisprudence Study (PTO-P-2021-0032)

Dear Commissioner Hirshfeld:

Ericsson is very pleased to take this opportunity to comment on the Patent Eligibility Jurisprudence Study, Docket No. PTO-P-2021-0032 ("Jurisprudence Study").

As a leading innovator in global telecommunications, Ericsson's interest in the Jurisprudence Study stems from its commitment to cutting-edge research and development and respect for strong intellectual property protections, including patents, that support our drive to develop the next generation of technology connecting our world. Ericsson is a world leader in the rapidly changing environment of communications technology—developing and providing hardware, software, and services that enable the full value of connectivity that drives global economic growth and innovation. With over 100,000 employees worldwide, 26,200 of whom are focused on research and development, and 7,600 located in the United States, Ericsson is a pivotal player in the markets associated with 5G and has influenced the technology in 5G over the years more than any other contributor.

Ericsson's activities span the globe, with customers in more than 180 countries. Ericsson has a significant presence in the U.S., including: its North American headquarters in Plano, Texas; a $100 million 5G Smart Factory in Lewisville, Texas; and R&D centers in Texas, Idaho, and California, including our D-Fifteen innovation center in Santa Clara, focused on groundbreaking advancements in Core, Edge Computing, AI, and Cloud.[1] Approximately 17% of Ericsson's annual global revenue is invested in research and development, totaling tens of billions of dollars over the past few years. As a result, Ericsson has the leading patent portfolio in the industry, with more than 57,000 granted patents worldwide and more than 100 signed patent licensing agreements.

Ericsson appreciates the close relationship between innovation, investment, and patents. A sense of clarity and predictability is key to sustaining all three elements. Accordingly, Ericsson feels that greater certainty, consistency, and predictability regarding patent subject matter eligibility will help ensure competitiveness in the tech marketplace. As digital and emerging technologies play an increasingly greater role in our global economy, it is essential that a strong U.S. patent system that provides clarity and certainty around § 101 eligibility be a key component in promoting U.S. technology leadership in innovation and standards development.

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[1] *See* https://www.ericsson.com/en/about-us/company-facts/ericsson-worldwide/united-states and https://www.ericsson.com/en/careers/global-locations/mana

Topics for Public Comment

As we state in the introduction, Ericsson is a leading innovator in the mobile communication space. We are also one of the main suppliers of telecom equipment worldwide, with about 50% of all mobile internet traffic passing through a piece of Ericsson equipment. As an innovator and an implementer, we fall within multiple affected categories identified in this questionnaire and beyond: patent owner, licensee and licensor of patented technology, recipient of demand letters, plaintiff and defendant in patent litigation, manufacturer, and investor in R&D.

Section I—Observations and Experiences[2]

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.

Ericsson has been a leader in the development of wireless communications technology. Our innovation extends to many different technological areas, including artificial intelligence, machine learning, media coding, virtual/augmented/extended reality, IoT, quantum technologies, green technologies, and many other areas. The uncertainty surrounding patent eligibility jurisprudence in the U.S. has impacted Ericsson in multiple areas, as detailed in the responses below.

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;

Like many other global players, Ericsson files and prosecutes patent applications in many different jurisdictions. Patent applications for virtually every invention we develop are filed in the U.S. In many instances, we have seen patent applications proceed to grant in multiple foreign jurisdictions, only to see the corresponding U.S. application take significantly longer in prosecution, grant with different, amended claims due to § 101 rejections, or even be abandoned over § 101 rejections. A few specific real-world examples are provided below, but are anonymized because they relate to pending matters or are part of patent families with pending applications. Ericsson is happy to follow up with specifics, if requested.

- U.S. Patent A relates generally to media coding performed by an encoder. The A Patent is part of an expansive patent family, including a corresponding PCT Application and over 100 corresponding international patent applications, more than 90 of which have granted as patents in various jurisdictions globally. The PCT Application was found to have novelty, inventive step, and industrial applicability, with no eligibility rejections; the resulting international applications proceeded to quick grants. The A Patent was also found to be novel and non-obvious from the very first U.S. Office Action, but § 101 rejections persisted. These rejections were sustained over the course of multiple Office Actions, despite multiple claim amendments and multiple Examiner interviews. Ultimately, the claims were allowed, with the Examiner stating in an interview summary that the claims may still be patent eligible, but the chances of surviving an eligibility challenge in court would be 50/50.
- U.S. Application B relates to digital rights management and the secure provision of content keys used to encrypt streaming content. The B Application is part of an expansive patent family,

[2] Questions from the Jurisprudence Study are reproduced where Ericsson has provided an answer, with some questions combined for clarity. All remaining questions have been omitted from this response.

including a corresponding PCT Application and granted international patents throughout Europe and China. No eligibility rejections were raised in any of the corresponding foreign patents. The B Application, however, faced multiple rounds of § 101 challenges over the course of three years, which were finally withdrawn after subsequent amendments and argumentation.

- U.S. Patent C relates generally to digital rights management. The C Patent is part of an expansive patent family, including granted patents in Europe and Asia. No eligibility rejections were raised in these corresponding foreign patents. The C Patent similarly began prosecution, prior to the Supreme Court's *Alice* decision, without any eligibility concerns in the first few Office Actions. However, after the *Alice* decision, the C Patent faced brand new § 101 rejections. After multiple additional rounds of prosecution, including claim amendments, the § 101 rejections were finally overcome, and the patent was granted, 13 years after filing.

In our increasingly global economy, it leaves the U.S. at a competitive disadvantage to allow for vital emerging technologies to be left without adequate patent protection—either at the Agency level or through the court system—that would be afforded in other IP5 jurisdictions. Eligibility standards must be able to follow quickly evolving technology. Furthermore, some form of harmonization and consistency with the IP5 jurisdictions will help provide consistency, reliability, and security in patent rights around the world.

Even when patents are granted in the U.S., Ericsson, like all companies, must strategically consider which patents to maintain to their full term. A healthy, efficient, and accurate USPTO depends on its ability to collect and retain fees from stakeholders. If innovators can't reasonably rely on patents around key technology areas due to the lack of predictability of § 101, then companies may be forced to take their patent filing and maintenance fees to other more predictable jurisdictions. Investments may also follow, moving capital to either less IP-intensive industries or abroad, potentially creating a vicious cycle. If more companies, small businesses, universities, and small inventors decide to forego focusing on obtaining and maintaining their U.S. patent portfolios, the budget and operations of the USPTO could be significantly impacted in the future. Ericsson strongly opposes any attempts to divert USPTO fees outside of the Agency. We also further encourage more clarity and certainty on § 101 eligibility as a tool to further boost full participation in the U.S. patent system by the continued reinvestment in granted patents.

b. patent enforcement and litigation;

While the evolving USPTO guidance to examiners on § 101 has proved very helpful, the unpredictability of eligibility challenges in litigation remains. According to one study, a promising telecommunications patent that is granted by USPTO as novel, non-obvious patentable subject matter still has a nearly 50% chance[3] of not surviving an eligibility challenge if raised during litigation post-*Alice*. In 2017, Ericsson was awarded a $75 million patent infringement award based on infringement of a patent that had been successfully prosecuted to grant before the USPTO. This patent had faced and survived multiple PTAB challenges and had been found valid and infringed by a district court jury. But in 2020, a split panel of the Federal Circuit reversed the decision, finding the patent invalid because it covered an ineligible abstract idea.[4] In a strong dissent, Judge Newman pointed out that, not only did the majority set aside well-established rules of procedure to reach its decision, but the majority's decision on eligibility was out of accord with law and precedent.[5] This type of decision, coming after significant investments of time and money, erodes confidence in the U.S. patent system and discourages future investment.

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[3] *See* https://www.rpxcorp.com/data-byte/alice-challenges-succeed-most-often-in-financial-services-litigation/

[4] *Ericsson Inc. v. TCL Commc'n Tech. Holdings Ltd.*, 955 F.3d 1317 (Fed. Cir. 2020)

[5] "Applying Supreme Court guidance on Section 101, and the now-extensive body of precedent applying that guidance, it is apparent that the claims of [the disputed patent] are not for an abstract idea…The panel majority does not discuss the district court's findings

d. research and development;

While Ericsson continues to file large numbers of patent applications and successfully license patents around the world, the unpredictability of the current eligibility jurisprudence does influence R&D investments and future filing decisions. As mentioned earlier, Ericsson invests significant portions of its revenue—including patent licensing revenue—back into R&D. If eligibility concerns begin to affect licensing and other revenue forecasts, the resulting re-investment in R&D will suffer as well, with potential repercussions throughout the U.S. innovation ecosystem. The U.S. is rightly viewed as a global leader in innovation and technology development. The rest of the world watches to see how the U.S. interprets and enforces important policy matters such as § 101 eligibility. The lack of clarity on this issue threatens to undermine the technology innovators investing in these key technology areas, potentially causing a decrease in U.S.-based investment and competitiveness in critical next generation and emerging technology.

n. competition.

The U.S. has long recognized that "intellectual property laws and the antitrust laws share the common purpose of promoting innovation and enhancing consumer welfare" and that "[t]he intellectual property laws provide incentives for innovation and its dissemination and commercialization by establishing enforceable property rights for the creators of new and useful products, more efficient processes, and original works of expression."[6]

Innovation and competition are overlapping concepts since companies compete through innovation. In fact, the term "dynamic competition" has been used by antitrust agencies as intertwined with "innovation."[7]

Another pro-competitive feature of patent rights is that they often serve as a check on significant market power held by incumbents. A strong patent system allows innovators of all sizes to compete by protecting the technology and R&D they develop. Patents are one of the few ways new entrants can effectively compete in the current global economy, which makes a strong patent system especially important at this time.[8] In order for patents to effectively spur market competition, parties considering R&D and patenting

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and does not apply the *Alice Corp.* criteria or draw on the guidance of precedent. Instead, the majority creates new Section 101 law."

[6] *See* U.S. Dep't of Justice & Fed. Trade Comm'n, Antitrust Guidelines for the Licensing of Intellectual Property (Jan. 12, 2017) §1.0 https://www.ftc.gov/system/files/documents/public_statements/1049793/ip_guidelines_2017.pdf.

[7] *See*, *e.g.*, Daniel L. Rubinfeld, then Deputy Assistant Attorney General for Antitrust, "Competition, Innovation, and Antitrust Enforcement in Dynamic Network Industries, Address before the Software Publishers Association (March 24, 1998) https://www.justice.gov/atr/speech/competition-innovation-and-antitrust-enforcement-dynamic-network-industries; Charles A. James, then Assistant Attorney General for Antitrust, Opening Remarks – Joint DOJ-FTC Hearings on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy (Febr 6, 2002) https://www.justice.gov/atr/speech/joint-doj-ftc-hearings-competition-and-intellectual-property-law-and-policy-knowledge ("In recent decades, there has been increasing recognition on the part of antitrust enforcers and the courts that intellectual property and antitrust law share the common purpose of promoting dynamic competition and thereby enhancing consumer welfare. Intellectual property law provides incentives for innovation and its dissemination and commercialization by establishing enforceable property rights in new products and processes and original works of expression. These property rights reward innovation and creativity by eliminating certain forms of imitation and unauthorized use. Antitrust law promotes dynamic competition and consumer welfare by prohibiting certain conduct by market participants that unreasonably constrains the competitive process").

[8] *See* Jonathan M. Barnett, Innovators, Firms and Markets: The Organizational Logic of Intellectual Property (Oxford University Press, 2021), especially Chapter 7: Why Incumbents (Usually) Prefer Weak Intellectual Property Rights.

activity must have a good idea of what is patentable. A lack of such clear notice generates uncertainty about the scope of the patent right. It therefore reduces patents' pro-competitive role because it may discourage inventors from dedicating innovative efforts in fields where the availability of patents is in doubt. Thus, competition and innovation in such fields can be expected to be less robust, to the detriment of consumers. For this reason, antitrust luminaries have called for clarification of § 101 of the Patent Act to ensure that the competitive process is not curtailed.[9] Ericsson agrees with this call from its first-hand experience described in this response.

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:

Ericsson innovates in many different emerging technological areas, including artificial intelligence, machine learning, media coding, virtual/augmented/extended reality, IoT, quantum technologies, and green technologies. As mentioned above, Ericsson has faced challenges obtaining U.S. patent protection on certain inventions, due to § 101 eligibility, in a wide range of technological fields, including in media coding, digital rights management, and network security. The challenge in obtaining robust U.S. patents on any of these or other emerging technologies, of a similar scope to their foreign counterparts, negatively affects the ability to utilize patents and obtain a fair return on R&D.

Artificial intelligence is an excellent specific example. As recognized by the USPTO, "[t]he broad scope of new products and services that build on AI technologies suggests that AI has the potential to fundamentally change how people perceive the world around them and live their daily lives…[which] is the essence of technological progress, and realizing these changes happens through innovation."[10] Ericsson certainly agrees, as AI is creating busines value in terms of improved performance, higher efficiency, enhanced customer experience as well as creating new business models and use cases for 5G, IoT, and enterprise. Lack of clarity and uncertainty on § 101 eligibility could allow other countries to command a greater share of the market because of a void in U.S. policy. As a consequence, the inability to secure patent rights could increasingly force the market to be guided by the policies of other countries taking the lead.

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.

For any given invention, Ericsson usually seeks patent protection in multiple countries. As mentioned above in Question 2(a), in some instances we have faced subject matter eligibility rejections in the U.S. for inventions where eligibility concerns are never even raised in China, Japan, Korea, and Europe. Many of these cases face the same art-based challenges across jurisdictions. It is extremely frustrating to overcome prior art challenges and obtain claims that are deemed patentable by every other jurisdiction, only to continue to face ambiguous § 101 challenges in the U.S.

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[9] *See* Alen Abbott, then General Counsel, Federal Trade Commission, 101 Confusion Threatens Competitive Process (March 25, 2019). Available at https://www.ipwatchdog.com/2019/03/25/alden-abbott-u-s-federal-trade-commission-101-confusion-threatens-competitive-process/id=107673/

[10] Inventing AI: Tracing the diffusion of artificial intelligence with U.S. patents. Available at https://www.uspto.gov/sites/default/files/documents/OCE-DH-AI.pdf

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.

Please see the example cases highlighted in Question 2(a). In some of those cases, a U.S. patent ultimately granted, but with amended claims from what was granted in other 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.

The understated value of a patent is that it allows for new technologies to be made available to the public. The filing of a public patent application makes that technology known to the world. While the right to use that technology is exclusive when protected by a patent, other innovators are free to learn and build off of the shared knowledge around the created technology. In many ways, the filing of a patent allows for an open and transparent process. Without the ability to protect key technologies due to ambiguous and unpredictable § 101 challenges, innovators will be less likely to publish and share new technologies, hindering research and development and a sharing of knowledge through healthy technology transfer programs (as is currently done with many universities). As a consequence, more companies will rely on trade secrets to protect valuable technology, which could lead to less sharing of valuable technologies, fewer new entrants to foster new innovation, and vulnerabilities in security due to lack of disclosure.[11]

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.

Ericsson often must make strategic, cost-based decisions to abandon patent applications during prosecution or before the payment of maintenance fees. As mentioned above, the inability to overcome ambiguous § 101 challenges during prosecution and the unpredictability of ambiguous § 101 challenges in courts often factor into these decisions.

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.

As shown in the answer to Question 2(b), Ericsson has clearly seen the effects patent eligibility jurisprudence on U.S. patent litigation. All patent litigation requires a significant investment of time, money, and resources, and the unpredictability under the current jurisprudence will lead to wasted resources for all parties involved.

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[11] *See, e.g.,* Jonathan Barnett, "How Patents Enable Mavericks and Challenge Incumbents" (January 24, 2021), available at https://www.ipwatchdog.com/2021/01/24/patents-enable-mavericks-challenge-incumbents/id=129310/

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.

As several reputable and knowledgeable commentators have pointed out[12], the current state of eligibility impacts the global strength of the U.S. patent system and the U.S. economy as a whole. The current eligibility jurisprudence is viewed by many as unpredictable. If this status remains, innovators are less likely to invest in U.S. patent protection or the U.S. economy. We strongly applaud the efforts taken by the USPTO and leaders in the U.S. Senate, including Senators Tillis, Hirono, Cotton, and Coons, to provide guidance and reform in this area. Without legislative change, unpredictability of U.S. eligibility jurisprudence is unlikely to improve.

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

We believe that the strength of the U.S. patent system and the U.S. economy go hand-in-hand. As reported by the USPTO, "On September 26, 2016, the U.S. Commerce Department released a comprehensive report, 'Intellectual Property and the U.S. Economy: 2016 Update,' which found that IP-intensive industries support at least 45 million U.S. jobs and contribute more than $6 trillion dollars to, or 38.2 percent of, U.S. gross domestic product (GDP)."[13] Other studies have shown that countries with strong, effective patent protection have significant advantages in attracting investment, producing innovation, and increasing competitiveness. For instance, those countries with effective patent protection are 39% more attractive to foreign investment, have 26% greater global competitiveness, have 6 times more high-skilled researchers, and are 70% more likely to produce more innovative output than other countries.[14] Thus, any negative effects of the current eligibility jurisprudence will directly impact the U.S. economy as a whole.

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?

As highlighted throughout this response, Ericsson believes that increased clarity and predictability in U.S. patent eligibility are keys to sustaining innovation, investment, and patents. This in turn benefits society at large. As just one example, the telecom industry that Ericsson is a part of relies heavily on the patent system,

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[12] *See, e.g.,* Testimony of Judge Paul R. Michel before the Subcommittee on Intellectual Property, U.S. Senate Committee on the Judiciary, "The State of Patent Eligibility in America: Part I" (June 4, 2019), available at https://www.judiciary.senate.gov/imo/media/doc/Michel%20Testimony.pdf; Adam Mossoff, "Congress Should Reform Patent Eligibility Doctrine to Preserve the U.S. Innovation Economy (January 8, 2020), available at https://www.heritage.org/economic-and-property-rights/report/congress-should-reform-patent-eligibility-doctrine-preserve-the; Kevin Madigan and Adam Mossoff, "Turning Gold to Lead: How Patent Eligibility Doctrine is Undermining U.S. Leadership in Innovation (April 13, 2017), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2943431

[13] Available at https://www.uspto.gov/learning-and-resources/ip-motion/intellectual-property-and-us-economy

[14] *See, e.g.*, "Art of the Possible," U.S. Chamber International IP Index, 8th ed. (2020), p. 20; available at https://www.uschamber.com/sites/default/files/023881_gipc_ip_index_2020_fullreport_final.pdf

and through patents and licensing, entire ecosystems have been created. The level of competition, the decreased cost to consumers, and performance improvements are testament of the dynamism of the industry and the benefits of patents.[15]

Conclusion

Thank you for your consideration of our comments. We look forward to continuing to work together to improve the U.S. patent system for the benefit of technology innovators, technology users, and the entire U.S. economy.

Best regards,

Brian Kearns
Director – Patent Unit U.S.A.
Ericsson

Matteo Sabattini
Director of IP Policy
Ericsson

[15] *See* "Transparency in telecom and the trade of knowledge", available at https://www.ericsson.com/en/blog/2021/9/transparency-in-telecom