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Patent Working Requirements: Historical and Comparative Perspectives

Marketa Trimble*

At the beginning of the twentieth century, commentators referred to patent working requirements as the most contentious contemporary concept in patent law, and working requirements were at the center of discussions about revisions to the Paris Convention. By the end of the twentieth century it seemed that working requirements attracted less attention; the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) did not expressly mention working requirements at all. However, some TRIPS provisions do arguably relate to such requirements; in fact, some commentators believe that the TRIPS Agreement prevents countries from maintaining such requirements, at least in some forms. Although the lack of interest in working requirements might suggest that the requirements are no longer important, national patent systems continue to struggle with the question reflected in the requirements: whether the rights of a patent owner should be limited (and if so, under what conditions) when the patent owner does not practice his invention at all, or does not practice it sufficiently.

This Article discusses the origins and development of patent working requirements and examines the rationales for, and purposes of, the requirements. This Article points out the links and interactions between working requirements and the other components of patent systems and shows that all of the components, including working requirements, serve to calibrate the systems to the particular needs of individual countries, including the needs of their complex legal systems. To the extent that international patent law harmonization continues to allow some leeway for countries to calibrate their national patent systems according to their differing national needs, and to the extent that international law has not foreclosed countries' rights to

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introduce and maintain working requirements, countries should use working requirements to best serve the purposes of their own patent systems.

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INTRODUCTION

A patent working requirement (“working requirement”) is a component of many, though not all, national patent systems. A working requirement is a provision of a national patent statute that states that an owner of a patent must practice his or her patented invention (i.e., to manufacture or import the invention) within the country that granted the patent. Many variations of the requirement exist among the diverse national patent systems, and the various national requirements have evolved over time. Countries have differed, and continue to differ, in their definitions of a sufficient working of a patent and the proper territorial scope of the working of a patent, the circumstances under which they will excuse the nonworking of a patent, the period they mandate as the period within which the working must occur, and the sanctions that they will impose for the nonworking of a patent.¹ This Article discusses the history and features of patent working requirements from a comparative perspective and suggests that patent working requirements not be evaluated in isolation, but only in the context of the national patent systems in which they operate.

Working requirements have been the subject of negotiations on international patent cooperation since the nineteenth century, but interest in the requirements

1. For comparative literature on patent working requirements from different periods, see, for example, ALFRED CARPMAEL & EDWARD CARPMAEL, PATENT LAWS OF THE WORLD: COLLECTED, EDITED, AND INDEXED (William Clowes & Sons 2d ed., rev. 1889); DAVID FULTON, A PRACTICAL TREATISE ON PATENTS, TRADE MARKS AND DESIGNS, WITH A DIGEST OF COLONIAL AND FOREIGN PATENT LAWS 167–246 (Jordan & Sons 17th ed. 1894); ADOLF KRAETZER, DER AUSFÜHRUNGSZWANG IM PATENTRECHT (1910); STEPHEN P. LADAS, PATENTS, TRADEMARKS, AND RELATED RIGHTS: NATIONAL AND INTERNATIONAL PROTECTION 425–29 (HARVARD UNIV. PRESS 1975); K. SCHROETER & R. POSCHENRIEDER, DER AUSÜBUNGSZWANG IN DER PATENTGESETZGEBUNG ALLER LÄNDER (M. Millenet 1934); JAN VOJÁČEK, A SURVEY OF THE PRINCIPAL NATIONAL PATENT SYSTEMS 59–63 (Prentice-Hall, Inc. 1936); Thomas Cottier, Shaheez Lalani & Michelangelo Temmerman, Use It or Lose It: Assessing the Compatibility of the Paris Convention and TRIPS Agreement with Respect to Local Working Requirements, 17 J. INT’L ECON. L. 437, 461–71 (2014); Hans Peter Kunz-Hallstein, Verschärfter Ausübungszwang für Patente? GRUR INT’L 234, 352 (1981); Bernard Olcott, Realistic Aspects of Working Foreign Patents, 45 J. PAT. OFF. SOC’Y 315 (1963); Nicholas A. Vonneuman, Conditionally Exclusive Patent Rights and the Patent Clause of the Constitution, 5 AM. J. COMP. L. 391, 397–407 (1956).

has fluctuated over time.² Today, two factors fuel an interest in working requirements: First, working requirements have been considered and used as a means through which developing and least-developed countries might mitigate some of the negative effects of the increased level of patent protection that these countries introduced under the pressure of international harmonization. Second, working requirements have attracted the attention of scholars who seek tools to combat the phenomenon of undesirable patent enforcement practices in the United States by the so-called patent assertion entities, who often, though not always, are nonpracticing entities³—entities that do not practice the patents that they strive to enforce.⁴ Because current U.S. patent law does not include a general patent working requirement per se,⁵ commentators have examined other national patent laws for examples of, and models for, such a requirement.⁶ This Article complements the existing literature on working requirements by providing insights into the larger context in which national versions of patent working requirements have evolved.

This Article does not attempt to determine whether patent working requirements in general, or in any particular permutations, comply with the TRIPS Agreement⁷ or other obligations that countries may have. Some commentators believe that the TRIPS Agreement requires that countries abolish or amend their working requirements; the TRIPS Agreement does not specifically address working

2. LADAS, *supra* note 1, at 519–20; EDITH TILTON PENROSE, *THE ECONOMICS OF THE INTERNATIONAL PATENT SYSTEM* 45–57 (1951).

3. *Cf.* Apple Inc. v. Samsung Electronics Co., Ltd., 809 F.3d 633 (Fed. Cir. 2015).

4. *E.g.*, Maayan Perel, *From Non-Practicing Entities (NPEs) to Non-Practiced Patents (NPPs): A Proposal for a Patent Working Requirement*, 83 U. CIN. L. REV. 747 (2015) (proposing a working requirement); Daniel Tagliente, *Shooting Blanks: The Ineffectiveness of the Executive Branch's Entrance into the Great Patent Troll Hunt*, 45 SETON HALL L. REV. 311 (2015) (advocating for a working requirement). These are not the first instances in which commentators have discussed the possibility and desirability of introducing working requirements into the U.S. patent system. *See, e.g.*, WILLIAM OLDFIELD, *REPORT ON THE REVISION OF PATENT LAWS: TO ACCOMPANY H.R. 23417*, H.R. REP. NO. 62-1161 (1912); Cole M. Fauver, *Compulsory Patent Licensing in the United States: An Idea Whose Time Has Come*, 8 NW. J. INT'L L. & BUS. 666, 673 (1988); Timothy W. Hagan & Steven J. Henry, *Is a Compulsory Licensing Statute Necessary? A Study of the U.S. and Foreign Experience*, 7 LAW & POL'Y INT'L BUS. 1207 (1975); Floyd W. Vaughan, *Suppression and Non-Working of Patents, with Special Reference to the Dye and Chemical Industries*, 9 AM. ECON. REV. 693, 700 (1919).

5. *See infra* notes 26–28. On the one period during which the working requirement was imposed in the United States, *see infra* note 22 and accompanying text.

6. Some proposals are not for working requirements, but have features that resemble such requirements. *E.g.*, Martin J. Adelman, *Property Rights Theory and Patent-Antitrust: The Role of Compulsory Licensing*, 52 N.Y.U. L. REV. 977, 1002, 1002 n.83 (1977); Amanda Frye, *"Inextricably Commingled": A Restitution Perspective in Patent Remedies*, 26 HARV. J.L. & TECH. 669, 692–93 (2013); John M. Golden, *"Patent Trolls" and Patent Remedies*, 85 TEX. L. REV. 2111, 2155 (2007); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007); Oskar Liivak, *When Nominal Is Reasonable: Damages for the Unpracticed Patent*, 56 B.C. L. REV. 1031, 1062 (2015); Oskar Liivak & Eduardo M. Peñalver, *The Right Not To Use in Property and Patent Law*, 98 CORNELL L. REV. 1437, 1451 (2013); Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could A Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. PA. L. REV. 1309, 1351, 1357 (2013); Ted Sichelman, *Commercializing Patents*, 62 STAN. L. REV. 341, 345 (2010).

7. Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Apr. 15, 1994, 1869 U.N.T.S. 299 [hereinafter TRIPS Agreement].

requirements but includes provisions that some commentators interpret as prohibiting or limiting such requirements.⁸ Whether or not this interpretation is correct is open to discussion.⁹ The World Trade Organization (WTO) dispute between the United States and Brazil that concerned a working requirement was settled, and therefore the case, which could have clarified whether the requirements comply with the TRIPS Agreement, produced no binding opinion on the issue.¹⁰

This Article argues that to the extent that international obligations do not currently prevent, or will not prevent in the future, countries from introducing and maintaining patent working requirements, countries should use the requirements where necessary and appropriate to calibrate their national patent systems to best serve their needs. Needs, in this context, are not only the economic and social needs of individual countries, which certainly shape the goals pursued in national patent laws; access to medicines, for example, and other policy goals might be of greater concern in some countries more than in others. It is upon individual countries to defend their interests when they negotiate and enter into international obligations.¹¹

Other needs include the structural needs of countries' legal systems; one legal system might operate with an internal consistency that requires certain components of the patent system to be shaped in one particular manner to achieve the goals of the system, while the same components might be ineffective or superfluous for the achievement of the same goals in another national legal system. Therefore, some countries might address the nonworking of patents by employing different components of their legal systems, while other countries, also to address the nonworking of patents—and to avoid a substantial overhaul of their legal systems—might rely on working requirements to achieve the same end.

This Article begins first with an overview of the history of patent working requirements, highlighting the features of their developments in the national laws of various countries and also in international patent law negotiations. Second, this Article discusses the goals that patent working requirements were designed to achieve; these goals have changed over time as countries rearrange the priorities of their goals. Third, this Article analyzes the relationships between patent working requirements and other components of national patent systems, and the interactions of the patent working requirement with these other components.

8. NUNO PIRES DE CARVALHO, *THE TRIPS REGIME OF PATENT RIGHTS* 198 (2d ed. 2005).

9. See Max Planck Inst. for Innovation & Competition, *DECLARATION ON PATENT PROTECTION: REGULATORY SOVEREIGNTY UNDER TRIPS* 9–10, <https://www.mpg.de/8132986/Patent-Declaration.pdf> (last visited Oct. 29, 2015).

10. Request for Consultations by the United States, *Brazil—Measures Affecting Patent Protection*, WTO Doc. WT/DS199/1 (June 8, 2000).

11. Whether countries actually can influence the result of international negotiations is a separate question; many factors can determine or influence a country's ability to defend its economic and social needs in negotiations of international instruments on intellectual property law.

I. HISTORICAL DEVELOPMENT

The first working requirements implemented by countries were consistent with the countries' initial approaches to their patent systems, which were guided by the notion that patents were expected to serve domestic industry.¹² This notion led some countries to discriminate against foreigners, for example, by denying them the possibility to obtain patents. For instance, in the United States, there was a period of time in which foreigners could not obtain a U.S. patent at all, or only with difficulties.¹³

The practice of denying patents to foreigners largely began to disappear starting in the mid-1800s; the 1883 Paris Convention for the Protection of Industrial Property (“the Convention”)¹⁴ introduced the principle of national treatment, and the 1911 revision of the Convention prohibited countries from requiring foreign patentees to establish residence in a country as a condition of a patent grant by that country.¹⁵ Nevertheless, many countries continue, as a remnant of the old practice, to maintain provisions in their patent laws that show their preferences for patent applicants to first file for a patent locally.¹⁶

The interest in promoting domestic industry also prompted countries to impose a working requirement to ensure that the patented invention was practiced locally. A patent owner who failed to work his patent in the country that granted

12. A German author commented on the English view of patent law in 1839: “England justifiably views its patent law as a guarantee that no invention . . . will be lost for the country, but instead it must contribute—and with all potential of which it is able—to the welfare and progress of the domestic industry. In the recent years . . . progressive governments have adopted the same opinion.” FRIEDRICH GEORG WIECK, *GRUNDSÄTZE DES PATENTWESENS* 6 (1839) (translation by author). For the similar motivations of the Framers of the U.S. Constitution, see Camilla A. Hrdy, *State Patent Laws in the Age of Laissez-Faire*, 28 *BERKELEY TECH. L.J.* 45, 98 (2013).

13. Act of Feb. 21, 1793, ch. 11, § 1, 1 Stat. 318, 318, 321 (1793) (repealed 1836). Starting in 1800, however, patents could be granted to “[a]liens who at the time of petitioning . . . [for a patent] resided for two years within the United States.” Act of Apr. 17, 1800, ch. 25, § 1, 2 Stat. 37, 38 (1800) (repealed 1836). The Act of 1832 also permitted an alien to petition for a patent if “[a]t the time of petitioning for a patent, [the alien] shall be resident in the United States, and shall have declared his intention, according to law, to become a citizen thereof.” Act of July 13, 1832, ch. 203, 4 Stat. 577, 577 (1832) (repealed 1836). In 1836, Congress repealed all previous patent laws, removing the limitations. Act of July 4, 1836, ch. 357, §§ 6, 21, 5 Stat. 117, 119, 125 (1836) (repealing ch. 11, Act of Feb. 21, 1793; ch. 25, Act of Apr. 17, 1800; ch. 203, Act of July 13, 1832) (codified at 35 U.S.C. §§ 1-329 (1952)); *see also* ALBERT HENRY WALKER, *TEXT-BOOK OF THE PATENT LAWS OF THE UNITED STATES OF AMERICA* 591, 597, 601, 604–05 (4th ed. 1904).

14. Paris Convention for the Protection of Industrial Property, Mar. 20, 1883, 21 U.S.T. 1629, 828 U.N.T.S. 305 [hereinafter Paris Convention].

15. *Id.* art. 2(2); GEORG HENDRIK CHRISTIAAN BODENHAUSEN, *GUIDE TO THE APPLICATION OF THE PARIS CONVENTION FOR THE PROTECTION OF INDUSTRIAL PROPERTY AS REVISED AT STOCKHOLM IN 1967*, at 31 (WIPO 2007).

16. Countries differ in their requirements of patent applicants to first apply locally for patents based on the type of invention and the circumstances of the patent application. *See, e.g.*, 35 U.S.C. § 184(a) (2012); Decision of the Standing Committee of the National People's Congress on Amending the Patent Law of the People's Republic of China (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 27, 2008, effective Oct. 1, 2009), art. 20, 2008 Falü Huibian, http://www.npc.gov.cn/englishnpc/Law/2011-02/15/content_1620619.htm [<https://perma.cc/8H74-Q2BE>]; Patents Act 1977, c. 37, § 23 (UK).

the patent faced a forfeiture of the patent, or later, when forfeiture was replaced by compulsory licensing, a compulsory license for the patent.¹⁷ Working requirements that were a manifestation of countries' concerns for their domestic industry and also a manifestation of the other goals of their national patent systems proved to be much more durable than the provisions that denied patents to foreigners. The working requirements, albeit with amendments, survived the Convention and its several revisions and exist in many countries to this day.

The working requirement concept predates modern patent systems and originates in the medieval privileges—royal patents that sometimes granted privileges to foreigners who would teach their art to the country's population. For example, in a patent that Edward III granted in 1331 to Johannes Kempe from Flanders, “the King promised similar privileges to all others who would settle in Great Britain and Ireland, and teach their arts to those willing to learn.”¹⁸ It was important for countries to see their local populations learn from the patent holder; even if the patent holder left the country after the patent expired, the country could continue to benefit from the newly acquired knowledge and skill.¹⁹ Later patents provide evidence that the requirement was maintained, but also that it developed over time:²⁰ late sixteenth century English patents included a threat of invalidation if the patent was not practiced, and an English patent from 1639 included a requirement—notably consistent with later formulations of the working requirement—that the patent be worked within three years, otherwise it would be invalidated.²¹

After modern national patent systems had been created to protect inventions, many of the systems imposed various versions of the working requirement at different times. For example, U.S. law never required that U.S. nationals work their patents, but for a short period of time from 1832 to 1836 the U.S. Patent Act did include a working requirement for patent owners who were foreigners.²² Later, when the existence of a patent working requirement was questioned in the context

17. See, e.g., Oesterreichisches Patentgesetz 1852 [Austrian Patent Act of 1852] REICHSGESETZBLATT [R.G.B.L.] § 3, reprinted in 1 BENJAMIN VAUGHAN ABBOTT, THE PATENT LAWS OF ALL NATIONS: ALGERIA—TURKEY 15, 16 (Washington, Charles R. Brodix 1886) [hereinafter PATENT LAWS OF ALL NATIONS]; Octrooiwet [Patent Act] of May 24, 1854, BELGISCH STAATSBAD [B.S.] [Official Gazette of Belgium], May 25, 1854, art. XXIII, reprinted in PATENT LAWS OF ALL NATIONS at 46 [hereinafter Patent Act of Belgium]; Loi du 5 juillet 1844 sur les brevets d'invention [Law of July 5, 1844 on Patents for Inventions], PÉRIODIQUE ET CRITIQUE [D.P. III], July 5, 1844, art. 32(2) (Fr.), reprinted in PATENT LAWS OF ALL NATIONS at 190.

18. ERNEST LUNGE, COMPULSORY WORKING AND REVOCATION OF PATENTS 2 (1910).

19. *Id.* at 5.

20. PENROSE, *supra* note 2, at 2–3, 9, 138–39.

21. STEPHEN VAN DULKEN, BRITISH PATENTS OF INVENTION, 1617–1977: A GUIDE FOR RESEARCHERS 41 (The British Library, 1999). For other early examples of working requirements, see Frank I. Schechter, *Would Compulsory Licensing of Patents Be Unconstitutional?*, 22 VA. L. REV. 287, 299–304 (1936); Vonneuman, *supra* note 1, at 397–98, 401.

22. Act of July 13, 1832, ch. 203, 4 Stat. 577 (1832) (repealed 1836); see also Golden, *supra* note 6, at 2123 n.50. For attempts to reintroduce the working requirement for foreign patent owners, see S. 1838, 67th Cong. (1921); S. 3325, 67th Cong. (1922).

of equitable considerations, the U.S. Supreme Court in 1908 confirmed that no patent working requirement had existed in U.S. law since 1836. The Court concluded that Congress knew of working requirements that existed in other countries and consciously opted to adopt and maintain a different policy.²³ Repeated attempts thereafter failed to introduce a general scheme for compulsory licensing into U.S. patent law for nonworking.²⁴ In 1988, Congress confirmed that a refusal to license or use rights to a patent is not grounds for the denial of relief to a patent owner for infringement; such a refusal is not sufficient to deem the refusal an instance of patent misuse.²⁵ While some components of the current U.S. patent system encourage patent working,²⁶ and provisions do exist for a limited compulsory licensing of patents,²⁷ the U.S. patent system does not include a general patent working requirement per se.²⁸

Given the original rationale for the working requirement, it is not surprising that countries initially did not permit the working requirement to be satisfied through an importation of goods. Instead, the working requirement mandated the manufacturing of the goods in the country that granted the patent.²⁹ But countries relaxed their approach to importation as it became clear that not all patented inventions could be—practicably or economically—manufactured locally. A number of countries introduced a system of importation patents that permitted a patent owner to import patented inventions from another country where the owner

23. *Continental Paper Bag Co. v. E. Paper Bag Co.*, 210 U.S. 405, 429 (1908). On the “right not to use” in general and the *Continental Paper Bag* decision in particular, see Liivak & Peñalver, *supra* note 6, at 1444.

24. See *Hartford-Empire Co. v. U.S.*, 323 U.S. 386, 433 n.26, 433 n.27, *clarified in* 324 U.S. 570 (1945); Armin Herz, *Compulsory Licensing*, 28 J. PATENT OFFICE SOC’Y 889 (1946); OLDFIELD, *supra* note 4; Schechter, *supra* note 21, at 288–91. For examples of U.S. bills that included a working requirement, see H.R. 9304, 81st Cong. (1950); S. 2491, 77th Cong. (1942); H.R. 6864, 75th Cong. (1937); S. 3474, 69th Cong. (1926); S. 3297, 67th Cong. (1922); S. 1838, 67th Cong. (1921) (foreign-owned patents); H.R. 19188, 63d Cong. (1914); H.R. 1700, 63d Cong. § 1 (1913); H.R. 23193, 62d Cong. § 17 (1912).

25. 35 U.S.C. § 271(d) (2012); see also *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1547–48, (Fed. Cir. 1995) (en banc) (discussing patents in exchange for disclosure rather than use).

26. U.S. law includes some provisions that incentivize patent working and de facto sanction non-working. See, e.g., 19 U.S.C. § 1337(a)(3) (2012); *In the Matter of Certain Multimedia Display and Navigation Devices and Sys., Components Thereof, and Prods. Containing Same*, ITC, 337-TA-694, July 22, 2011; *Certain Optical Disc Drives, Components Thereof, & Prods. Containing Same*, ITC, 337-TA-897, July 17, 2014. For patent working in considerations of equitable remedies, see *Foster v. Am. Mach. & Foundry Co.*, 492 F.2d 1317, 1324 (2d Cir. 1974), *cert. denied*, 419 U.S. 833 (1974).

27. 7 U.S.C. § 2404 (2012); 22 U.S.C. § 2572 (2012); 28 U.S.C. § 1498 (2012); 35 U.S.C. § 203 (2012) (march-in rights); 35 U.S.C. § 204 (2012) (preference for U.S. industry); 35 U.S.C. § 209(b) (2012) (manufacture in the United States of licensed federally-owned inventions); Clean Air Amendments of 1970, 42 U.S.C. § 1857(h)(6) (1970) (transferred to 42 U.S.C. § 7608 (2012)); Atomic Energy Act, 42 U.S.C. § 2183 (2012); 50 U.S.C. § 167 (2012).

28. Two examples of post-1988 bills with working requirements are H.R. 4151, 103d Cong. (1994) (for patents “of vital importance to the public health or welfare . . .”); H.R. 2927, 106th Cong. (1999) (for patents that are necessary to “alleviate health or safety needs”).

29. Patent Act of Belgium, *supra* note 17, 38 fol., at 41.

held a patent on the same invention;³⁰ some of these countries issued these importation patents only for inventions that were considered deserving of special treatment because of the patented inventions' importance.³¹ Later, some countries entered into agreements that enlarged the territorial scope for patent working. Based on these agreements, working in any of the countries-parties to an agreement satisfied the working requirement in all the countries, which sometimes, although not always, led to the importation of an invention from one of the countries into another.³² And eventually, most countries recognized that the working requirement could be satisfied through importation.³³

From the beginnings of international negotiations on industrial property protection, working requirements were a hotly debated topic, and international negotiations turned to the appropriate remedy (*vis-à-vis* society) or sanction (*vis-à-vis* the patent owner) for the nonworking of a patent. While at the 1873 Vienna Conference the discussions concerned compulsory licensing as a remedy,³⁴ at the 1878 Paris Conference the discussions turned away from compulsory licensing—apparently because of the influence of the French delegation, which insisted that compulsory licensing was contrary to the natural rights theory on which French patent law had been built.³⁵ Because compulsory licensing (imposed for any reason) was interpreted as a potential violation of the absolute right to property that should be enjoyed by the patent owner,³⁶ expropriation of a patent in the public interest was instead promoted as the only acceptable remedy in light of the theory.³⁷

When the Paris Convention was signed in 1883, it stated that “the patentee [was to] remain bound to work his patent in conformity with the laws of the country into which he introduces the patented objects.”³⁸ As for importation, the Convention prohibited forfeiture as the sanction for the importation of a patented invention, as long as the invention was manufactured in a country of the Paris Union

30. See PATENT LAWS OF ALL NATIONS, *supra* note 17, fol. 139 at 140–41. A similar provision was included in the 1853 Patent Regulation of Sachsen but only in relation to the other states of the German Union. Importation patents survived the Paris Convention, and in the 1970s, there were still several countries that granted importation patents. See LADAS, *supra* note 1, at 375–77.

31. For instance, section 2 of the Patent Act of Bayern made it a condition for granting an importation patent that the invention has “a generally beneficial impact.” EDUARD STOLLE, DIE EINHEIMISCHE UND AUSLÄNDISCHE PATENTGESETZGEBUNG ZUM SHUTZE GEWERBLICHER ERFINDUNGEN 27 (1855).

32. See *infra* note 59 and accompanying text.

33. Some national laws continued to show the countries' preference for local manufacturing. See, e.g., Patents Act 1949, 12, 13 & 14 Geo. 6 c. 87, § 37 (UK) (allowing for a compulsory license, *i.e.* when the demand for a patented invention was met only through importation); see also *infra* notes 82–86, 97, 98 and accompanying text for developments in the United Kingdom, India, and Brazil.

34. THOMAS WEBSTER, CONGRÈS INTERNATIONAL DES BREVETS D'INVENTION TENU À L'EXPOSITION UNIVERSELLE DE VIENNE EN 1873 58–61 (1877).

35. PENROSE, *supra* note 2, at 51–52.

36. *Id.*

37. *Id.*

38. Paris Convention art. 5(A)(2), 1883.

(a party to the Paris Convention);³⁹ however, the Convention did not address the question whether importation satisfied national working requirements.

The acknowledgment in the Paris Convention of the existence of national working requirements was not without its opponents; even before the Convention was signed in 1883, four countries opposed the provision.⁴⁰ A few countries sought to enlarge the territorial scope of the working that was required: at the 1886 Rome Conference, Belgium and Italy proposed that a working in one of the countries of the Paris Union should satisfy any working requirements that the national laws of any of the countries imposed,⁴¹ and at the 1890 Madrid Conference, the United States again introduced the proposal.⁴² Other countries advanced their own visions for amendments to the Convention with regard to working requirements. France, which at the time did not permit its working requirement to be satisfied by importation, proposed in 1886 that the Convention be amended to allow countries to prohibit importation.⁴³ At the 1890 Madrid Conference, Sweden and Norway proposed that compulsory licensing be introduced as the remedy for nonworking.⁴⁴ Ultimately, in the Final Protocol to the 1900 Brussels Revision of the Convention, the signatory countries agreed that a forfeiture for nonworking could not occur before three years from the filing of a patent application and could occur only if a patent owner could not justify the nonworking.⁴⁵

By the beginning of the twentieth century, working requirements were perhaps the most contentious issue of international patent law negotiations. While some countries seemed at that time to be relaxing their working requirements, the United Kingdom tightened its working requirement in 1902 by allowing the revocation of a patent for nonworking not only if “[t]he patent [was] not being worked in the United Kingdom,”⁴⁶ but also “[i]f . . . the patent [was] worked . . . exclusively or *mainly*, outside the United Kingdom,”⁴⁷ and a 1907 amendment simplified the procedure for the revocation of a patent.⁴⁸ The amendments attracted harsh

39. Paris Convention art. 5(A)(1), 1883.

40. The countries were Belgium, the United Kingdom, Russia, and Turkey. PENROSE, *supra* note 2, at 79; LADAS, *supra* note 1, at 519.

41. PENROSE, *supra* note 2, at 79–81.

42. *Id.* at 81.

43. *Id.* at 76.

44. *Id.* at 81.

45. Paris Convention, as revised at Brussels on Dec. 14, 1900.

46. Patents, Designs, and Trade Marks Act, 1883, 46 & 47 VICT. c. 57 § 22(a).

47. Patents Act, 1902, 2 Edw. 7 c. 34 art. 3 (amending § 22(5) of the Patents, Designs, and Trade Marks Act, 1883) (emphasis added); see Marks & Clerk, ATTORNEY'S MANUAL ON BRITISH AND FOREIGN PATENTS AND TRADE MARKS 14–416 (1910) (providing additional information about Patents Act, 1902).

48. A commentator in 1908 estimated that “[p]ossibly, because of the cheaper procedure under the present [1907] Act and the new grounds upon which the reasonable requirements of the public are to be deemed not to have been satisfied, applications for compulsory licenses may be more frequent in the future than they have been in the past.” ROBERT FROST, PATENTS AND DESIGNS ACT, 1907: 7 EDW. 7, C. 29. WITH AN APPENDIX OF THE RULES, FORMS, FEES, AND CLASSIFICATION OF GOODS UNDER THE ACT, TOGETHER WITH THE PATENTS AND DESIGNS (AMENDMENT) ACT, 1907, AND EXTRACTS FROM THE INTERPRETATION ACT, 1899 43 (3d ed. 1908).

criticism.⁴⁹ One contemporary commentator charged that “[t]he 1907 Act fundamentally altered the nature of the modern British patent and threw it back into the legal condition of British patents as granted by Elizabeth and the Stuarts.”⁵⁰

The adoption of the 1902 and 1907 British statutes was prompted primarily by concerns about the influence of the German chemical industry in the United Kingdom and its monopolization of an entire industrial sector in the United Kingdom.⁵¹ In a 1904 judgment in a case concerning chemical inventions, a judge of the High Court of Justice rejected the notion that the nonworking of a U.K. patent in the United Kingdom could lead to the revocation of a patent.⁵² The judge suggested that the arguments presented by the defendant in the case would have been “more properly . . . adduced in another place where the law may be made.”⁵³ When Parliament later debated the 1907 amendment to the Patents Act concerning working requirements, members of Parliament noticed that almost half of British patents issued in 1906 were granted to foreigners.⁵⁴

The 1902 and 1907 amendments did not produce the desired results. Applications for patent revocations were indeed filed under the 1907 law, but the applications did not bring the effect on German chemical companies that the amendments intended.⁵⁵ The U.K. law prompted German companies to purchase chemical plants in the United Kingdom, and the companies did not suffer mass revocations of their U.K. chemical patents.⁵⁶ An unintended result was that in response to the U.K. approach, Germany amended its own patent working requirement in 1911; instead of the revocation of a patent only in a case of nonworking (which the law had provided for since 1877),⁵⁷ the newly worded provision adopted the wording of the U.K. Patents Act, imposing revocation if the “invention [was] worked exclusively or *primarily* outside of the German Reich”⁵⁸

49. Patents and Designs Act, 1907, 7 Edw. c. 29 § 24.

50. LUNGE, *supra* note 18, at 28.

51. KNOWLEDGE GOVERNANCE: REASSERTING THE PUBLIC INTEREST 232–33 (Leonardo Burlamaqui et al. eds., 2014).

52. *Badische Anilin und Soda Fabrik v. W. G. Thompson & Co., Ltd.* [1904] EWHC (Eng.), reprinted in REPORTS OF PATENT, DESIGN AND TRADEMARK CASES 21(20), 473, 479 (Intellectual Prop. Office 1904).

53. *Id.*

54. PENROSE, *supra* note 2, at 140. In 1906, a total of 14,707 U.K. patents were granted, of which 6,503 were granted to foreigners; of that latter number, 2,091 were granted to German applicants. MARKS & CLERK, ATTORNEY’S MANUAL ON BRITISH AND FOREIGN PATENTS AND TRADE MARKS 17 (1910).

55. In 1909, the Comptroller-General of Patents, Designs, and Trade Marks reported that 55 applications were filed that year for “the revocation of patents worked exclusively or mainly outside the United Kingdom.” REP. OF THE COMPTROLLER-GENERAL OF PATENTS, DESIGNS, AND TRADE MARKS 9 (1909). According to the statistics from that year, 27 applications were “subsequently abandoned” and 11 applications resulted in the revocation of the patent. *Id.*

56. Vaughan, *supra* note 4, at 693, 696, 600.

57. Patentgesetz [PatG] [Patent Act], May 25, 1877, REICHSGESETZBLATT [RGL] at § 184 (Ger.).

58. Patent Act, 1911, Article 11(2) (emphasis added).

The German chemical industry lobbied heavily for a complete abolition of working requirements both in Germany and abroad. The industry sought to eliminate working requirements in Germany, and Germany, in an attempt to mitigate the impact of the requirements in other countries, concluded a series of bilateral treaties with the United States, Greece, Switzerland, and Austria.⁵⁹ These treaties enlarged the territorial scope of patent working that would satisfy national working requirements; for example, a 1909 agreement between Germany and the United States stated that “[t]he working of a patent . . . in the territory of one of the Contracting Parties shall be considered as equivalent to its working in the territory of the other Party.”⁶⁰ This agreement was concluded at a time when the percentage of U.S. patents granted to foreign applicants, and in particular to German applicants, was rising. Of the U.S. patents issued in 1900–1910, 11.3% were granted to foreign applicants, and of those, 25% were granted to German applicants.⁶¹ In 1910–1915, the latter percentage rose to 33%, and most of the German applicants were in the chemical industry.⁶² Most importantly, in cases of certain types of chemical inventions, German companies owned more than 90% of the patents issued on those types of inventions.⁶³

During the 1911 Washington Conference, Germany and the United States both argued in favor of abolishing working requirements.⁶⁴ However, the idea of a complete abolition of the requirement did not enjoy sufficient support among the other national delegations; the 1911 revision of the Convention restated the 1900 Final Protocol rule that working requirements could result in forfeiture only after three years from the date of the filing of the patent application, and only then in the absence of a justification that would excuse a nonworking.⁶⁵

During the 1925 Hague Conference, only three countries opposed the abolishment of the working requirement.⁶⁶ The resulting Convention text recognized countries’ rights “to take necessary legislative measures to prevent . . . abuses” of patent rights, with “failure to work” being listed as the only example of such abuses.⁶⁷ The text also expressed a preference for compulsory licensing as opposed to forfeiture, as long as a compulsory license would suffice to

59. JAN VOJÁČEK, A SURVEY OF THE PRINCIPAL NATIONAL PATENT SYSTEMS 63 (1936); e.g., Übereinkommen zwischen der Schweiz und Deutschland betreffend den gegenseitigen Patent-, Muster- und Markenschutz [Agreement between Switzerland and Germany concerning the mutual protection of patents, designs and trademarks] [Switz-Ger.], Apr. 13, 1892, RGBL at art. 5 (Ger.); Patents Convention, U.S.-Ger., at 1:578, Feb. 23, 1909, 36 Stat. 2178 [hereinafter Patents Convention].

60. Patents Convention, *supra* note 59.

61. Vaughan, *supra* note 4, at 697.

62. *Id.*

63. *Id.*

64. PENROSE, *supra* note 2, at 82.

65. Paris Convention, as revised at Washington on June 2, 1911, art. 5(A)(2), 1911.

66. The countries were Japan, Poland, and Yugoslavia. PENROSE, *supra* note 2, at 84.

67. Paris Convention, as revised at the Hague on Nov. 6, 1925, art. 5(A)(2); see also PIRES DE CARVALHO, *supra* note 8, at 163 (critiquing proposals to declare non-working an instance of patent abuse).

prevent abuses of patent rights,⁶⁸ and the text maintained in the Convention the three-year period and justification through legitimate excuse.⁶⁹

The 1934 London Conference added a provision stating that the “proceedings for the forfeiture or revocation of a patent may be instituted before the expiration of two years from the grant of the first compulsory license.”⁷⁰ The 1958 Lisbon Conference set a period after which a compulsory license may be requested to “four years from the filing of the patent application or three years from the date of the grant of the patent, whichever period last expires.”⁷¹ The 1958 text also specified that the compulsory license would be non-exclusive and non-transferrable.⁷² The 1958 language concerning patent working requirements remains the current language of the Convention. The 1967 Stockholm Conference extended the applicability of the provisions concerning working requirements to utility models but other than this extension introduced no changes to the provisions concerning working requirements.⁷³

In the late 1970s and early 1980s, developing countries pursued a proposal to amend the provisions of the Convention with regard to working requirements; the proposal would have allowed stricter national working requirements.⁷⁴ Their proposal included a provision according to which importation would not satisfy the working requirement,⁷⁵ and a provision allowing sanctions other than compulsory licenses to be imposed for nonworking.⁷⁶ The proposal would have also allowed developing countries to shorten the period for revoking a patent for nonworking⁷⁷ and to issue exclusive compulsory licenses.⁷⁸ The parties to the Convention contested the proposal,⁷⁹ and the disagreement over the proposal was one of the reasons that this revision of the Convention was not adopted.⁸⁰

In 1992, the working requirements of two European countries, Italy and the United Kingdom, were subject to scrutiny by the Court of Justice of the European Communities when the Court assessed the compatibility of their working

68. Paris Convention, as revised at the Hague on Nov. 6, 1925, art. 5(A)(3).

69. Paris Convention, as revised at the Hague on Nov. 6, 1925, art. 5(A)(4).

70. Paris Convention, as revised at London on June 2, 1934, art. 5(A)(4).

71. Paris Convention, as revised at Lisbon on Oct. 31, 1958, art. 5A(4).

72. *Id.*

73. Paris Convention, as revised at Stockholm on July 14, 1967, art. 5(A)(5).

74. Kunz-Hallstein, *supra* note 1, at 234.

75. Draft Text of Basic Proposal for Paris Convention art. 5A(1)(b), reprinted in Paul S. Haar, *Revision of the Paris Convention: A Realignment of Private and Public Interests in the International Patent System*, 8 BROOK. J. INT'L L. 77, 107 (1982) [hereinafter Draft Text].

76. *Id.* at art. 5(A)(1).

77. Adrienne Catanese, *Paris Convention, Patent Protection, and Technology Transfer*, 3 B.U. INT'L L. J. 209, 221 (1985).

78. *Id.* at 219.

79. *Id.* at 218–22.

80. *Id.* at 218; see Fenton Hay, *Canada's Role in International Negotiations Concerning Intellectual Property Laws*, 8 RES. IN L. AND ECON. 239, 251–56 (providing a detailed description of the eight-year negotiations, including the Nairobi Session).

requirements with European Economic Community law.⁸¹ The Commission of the European Communities had brought the first of the two cases against Italy in 1989 and the second case against the United Kingdom in 1990, claiming that the Italian and U.K. working requirements⁸² violated Article 30 of the Treaty Establishing the European Economic Community,⁸³ which prohibited (and which the equivalent current provision in the European Union still prohibits) “[q]uantitative restrictions on importation and all measures with equivalent effect.”⁸⁴ The Court of Justice held that the working requirement in the Italian and U.K. patent statutes violated Article 30;⁸⁵ the Court rejected arguments put forth in defense of the requirements, including the argument that “the objection to the provisions in question [was] essentially academic since in practice they [were] seldom applied.”⁸⁶

Indeed, the incidence of enforcement of patent working requirements has typically been reported as low. This low incidence might exist for two reasons: First, patents that are economically valuable—patents that are of sufficient economic importance to warrant an attack by competitors for nonworking—are typically not the patents that are not worked, and if valuable patents are not worked, the reason for the nonworking might often excuse the nonworking. Second, many countries have accepted nominal working as sufficient to satisfy the requirement; for example, in some countries, isolated advertisements were found to satisfy the requirement when those advertisements were placed in industry magazines and the advertisements offered to grant licenses to anyone interested.⁸⁷ The voluntary “license of right” mechanism introduced in some countries helps patent owners comply with the working requirement;⁸⁸ a patent owner may request that its patent be designated as “license of right,” meaning that the patent is available to anyone by license, and such a designation protects the patent owner from being attacked for nonworking.⁸⁹

81. See Case C-235/89, *Comm’n v. Italian Republic*, 1992 E.C.R. I-777; Case C-30/90, *Comm’n v. U. K.*, 1992 E.C.R. I-829.

82. Royal Decree No. 1127 of 29 June 1939, as amended by Decree No. 849 of 26 February 1968, art. 52; U.K. Patents Act, 1977, s. 48.

83. See Case C-235/89, *Comm’n v. Italian Republic*, 1992 E.C.R. I-777; Case C-30/90, *Comm’n v. U. K.*, 1992 E.C.R. I-829.

84. Treaty Establishing the European Economic Community, Mar. 25, 1957, art. 34, 298 U.N.T.S. 11; see also Convention for the European Patent for the Common Market, 1973.

85. See Case C-235/89, *Comm’n v. Italian Republic*, 1992 E.C.R. I-777; Case C-30/90, *Comm’n v. U. K.*, 1992 E.C.R. I-829.

86. *Comm’n v. U. K.*, 1992 E.C.R. I-829 at ¶ 15; see Mark Hodgson, *Changes to UK Compulsory Patent Licensing Laws*, 14(6) EUR. INTELL. PROP. REV. 214 (1992) (illustrating developments leading to the case against the United Kingdom).

87. PATENTS THROUGHOUT THE WORLD § 98:17 (Henry D. Teegarden ed., 4th ed. 2015).

88. See *infra* note 160; Patents Act 1949, 12, 13, & 14 Geo. 6, c. 87 § 37 (UK) (demonstrating that involuntary mechanisms described as “licenses of right” may also exist); see also Robert Miller, TERRELL ON THE LAW OF PATENTS ch. 17 §§ 17-23 (17th ed. 2010) (providing commentary on involuntary “licenses of right” in the United Kingdom).

89. See *infra* note 166.

The TRIPS Agreement does not include provisions that specifically address working requirements,⁹⁰ but some commentators have suggested that some of its provisions do affect working requirements, specifically, the provisions that prohibit discrimination based on the place of invention and based on whether the invention is manufactured locally or is imported.⁹¹ Some commentators have argued that patent working requirements violate the TRIPS Agreement;⁹² other commentators have inferred from the Agreement that countries must accept importation as satisfying the working requirement.⁹³ No binding interpretation of the TRIPS Agreement exists that would shed light on the status of working requirements post-TRIPS. The single WTO dispute that concerned the requirements—a dispute between the United States and Brazil—settled without producing a binding opinion.⁹⁴

Many countries today maintain a patent working requirement in some form.⁹⁵ Countries typically accept importation as a form of patent working. In India, the question of importation was recently before its courts, and the Mumbai Controller of Patents—in a decision concerning a compulsory license on a pharmaceutical patent—stated in 2012 that “the Paris Convention and TRIPS Agreement and [Indian] Patents Act, 1970 read together do not in any manner imply that working means importation.”⁹⁶ However, this interpretation was rejected on appeal by the Intellectual Property Appellate Board in 2013, and the High Court of Judicature in the same year confirmed that “worked in India” does not have to “mean only manufactured in India.”⁹⁷ In fact, the “patented invention [may] be worked in the

90. For the history of the TRIPS negotiations with respect to working requirements, see Paul Champ & Amir Attaran, *Patent Rights and Local Working Under the WTO TRIPS Agreement: An Analysis of the U.S.-Brazil Patent Dispute*, 27 YALE J. INT'L L. 365, 373–80 (2002).

91. TRIPS Agreement, *supra* note 7 at art. 27(1).

92. GRAEME B. DINWOODIE & ROCHELLE C. DREYFUSS, A NEOFEDERALIST VISION OF TRIPS: THE RESILIENCE OF THE INTERNATIONAL INTELLECTUAL PROPERTY REGIME 43 (Oxford 2012).

93. DANIEL GERVAIS, THE TRIPS AGREEMENT: DRAFTING HISTORY AND ANALYSIS 433 (4th ed. 2012); PIRES DE CARVALHO, *supra* note 8, at 81, 317. *Cf.* Cottier et al., *supra* note 1, at 460. For arguments that working requirements are in compliance with the TRIPS Agreement, see Michael Halewood, *Regulating Patent Holders: Local Working Requirements and Compulsory Licenses at International Law*, 35 OSGOODE HALL L.J. 243, 282 (1997); Bryan Mercurio & Mitali Tyagi, *Treaty Interpretation in WTO Dispute Settlement: The Outstanding Question of the Legality of Local Working Requirements*, 19 MINN. J. INT'L L. 275, 275-76, 326 (2010); Champ & Attaran, *supra* note 90, at 367, 393; DINWOODIE & DREYFUSS, *supra* note 92, at 43–45.

94. World Trade Organization, *Brazil—Measures Affecting Patent Protection*, WTO Doc. WT/DS199/4, June 19, 2001. For a discussion of the aftermath of the dispute, see Monirul Azam, *The Experiences of TRIPS-Compliant Patent Law Reforms in Brazil, India, and South Africa and Lessons for Bangladesh*, 7 AKRON INTELL. PROP. J. 61, 69–70 (2014).

95. Cottier et al., *supra* note 1.

96. CONTROLLER OF PATENTS MUMBAI, *In re Application for Compulsory License Under Section 84(1) of the Patents Act, 1970 in Respect of Patent No. 215758, Application No. 1 of 2011* 44–45 (Mar. 9, 2012), <http://www.hkindia.com/images/compulsory.pdf> [<https://perma.cc/5NRH-ZK7A>].

97. *Bayer v. Union of India* [High Court of Judicature at Bombay] Writ Petition No. 1323 of 2013 (July 15, 2014), <https://indiankanoon.org/doc/28519340/> [<https://perma.cc/5KSW-Z6YB>]. The decision of the Controller (the compulsory license) was upheld, and the Supreme Court

territory of India by manufacture *or otherwise*.⁹⁸ Article 68 of the Brazilian Patent Act that the United States challenged before the WTO does not recognize importation as a form of working; the Act permits others to import the invention into Brazil if the patent owner only imports the invention into Brazil, but does not manufacture it in there.⁹⁹

II. GOALS OF WORKING REQUIREMENTS

As the historical overview above suggests, patent working requirements were designed to accomplish various goals in different countries at different times. All of these goals can be subsumed under a single heading: “access.” All of the goals strive to provide access to a desired commodity—an entire field of technology, a skill, information about an invention, and/or a patented invention itself—in the country that granted the patent. What has changed throughout the decades is what the particular commodities are that countries consider desirable and what actions have been considered necessary to achieve effective access to the commodities. Inevitably, particular circumstances and needs in individual countries have shaped the specific goals that the countries pursue with their working requirements.

In the earliest days of patents, countries wanted to attract foreign artisans who possessed skills and knowledge that were not available to the local population; these foreign artisans were expected to teach their art locally.¹⁰⁰ The function of the patent holder as a “teacher of the nation”¹⁰¹ was reflected in the patent term, which was based on a typical seven-year apprenticeship term.¹⁰² During this stage of development, it would have been ineffective for countries to rely on the other types of disclosures that the later patent systems introduced in the form of claims, descriptions, and specifications because even a detailed written disclosure would have been insufficient to enable anyone in the country to practice the disclosed invention without being taught the basics of the art by the patent holder. The imported art required new types of skills completely unknown to the local population.¹⁰³

The patents that were originally granted by countries introduced an entire or substantial part of a field of industry to a country,¹⁰⁴ helped develop the skills and

of India dismissed the special leave petition in the case. *Bayer v. Union of India* [Supreme Court of India] petition for special leave to appeal No. 30145/2014 (Dec. 12, 2014).

98. *Id.* (emphasis added); see also Emmanuel Kolawole Oke, *Can Importation Satisfy Local Working Requirements?*, 37(5) EUR. INTEL. PROP. REV. 278 (2015).

99. Law No. 9,279, of May 14, 1996, Article 68(3) & (4) (Braz.).

100. See LUNGE, *supra* note 18 and accompanying text.

101. FELIX DAMME, *DAS DEUTSCHE PATENTRECHT* 8 (1906).

102. *Id.*

103. Carlo Marco Belfanti, *Guilds, Patents, and the Circulation of Technical Knowledge*, 45 TECH. & CULTURE 569, 578 (2004) (“[P]atents were mainly used to reward craftsmen who introduced processes or products unknown in the local context and who, for precisely that reason, rarely entered into conflict with the city craft guilds.”).

104. *Id.* at 570–71, 588–89.

knowledge of the local population,¹⁰⁵ and produced local benefits even after the patent holder had left the country or otherwise ceased to practice the patent.¹⁰⁶ Mere importation of a patented invention would not have produced all these benefits, and compulsory licensing would have been an insufficient penalty for nonworking because there would have been no one in the country to practice the invention, unless there was a competing foreign artisan present. Revocation of the patent under the old patent systems allowed for the possibility of granting the patent to someone else who could utilize and benefit from the monopoly. After the modern patent systems for inventions made novelty an explicit requirement, revocation of the patent could not be followed by a new patent grant on the same invention, but the revocation would lower the cost of entry into the market to attract persons who could then practice the invention in the country.¹⁰⁷

Modern patent systems replaced the working of a patent for the purposes of transfer of information with other forms of disclosure that were sufficient to meet the informational goal.¹⁰⁸ In the United Kingdom in the eighteenth century, “the requirement of compulsory working dropped into desuetude and its place was taken for all practical purposes, in particular in the practice of the law courts, by . . . [the full disclosure] requirement.”¹⁰⁹ Disclosure through actual working became less important for two reasons. First, patents began to be granted on inventions that did not represent an entirely new area of art;¹¹⁰ the inventions were incremental additions to existing art that was already developed in the country or that could have been developed based on knowledge already available in the country. Therefore, a detailed disclosure in a patent application became sufficient for teaching the invention to local industry. Second, patent systems developed sufficiently detailed requirements for the content of patent applications so that the applications sufficiently disclosed (or should have sufficiently disclosed) the information necessary for relevant persons to learn the invention.¹¹¹

Even after the modern patent systems changed to paper disclosure, remnants of working requirements sometimes remained and contributed to the sufficiency of

105. *Id.*; see also LUNGE, *supra* note 18, at 3.

106. *Id.*

107. See LUNGE, *supra* note 18, at 27.

108. As Herbert Hovenkamp points out, the fact that disclosure was secured through other means did not render working requirements superfluous from the perspective of other goals: “Patent disclosure and enablement are intended to facilitate copying of the innovation by others *after* a patent expires. Nonuse during the patent period can still result in removal of the technology from the market for the duration of the patent’s life.” Herbert Hovenkamp, *The Emergence of Classical American Patent Law*, 58 ARIZ. L. REV. 1, 22 (2016).

109. LUNGE, *supra* note 18, at 14; see also PENROSE, *supra* note 2, at 138; Mario Biagioli, *Patent Republic: Representing Inventions, Constructing Rights and Authors*, 73 SOC. RES. 1129, 1135 (2006) (“What changed radically between 1594 and 1790 were not just the *standards* of patent descriptions but what those descriptions were *for*.”).

110. LUNGE, *supra* note 18, at 15–16.

111. *Id.* at 16–17.

disclosure. In the United States, the requirements of enablement and best mode¹¹² evidenced a desire for patent applicants to disclose information important for the actual working of their patents.¹¹³ The actual working of an invention is one of the possible means of reduction to practice.¹¹⁴ The reduction to practice may mark the moment of invention, which for patent applications filed before the effective date of the America Invents Act¹¹⁵ constituted the priority date of inventions.¹¹⁶

From an informational goal perspective, working requirements have also become less important because of the greater accessibility of patent applications published abroad. When cross-border exchanges of information were limited, local patent working was a means of learning about an invention that might have been available and/or described elsewhere but would have been de facto nonexistent for the local population, who could not access the information about the invention. Once sufficient disclosure exists in a country, or once information is accessible from other countries, the pressure for a working requirement diminishes to the extent that “the disclosure and information functions of the patent system [may be] . . . covered through the patent systems of the more technically advanced countries.”¹¹⁷

Working requirements, when they required local manufacture, were designed to support the development of domestic industry. To satisfy the requirement, a patent owner had to build its own manufacturing capacity in the country, utilize existing capacity in the country, or license its invention to someone who could manufacture the invention locally. The requirement that the patented invention be manufactured in the country was also designed to positively impact employment in the country, since local workers would likely be employed to work the invention. A skilled labor force and a manufacturing capacity would be the legacy of the patent working that would benefit the country long after the patent had expired.

The local manufacture rationale for working requirements remains valid in developing and least-developed countries. These countries are being asked to harmonize their patent laws with international standards in line with the theory that stronger patent protection in these countries will enhance the transfer of technology

112. See 35 U.S.C. § 112(a) (2012); ROBERT A. CLARKE, U.S. PATENT AND TRADEMARK OFFICE, MANUAL OF PATENT EXAMINING PROCEDURE ch. 2100, § 2165 (9th ed. 2014), <http://www.uspto.gov/web/offices/pac/mpep/s2165.html>.

113. See Hovenkamp, *supra* note 108, at 21–22.

114. CLARKE, *supra* note 112, § 2138.05 (9th ed. 2014), <http://www.uspto.gov/web/offices/pac/mpep/s2138.html#d0e207753> [<https://perma.cc/LQ67-4G24>] (“For an actual reduction to practice, the invention must have been sufficiently tested to demonstrate that it will work for its intended purpose, but it need not be in a commercially satisfactory stage of development.” (citation omitted)).

115. See Leahy-Smith America Invents Act, Pub. L. No. 112–29, 125 Stat. 284 (codified in scattered sections of 35 U.S.C. (2011)) (changing the U.S. patent system to first-to-file as of Mar. 16, 2013).

116. For a proposal suggesting that an actual reduction to practice be required, see Christopher A. Cotropia, *The Folly of Early Filing in Patent Law*, 61 HASTINGS L.J. 65, 120–22 (2009).

117. Guillermo Cabanellas, *The Consequences of Stricter Working Requirements for Patentees Under the Paris Convention*, 19 I.I.C. 158, 162 (1988).

and know-how into these countries.¹¹⁸ However, such transfers will occur only if patented inventions are manufactured inside the country; importation alone will do little, if anything, to bring about any technology or know-how transfers.¹¹⁹ There are, of course, many reasons why patent owners might opt *not* to manufacture in a particular country—availability of patent protection is only one factor that patent owners might consider.¹²⁰ But if a potential patent applicant plans to manufacture in a country, there seems to be no reason why the existence of a working requirement predicated on local manufacture should dissuade the applicant from applying for a patent and manufacturing in the country. If it is impossible, or if it makes no economic sense to manufacture in a country, presumably no one—whether a patent owner or a competitor—will want to manufacture the invention in the country. In that case, even if a patent exists on the invention in the country, it is highly unlikely that anyone would challenge the nonworking of the patent, unless the patent owner only imports the patented invention into the country and uses the patent solely as an “exclusive import permit”¹²¹ that other potential importers will want to challenge.

An important goal of the working requirement has been to secure access to a patented invention in the country that granted the patent, regardless of whether the invention is manufactured in the country or elsewhere.¹²² The goal has been not only for the population to be able to learn about the invention but also—or even primarily—for the population to benefit from the use of the invention. For example, countries want patented pharmaceutical inventions to be available locally during the patent term but do not necessarily want to develop their own pharmaceutical industries.¹²³ The goal of securing access to the patented invention solely for the purposes of use may outweigh the other goals of the working requirement, such as the development of a domestic industry, with the result that importation will be a sufficient form of the working requirement to satisfy this particular goal. A country may also relinquish the prospect of local manufacturing

118. Ashish Arora, *Intellectual Property Rights and the International Transfer of Technology: Setting Out an Agenda for Empirical Research in Developing Countries*, in *THE ECONOMICS OF INTELLECTUAL PROPERTY* 41, 41 (2009).

119. Edith Penrose, *International Patenting and the Less-Developed Countries*, 83 *ECON. J.* 768, 770 (1973). Penrose also noted that “very few of the foreign patents granted in less-developed countries are actually worked in the country granting them [I]t is often concluded that foreign patents serve primarily as exclusive import permits for the foreign producers.” *Id.* at 776.

120. For the “reasons why a patentee may decide not to exploit its patent within a given country,” see Cabanellas, *supra* note 117, at 166–68. For historical examples of patent owners’ attraction to existing technology in a country of a patent, see Belfanti, *supra* note 103, at 581.

121. See Penrose, *supra* note 119, at 776; see also Haar, *supra* note 75, at 93 (noting in Nairobi negotiations, least-developed countries “[p]erceive[d] nominal working as an effective transformation of patent grants into import permits impeding the transfer of technology and forestalling domestic research.” (footnote omitted)).

122. See Halewood, *supra* note 93, at 246.

123. *Id.* at 248.

if local manufacturing would result in higher prices for—and therefore de facto less access to—the patented invention in the country.¹²⁴

Another goal of patent working requirements is to prevent patent owners from creating blocking monopolies—from obtaining and maintaining patents for the purpose of blocking others from developing technologies in the vicinity of the patented inventions.¹²⁵ In these instances a country already has its own industry that can secure access to inventions in the invention's vicinity. However, the patent owner holds a key to the future development of the field of technology in the particular area. The problem could be created by a single patent owner, a patent pool, or otherwise linked patent owners who could effectively monopolize an area of technology and block access to the technology, thereby stifling the development of that technology in the country.¹²⁶ An imposition of either forfeiture or compulsory licensing in a case of nonworking will result in the unblocking of access to the patented invention. Relying on patent owners to agree to the need to cross-license complementary patents¹²⁷ works only if competitors actually own complementary patents that the blocking patent owners need.

Strategic considerations concerning the preservation or development of a certain field of technology might also influence countries' approaches to patent working requirements. It was a concern about the development of the domestic chemical industry in the United Kingdom that led at the beginning of the twentieth century to the tightening of the patent working requirement in the United Kingdom at a time the U.K. government felt that German companies had begun to monopolize the U.K. chemical industry.¹²⁸ A danger of monopolization might arise even if a technology is actually being developed in a country and there is no formal violation of a working requirement, but all of the industry is in the hands of a single set of companies or a set of linked companies—whether they be linked administratively, economically, politically, or otherwise. If the entirety of an industry is being developed in the country by a group of companies that collectively blocks or may block competitors and alternative industries, the country may be vulnerable, particularly in strategic industries.¹²⁹

124. See generally Frederick M. Abbott, *WTO Medicines Decision: World Pharmaceutical Trade and the Protection of Public Health*, 99 AM. J. INT'L L. 317 (2005).

125. These may be dependent patents. See Richard Reik, *Compulsory Licensing of Patents*, 36 AM. ECON. REV. 813, 816–17 (1946).

126. For examples of suppression of technology through patent non-use, see Kurt M. Saunders, *Patent Nonuse and the Role of Public Interest as a Deterrent to Technology Suppression*, 15 HARV. J.L. & TECH. 389, 406–17 (2002). For rationales that might lead to suppression through patent non-use, see *id.* at 417–26.

127. Cabanellas, *supra* note 117, at 168.

128. See *supra* note 46 and accompanying text.

129. The Nairobi proposal from the 1980s for amending article 5(A) of the Paris Convention seemed to have targeted such circumstances; paragraph 5 of Article 5A would have allowed countries to expropriate patents—even if those patents were worked by their patent owners—if the expropriation was in the public interest. Haar, *supra* note 75, at 95. The proposed definition of “public interest” included “the development of other vital sectors of the national economy.” *Id.* at 96 (footnote omitted).

III. INTERACTION WITH OTHER COMPONENTS OF NATIONAL LEGAL SYSTEMS

Patent working requirements are components of complex national legal systems and do not operate in isolation from the other components of the system; they interact with the other components, and the requirements are shaped in part by the needs of the entire system. This Section explores the links and interactions between working requirements and the other components of the system.

As was noted above, patent working requirements interact with the requirement of disclosure. In the early days of patents, “requiring actual assembly in the country[] help[ed] those in the industry better understand the product’s unique features.”¹³⁰ History suggests that the more detailed is the requirement of sufficient disclosure in a patent application, the less is the need for a working requirement. Sufficient disclosure should satisfy the need for information about the invention, so that there is no need for addressees to actually witness the functioning—or at least the finished assembly—of the invention.¹³¹ As was suggested earlier, even with sufficient disclosure on paper, some remnants of the working requirements might survive in patent systems today to enhance disclosure. However, there should be no need to see an invention worked before or while it is patented in order for anyone ordinarily skilled in the art and equipped with sufficient infrastructure to be able to replicate the invention.

Several commentators have noted that the current disclosure rules do not serve the purpose of sufficiently informing persons ordinarily skilled in the art about an invention.¹³² They argue that first, the high numbers of patents make the tracking of all patents in a particular field of technology impossible; since some areas of technology are overcrowded with patents, identifying patents of potential relevance is extremely difficult.¹³³ Second, paper disclosure in some technologies, such as biotechnology and modern pharmaceuticals, does not enable third parties to replicate the invention “disclosed” in the patent application.¹³⁴ A working requirement could help the patent overcrowding problem, at least to the extent that patent systems might provide stronger protection to patent owners who work their patents. For some inventions, a working of the invention might still be an important vehicle for effective disclosure.¹³⁵

130. Fauver, *supra* note 4, at 673.

131. Reik, *supra* note 125, at 813 (“Authoritative German experts admit[ted] that, in order to understand the essence . . . of the invention described in a German patent specification, it [was] often necessary to consult with the corresponding United States or British specifications.”).

132. See Jeanne C. Fromer, *Patent Disclosure*, 94 IOWA L. REV. 539, 563 (2009).

133. *Id.* at 585.

134. See, e.g., Gregory N. Mandel, *The Generic Biologics Debate: Industry’s Unintended Admission that Biotech Patents Fail Enablement*, 11 VA. J.L. & TECH. 8, 10 (2006); Mark J. Stewart, *The Written Description Requirement of 35 U.S.C. § 112(1): The Standard After Regents of the University of California v. Eli Lilly & Co.*, 32 IND. L. REV. 537, 549–50 (1999).

135. See Cotropia, *supra* note 116, at 123 (“An actual reduction to practice requirement would generate more technical information about the invention.”); DINWOODIE & DREYFUSS, *supra* note 92, at 43–44.

Another important relationship exists between working requirements and the rules of patentability. If a country is concerned about any actual or potential access problems caused by a certain type of patents, then limiting or eliminating those patents altogether by excluding those inventions from patentability makes a working requirement logically unnecessary. This somewhat mundane point is important from a historical perspective: before TRIPS, countries were less likely to push for working requirements if they were able to avoid granting patents on certain inventions by excluding the inventions from patentability.

At the time that the United Kingdom was concerned about the expansion of the German chemical industry, a number of countries did not grant patents for chemical inventions at all. For example, the Swiss chemical industry was a strong opponent of patent protection for chemical processes in Switzerland in the 1860s–1880s, and when a patent statute was finally adopted in Switzerland in 1887 it excluded chemical processes from patentability.¹³⁶ This opposition was directed at the German chemical industry and continued until 1907.¹³⁷ Following the experience of the Allies during WWII when German ownership of chemical patents caused significant problems with access to chemicals in the United States, one U.S. commentator in 1946 suggested that “the barring of chemical substances in particular from being patented as products, appear[ed] to be a desirable change in the United States patent laws.”¹³⁸

Not until the signing of the TRIPS Agreement was an international agreement concluded on rules concerning patentable subject matter;¹³⁹ before TRIPS, the Paris Convention conferences could not agree on a list of protectable inventions.¹⁴⁰ Notwithstanding the high degree of harmonization of patentable subject matter in TRIPS, countries continue to enjoy some leeway with regard to patentability. Apart from the areas where TRIPS provides for possible exclusions,¹⁴¹ and apart from computer programs for which interpretations have resulted in differences in patentability,¹⁴² countries have found ways to limit the patentability of inventions when a country has had concerns about access. For example, the Indian Supreme Court affirmed an enhanced efficacy requirement for patents in India—a

136. PENROSE, *supra* note 2, at 16, 124.

137. *Id.*

138. Reik, *supra* note 125, at 823 (“What [the author is] actually intending to emphasize here is that, however one may wish to proceed in the matter of those exceptions, the patent law reform should give priority to the compulsory licensing legislation.”).

139. Agreement on Trade-Related Aspects of Intellectual Property Rights art. 27, Apr. 15, 1994; TRIPS Agreement, Annex 1C, 1867 U.N.T.S. 154.

140. PENROSE, *supra* note 2, at 54.

141. TRIPS Agreement arts. 27(2)–(3); *see also* Ass’n for Molecular Pathology v. Myriad Genetics, Inc., 133 S. Ct. 2107 (2013); *D’Arcy v Myriad Genetics Inc.* [2015] HCA 35 (Austl.); *D’Arcy v Myriad Genetics, Inc.* [2014] FCR 115 (Austl.).

142. *E.g.*, *Alice Corp. Pty. v. CLS Bank Int’l*, 134 S.Ct. 2347, 2352 (2014); European Patent Office Enlarged Board of Appeal, Opinion G 3/08, May 12, 2010, par. 10.13.

requirement that is arguably directed primarily at pharmaceutical patents.¹⁴³ As well, the allegedly increased Canadian requirement of utility that has been confirmed by the Canadian courts has precluded patents on some inventions in Canada, and this approach has affected pharmaceutical inventions more than other types of inventions.¹⁴⁴

If countries can effectively limit or eliminate patents on inventions of national strategic importance, their need for working requirements substantially decreases or fades entirely. Such an elimination or limitation of patent protection for certain inventions, however, might negatively affect a country's access to certain inventions if inventors do not invent at all, and/or access to information about certain inventions if inventors choose not to disclose information about their inventions in instances when such information can be kept secret because the invention cannot be easily reverse engineered.

International negotiations have also failed to reach a consensus on rules for the exhaustion of patent rights; TRIPS left open an option for countries to choose their adherence to the principle of either national or international exhaustion of intellectual property rights, such as patent rights.¹⁴⁵ For countries that are concerned solely with access to patented products and have no desire to promote their own industries, international exhaustion may serve their needs, at least partially: even if a patent owner does not manufacture or import his product into the country, the country has access to the product if third persons can purchase the product abroad and import the product into the country without violating the country's patent law. In such a case, a country that has adopted the principle of international exhaustion, but needs only access to a patented product, might not need to adopt a working requirement. To the extent that the country is concerned about patent owners blocking access to the invention globally, however, working requirements might need to be introduced in the country to complement the principle of international exhaustion.

Provisions on working requirements will not be as important, if they are important at all, in countries where a patent owner's working or nonworking of a patent is reflected in decisions to grant or deny an injunction to prevent third persons from working the invention. The U.S. Supreme Court has rejected the

143. *Novartis AG v. Union of India* [Supreme Court of India] Civil Appeal Nos. 2706-2716, par. 103 (2013). On the allegedly heightened novelty standard for pharmaceuticals in Brazil, see Kenneth C. Shadlen, *The Politics of Patents and Drugs in Brazil and Mexico: The Industrial Bases of Health Policies*, 42 COMP. POL. 41, 46 (2009).

144. *See* *Eli Lilly v. Government of Canada*, Notice of Arbitration, Sept. 12, 2013 (arguing that the utility requirement, as applied, causes Canada to be in violation of Article 1709(1) of the North American Free Trade Agreement and of Article 27(1) of the TRIPS Agreement).

145. Agreement on Trade-Related Aspects of Intellectual Property Rights art. 6, Jan. 1, 1995. Under the principle of national exhaustion, patent rights in the country exhaust only through the first sale of the patented product within the country by the patent owner or with his consent. *Id.* Under the principle of international exhaustion, the first sale of the patented product anywhere in the world by the patent owner or with his consent exhausts the patent rights within the country that adopted the rule of international exhaustion. *Id.*

proposition that the nonworking of a patent, taken alone, may justify a denial of injunctive relief.¹⁴⁶ The Court, however, did not foreclose the possibility that nonworking will be considered as one factor to be weighed when deciding whether to grant injunctive relief.¹⁴⁷ In the particular case before the Court the patent owner was in fact open to licensing the patented invention;¹⁴⁸ in other cases involving complete nonworking in the sense of blocking access to an invention, the fact of nonworking could receive more weight in a court's analysis. The public interest in such cases may outweigh other factors.¹⁴⁹

If a court denies an injunction, it de facto grants a compulsory license on the patent,¹⁵⁰ a result that is equivalent to the enforcement of a working requirement. In countries where courts have no discretion and must grant injunctive relief in patent infringement cases, a patent working requirement might be needed to address a situation for which the law in the country otherwise provides no remedy. For example, under German law, though courts do enjoy a certain degree of discretion when deciding whether to grant or deny a preliminary injunction,¹⁵¹ courts have no discretion to grant or deny a permanent injunction. When a patent is presumed to be valid¹⁵² and the patent has been infringed, a court must issue an injunction.¹⁵³

146. eBay Inc v. MercExchange, L.L.C., 547 U.S. 388, 393 (2006).

147. *Id.* at 393–94; *see also* MercExchange, L.L.C. v. eBay, Inc., 500 F. Supp. 2d 556, 571 (2007) (“[A]lthough the Supreme Court rejected an analysis implying that a categorical exclusion prevented injunctions from issuing if a patent holder did not practice its patents and existed only to license them, the Court in no way suggested that such facts could not be considered as part of the calculus in weighing the traditional equitable factors.”).

148. *Id.*

149. For an overview of older instances of decisions in which U.S. courts denied injunctions in patent infringement cases, see A. Jason Mirabito, *Compulsory Patent Licensing for the United States: A Current Proposal*, 57 J. PAT. OFF. SOC'Y 404, 407–12 (1975).

150. HTC Corp. v. Nokia Corp. [2013] EWHC (Pat) 3778, [32] (Eng.); *cf.* Paice L.L.C. v. Toyota Motor Corp., 504 F.3d 1293, 1313, 1313 n.13 (Fed. Cir. 2007) (where the court distinguished between a grant of a compulsory license and the denial of an injunction combined with the setting of an ongoing royalty). Judge Rader opined in his concurring opinion that “calling a compulsory license an ‘ongoing royalty’ does not make it any less a compulsory license.” *Id.* at 1316 (Rader, J., concurring).

151. ZIVILPROZESSORDNUNG [ZPO] [CODE OF CIVIL PROCEDURE], § 940, *translation at* https://www.gesetze-im-internet.de/englisch_zpo/englisch_zpo.html.

152. In Germany, “unless a trial court determines that there is a likelihood that a claim of patent invalidity would be successful in a separate validity proceeding, the court adjudicates the infringement. If a trial court finds that a claim of patent invalidity is likely to succeed, it may stay its proceedings and wait for a decision by the Federal Patent Court on the issue of validity.” Marketa Trimble, *The Extraterritorial Enforcement of Patent Rights, in* PAT. ENFORCEMENT WORLDWIDE (Christopher Heath ed., 2015); *see* ZIVILPROZESSORDNUNG [ZPO] [CODE OF CIVIL PROCEDURE], § 148.

153. Patentgesetz [PatG] [Patent Act], Dec. 16, 1980, BUNDESGESETZBLATT, Teil I [BGBl. I], § 139(1); ZPO [Code of Civil Procedure], § 935, *translation at* https://www.gesetze-im-internet.de/englisch_zpo/englisch_zpo.html. As opposed to German courts, for which the issuance of permanent injunctions is automatic, the new courts that will be established in Europe under the Agreement on a Unified Patent Court—including courts that will be established under the Agreement in the territory of Germany—will have discretion to decide whether to grant or deny permanent injunctions. Agreement on a Unified Patent Court, art. 63(1) (“[T]he Court *may* grant an injunction against the infringer . . .”) (emphasis added). The Agreement does not specify the factors that courts may or should take into consideration when exercising their discretion.

The remedy in German law for nonworking is a compulsory license, for which the Patent Act expressly provides.¹⁵⁴

Remedies for the nonworking of patents might also arise under competition law, but only to the extent that the exercise of patent rights may be deemed in violation of competition law rules,¹⁵⁵ which require sufficient market power and which typically apply only in cases of patents that are held to be standard-essential patents.¹⁵⁶ While all patents confer exclusive rights, standard-essential patents confer true monopolies because it is impossible to design around these patents and invent a new product that could successfully compete on the market in which the patented invention has become the standard in the industry.¹⁵⁷ When a patented invention becomes a standard, competition law might provide an appropriate remedy for the nonworking of the patent if the patent owner has consented to license his patent to anyone who requests a license under fair, reasonable, and nondiscriminatory (FRAND) terms.¹⁵⁸ The availability of redress under competition law renders less important any patent working requirement provisions that exist, at least for the purposes of redressing the nonworking of standard-essential patents.¹⁵⁹

Patents that are not standard essential typically include no obligation for their owners to license the patents, but the “license of right” mechanism may draw patents that are not standard essential into a similar regime. The United Kingdom introduced the “license of right” mechanism in 1919;¹⁶⁰ the mechanism allows a patent owner to “apply to the Comptroller to have [the] patent endorsed with the words ‘license of right.’”¹⁶¹ The endorsement means that “any person is thereafter entitled to a license under the patent as a matter of right. The terms of the license may be settled by agreement of the parties . . . [or] the Comptroller [may settle the license] on application by either party.”¹⁶² In Germany, the Patent Act of 1936 introduced a “license of right” that allows a patent owner to “declare to the Patent Office . . . that he is prepared to allow anyone to use the invention in return for

154. PatG [Patent Act], Dec. 16, 1980, BGBL. I, at §§ 24(5), 85.

155. “[A]ntitrust law has not proved to be an effective weapon against unilateral patent suppression.” Saunders, *supra* note 126, at 432. “Thus, antitrust law has played a collateral role in deterring patent nonuse leading to technology suppression.” *Id.* at 434.

156. *Id.*

157. Alan Devlin, *Antitrust Limits on Targeted Patent Aggregation*, 67 FLA. L. REV. 775, 827 (2015).

158. *Id.* at 828; *see also* Huawei Technologies Co. Ltd v. ZTE Corp., CJEU, C-170/13, July 16, 2015.

159. For detailed discussions of the interface between competition/antitrust law and patent law in the context of nonworking, see Herbert Hovenkamp, Mark D. Janis & Mark Lemley, *Unilateral Refusals to License*, 2 J. COMP. L. & ECON. 1 (2006); Herbert Hovenkamp, *Antitrust and the Patent System: A Reexamination*, 76 OHIO ST. L.J. 468 (2015).

160. Patents and Designs Act 1919, § 24 (Eng.).

161. P.J. Federico, *Compulsory Licensing in Other Countries*, LAW & CONTEMP. PROBS. 295, 305 (1948).

162. *Id.*

reasonable compensation.”¹⁶³ Provisions for a “license of right” were eventually introduced in other European countries, including France, Spain, and Italy,¹⁶⁴ and a “license of right” is also available for the new European patent with unitary effect.¹⁶⁵

A “license of right” thus creates an obligation similar to the obligation that competition law creates for standard-essential patents, and patent owners are obligated to license their patents. Therefore, the actual working of a “license of right” patent is secured whether or not someone is willing to actually work the patent—the “license of right” constitutes the working.¹⁶⁶

CONCLUSION

A patent working requirement is a component of the patent laws in many countries today. The history of the requirement reflects the development of the different goals that countries’ patent systems have pursued at various points in history. These goals shaped the variations of the requirement and explain the positions that countries have held for the requirements over time. Perhaps it is a testament to the rapid economic development and technological primacy of the United States for a significant part of its history that its patent system included a patent working requirement for only a brief time. Nevertheless, a desire to encourage owners of U.S. patents to work their patents was not completely absent from U.S. patent law and remains apparent in several components of the current system.

The diverse goals pursued by different countries and the differences in their national legal systems make the harmonizing of provisions on patent working requirements difficult, particularly because there is an absence of both (1) an agreement on a single goal or a set of goals that all countries want to pursue for all technologies, and (2) an overall alignment of national legal systems. A developed country with a broad manufacturing capacity might not need the same type of working requirement that a developing country with nascent industries might need. Or a country in which courts must grant injunctions in patent infringement cases with no discretion otherwise might have to maintain a patent working requirement to prevent nonworking, while another country might resolve the same issue partially

163. Ilija Rudyk, *Three Essays on the Economics and Design of Patent Systems* 1, 9 (2012) (Ph.D. dissertation). On the original motivation for the provision in the German Patent Act, see *id.* at 12–13.

164. *Id.* at 14.

165. Council Regulation 1257/2012 of Dec. 17, 2012 (implementing enhanced cooperation in the area of the creation of unitary patent protection).

166. For a proposal for a similar solution for U.S. patents, see Sichelman, *supra* note 6; Federico, *supra* note 161, at 306 (in the United Kingdom “[f]rom 1921 to 1939, the number of patents endorsed [‘license of right’] averaged 690 per year, which is about 4 per cent of the average number of patents granted each year.”); Rudyk, *supra* note 163, at 3 (in 2008 in Germany a “[l]icense of right has been declared for more than 4,500 German patent applications,” meaning 6% of all German patent applications). For detailed statistics on the use of “license of right” in Germany, see *id.* at 15–39.

or completely by allowing court discretion in the granting of injunctions. As the other components of legal systems must be, patent working requirements of individual countries must be compared at a functional level within the context of the legal system in which they operate.

Critics of patent working requirements often point to the fact that the requirements are rarely enforced, meaning that that patents are rarely revoked and compulsory licenses are rarely issued because of a failure to fulfill the requirements.¹⁶⁷ However, the incidences of enforcement of a component of a legal system are a weak indicator of the efficacy of that component. Even without enforcement actions, the mere existence of the component may guide and influence behavior.

An analysis of the development of the patent working requirement at national levels and in international negotiations raises important questions about methods of international harmonization. International harmonization increasingly focuses on specific wordings that should be adopted verbatim in national legislation, rather than outlines of general guiding principles that should be implemented in national legislation. This greater specificity might be prompted by a desire to improve the global legal environment for businesses that could benefit from uniform national laws, and the greater specificity might contribute to increased compliance with international law when specific treaty provisions are directly applicable (self-executing) in jurisdictions that allow for the direct applicability of international treaties. The resulting identical language in national laws can have the advantage of contributing to further legal harmonization in agency and court interpretations, rulings, and decisions. Conversely, greater specificity might make treaty implementation more difficult if specific rules are inconsistent with the internal consistency of a national legal system.

Some commentators suggest that international harmonization, including harmonization that may affect patent working requirements, should be viewed from an internationalist perspective—a perspective that considers the global welfare.¹⁶⁸ As is representative for this view, Guillermo Cabanellas noted that “[t]he real world is one where more than a hundred industrial property systems coexist and where the consequences of one country’s laws bear not only on that country but also on the rest of the countries of the world.”¹⁶⁹ Unfortunately, the internationalist perspective cannot maximize global welfare without an international coordination of laws among countries. Until this coordination exists—if it ever does—and while countries respect only the interests of their various local stakeholders, countries will subordinate the idea of global welfare and continue to pursue only their own interests. Patent working requirements should be tailored to ensure that countries achieve their individual goals and meet the needs of their own legal systems.

167. *E.g.*, Reik, *supra* note 125, at 815.

168. Carlos M. Correa, *Internationalization of the Patent System and New Technologies*, 20 WIS. INT’L L.J. 523 (2001–2002).

169. Cabanellas, *supra* note 117, at 166.