1. A patent pledge taxonomy¹

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I. INDUSTRIES AND MARKETS

Generally speaking, four broad industry categories are represented by firms making patent pledges: information and communication technology (ICT), open source software, environmental/green technologies and bio-pharma, pharmaceutical and chemistry technologies (life sciences).

A. Information and Communication Technology (ICT)

Patent pledges, particularly those associated with standards-development activities, arise frequently in the information and communication technology (ICT) sector. This broad industry category includes markets such as wireless telecommunications, networking, computing, consumer electronics, and data exchange. Many of the product categories typically associated with patent pledges are consumer-oriented devices such as smartphones, computers, game players, and home entertainment products manufactured by multinational firms such as Intel, Apple, Samsung, Huawei, Cisco, Microsoft, Ericsson, Verizon, AT&T, IBM, Sony, and Dell. But patent pledges also appear in numerous smaller business-to-business market segments such as avionics electronics, automotive engineering, and semiconductor fabrication. And the firms that participate in ICT standardization are not exclusively large multinationals, as they also include many small- and medium-sized businesses, as well as research institutions and government agencies.

The firms that design and manufacture ICT products often collaborate to develop technical standards within standards-development organizations (SDOs). SDOs are typically organized as non-profit trade associations or consortia, and range from small groups of firms focusing

¹ This chapter is based, in part, on Jorge L. Contreras, *Patent Pledges*, 47 ARIZ. ST. L.J. 543 (2015), with permission of the author.

on a single product category to large, international bodies that produce standards in a broad range of industries. An illustrative group of international SDOs operating in the ICT sector is listed in Table 1.1.

Table 1.1 Selected standards-development organizations (SDOs) in the ICT sector

SDO	Area(s)	Well-known Standards
European Telecommunications Standards Institute (ETSI)	Wireless telecommunications	GSM (2G), UMTS (3G), LTE (4G)
IEEE Standards Association (formerly the Institute of Electrical and Electronics Engineers)	Networking	802.11 (Wi-Fi) Ethernet
International Organization for Standardization (ISO)	Various	ISO 9000, ISO 14000
International Telecommunications Union (ITU)	Telecommunications	H.264
Internet Engineering Task Force (IETF)	Internet	IP, TCP, HTTP
World Wide Web Consortium (W3C)	Worldwide web	HTML, WWW, XML

In addition to these large SDOs, hundreds of smaller consortia and associations actively develop and promote standards in the ICT sector. Participation in these organizations can range from just a few individuals to thousands.

B. Open Source Software

Open source software differs from typical commercial software not with respect to its technical features, but with respect to the legal rights associated with it. That is, software that is released on an open source basis is characterized by the availability, usually at no cost, of the software programmers’ code (source code), and the user’s right to modify that code, typically with no obligation to the original developer.² Open source code first gained a following in the early 1990s with the GNU suite of software tools, but has since come to encompass widely adopted

² *The Open Source Definition*, OPEN SOURCE INITIATIVE, <http://open.source.org/docs/osd>.

platforms and applications including the Linux and Android operating systems, the Firefox web browser, and the Apache web server.

Patent pledges relating to open source software have become increasingly common. In 2004 and 2005, a group of firms including Nokia, Novell, Sun, and others publicly announced that they would not assert patents against use of the Linux operating system.³ Around the same time, several large patent holders issued blanket assurances covering substantial portfolios of patents and products. Among these were IBM's commitment not to assert approximately 500 patents against open source software products⁴ and Google's more recent "Open Patent Non-Assertion Pledge" covering 241 patents.⁵ Others, under the umbrella of the non-profit Open Web Foundation, have committed to license patents covering a wide range of open source software interfaces, tools, and specifications.⁶

In addition to these pledges, which have been made independently by patent holders, more than a thousand firms participate as "licensees" in the Open Invention Network (OIN). OIN was formed in 2007 as a vehicle for the promotion of the Linux open source operating system, and has since been expanded to OpenStack and other cloud computing technologies.⁷ With funds that it receives from a small group of founding members,⁸ OIN acquires patents and then licenses them on a royalty-free basis to all OIN licensees.⁹ Licensees, in turn, pledge not to assert their

³ See, e.g., *Legally Binding Commitment Not to Assert Nokia Patents Against the Linux Kernel*, NOKIA CORP., <http://nokia.com/iprstatements>; *Patent Policy: Novell's Statement on Patents and Open Source Software*, NOVELL, INC., <http://www.novell.com/company/legal/patents/>; *Sun Opens Access to 1,600 Patents*, SUN MICROSYSTEMS (Jan. 25, 2005), <http://sys-con.com/story/?storyid=47906>.

⁴ *IBM Statement of Non-Assertion of Named Patents Against OSS*, IBM CORP. (Jan. 11, 2005), <http://www.ibm.com/ibm/licensing/patents/pledgedpatents.pdf>.

⁵ The Google pledge is a commitment not to assert such patents against users of "free or open source software." *Open Patent Non-Assertion Pledge*, GOOGLE, INC., <http://www.google.com/patents/opnpledge/pledge/>.

⁶ See *Users of OWF Agreements*, OPEN WEB FOUNDATION, <http://www.openwebfoundation.org/faqs/users-of-owf-agreements>.

⁷ Press Release, Open Invention Network, *Open Invention Network Extends its Linux-Protective Network to Cover OpenStack Technologies* (Dec. 30, 2013), http://www.openinventionnetwork.com/pressrelease_details/?id=3.

⁸ As of November 1, 2014, the founding members of OIN were Google, IBM, NEC, Novell, Philips, Red Hat, and Sony. *FAQ*, OPEN INVENTION NETWORK, <http://www.openinventionnetwork.com/press-room/faqs/>.

⁹ *Id.*

own patents against the Linux/OpenStack community.¹⁰ As such, OIN is one of the largest patent pledge communities on record.¹¹

C. Green/Clean Technology

Patent pledges have increasingly been used to promote environmentally friendly “green/clean” technologies. While the recent pledge made by Tesla Motors may have grabbed headlines, it is by no means the first such initiative in the area of green/clean technology. One prominent green patent pledge was the Eco-Patent Commons (EPC), a coalition of 13 large firms including IBM, Nokia, Sony, DuPont, Dow, HP, and Xerox, that pledged not to assert specific patents against any technology that “reduces/eliminates natural resource consumption, reduces/eliminates waste generation or pollution, or otherwise provides environmental benefit(s).” The group, which was managed by the Environmental Law Institute in Washington, DC, reported that over one hundred “eco-friendly patents” were pledged by its members while EPC operated from 2008 to 2016.¹² Patent pledges intended to support environmental objectives are discussed more broadly in Chapter 4.

D. Life Sciences

To date, technical standardization in the life sciences has advanced largely without the patent disputes that have emerged in the ICT and software sectors.¹³ Several reasons have been proposed for this divergence, including the origin of many life science standards in academic and governmental settings without a strong emphasis on patenting or strong private sector engagement.¹⁴ Some of these factors are discussed in greater detail in Chapter 3.

¹⁰ *OIN License Agreement*, §§ 1.1–1.2, OPEN INVENTION NETWORK, <http://www.openinventionnetwork.com/joining-oin/oin-license-agreement/>.

¹¹ *See infra*, Table 1.6.

¹² *Frequently Asked Questions*, ECO-PATENT COMMONS, <http://ecopatentcommons.org/frequently-asked-questions#QA14>.

¹³ *See* NAT’L RESEARCH COUNCIL, INTELLECTUAL PROPERTY CHALLENGES FOR STANDARD-SETTING IN THE GLOBAL ECONOMY 18–19 (Keith Maskus & Stephen A. Merrill eds., 2013) [hereinafter NAS Report].

¹⁴ *See id.*

Nevertheless, patent pledges have begun to emerge in the life sciences. For example, in 2006 four major research institutions led by the Massachusetts Institute of Technology (MIT) committed not to assert patents covering certain RNA-based technology “in order to facilitate widespread distribution of an important class of research reagents.”¹⁵ Chemical and agricultural giant Monsanto has pledged that it will not assert its genetically modified seed patents against farmers when trace amounts of Monsanto genetic material appear in their crops through “inadvertent means” (e.g., windborne seeds that contaminate a field).¹⁶ And genetic diagnostics firm Myriad Genetics has pledged that it will not assert patents to “impede non-commercial, academic research.”¹⁷ These and other patent non-assertion pledges in the biosciences, especially when coupled with the green technology pledges discussed above, suggest that the phenomenon of patent pledges has moved well beyond its roots in the ICT sector.

II. CHARACTERISTICS OF PATENT PLEDGES

A. Identifying Pledged Patents

Patent pledges may cover one to hundreds or thousands of patents, depending on how the pledged patents are identified. These patents may be identified either specifically (e.g., by patent number) or non-specifically (e.g., by describing a category into which such patents fall). In either case, in order for the pledge to be meaningful, the patents subject to the pledge must be able to be identified unambiguously and without undue effort on the part of the parties relying on the pledge. Table 1.2 illustrates the range of mechanisms by which patent pledges may identify the patents subject to the pledge.

¹⁵ Anatole Krattiger, *The Use of Nonassertion Covenants: A Tool to Facilitate Humanitarian Licensing, Manage Liability, and Foster Global Access*, MIHR HANDBOOK OF BEST PRACTICES 1739 (2007).

¹⁶ *Monsanto's Commitment: Farmers and Patents*, MONSANTO, <http://www.monsanto.com/newsviews/pages/commitment-farmers-patents.aspx>.

¹⁷ *The Myriad Pledge*, MYRIAD, <http://www.myriad.com/myriad-cares-2/the-myriad-pledge/>.

Table 1.2 Number and identification of patents included in patent pledge

Patents	Example
Single specified patent	Southern California Edison's pledge to grant royalty-free licenses of a single patent covering a method of communicating between a utility and its customer locations
Multiple specified patents	Google's pledge not to assert 241 listed patents against open software implementations
Unspecified patents covering a single specification or standard	Open Web Foundation's Final Specification Agreement OWFa 1.0, covering all patents reading on the DMARC specification
Unspecified patents covering multiple specifications or standards	IBM's pledge not to assert patents against 27 standard specifications related to web services, electronic forms, or open document formats when implemented in the healthcare or education sectors
Unspecified patents covering a single class of products or entities	Multiple firms commit not to assert software patents against companies having fewer than 25 employees
All standards-essential patents	Ericsson's pledge to license all standards-essential patents on FRAND terms
All patents	Cisco's pledge not to transfer patents to non-practicing entities

Though the examples in Table 1.2 are drawn from non-SDO patent pledges, each of these means of identifying patents can also be found within SDO pledges. In smaller SDOs operating in industries that are not heavily patented, a patent pledge may cover only a single patent relevant to a standard being developed.¹⁸ In SDOs serving more heavily patented industries, however, the number of patents pledged by some firms can number in the hundreds, with some standards reportedly covered by thousands of patents.

B. Subject and Scope of Pledge Commitments

The crux of any patent pledge is the commitment that the patent holder makes with respect to the pledged patent(s). Pledge commitments fall

¹⁸ See Jorge L. Contreras, *Technical Standards and Ex Ante Disclosure: Results and Analysis of an Empirical Study*, 53 JURIMETRICS 163, 173 (2013) [hereinafter Contreras, *Ex Ante*] (noting that most patent disclosures at VITA, an SDO operating in the avionics and military electronics sector, relate to a single patent).

into three general categories: (1) the primary commitment to license patents, either on royalty-free or FRAND terms, or not to assert patents at all (primary access commitments), (2) more detailed commitments relating to the royalty rates or other amounts that will be charged (secondary royalty commitments), and (3) non-royalty commitments. Some patent pledges may contain one, two, or all three types of commitments. Table 1.3 illustrates the types and frequency of patent pledges found in the Patent Pledge Database.

Table 1.3 Coverage of non-SDO patent pledges (as of Jan. 1, 2015)

Type	Occurrences
1. Primary Access Commitments	
Non-assertion/royalty-free licensing	128
FRAND licensing	20
2. Secondary Royalty Commitments	
Maximum royalty/cap	16
Royalty calculation	10
3. Non-royalty commitments	
Non-injunction	10
No non-practicing entity transfers	3
Binding patent transferees	3
Prior art	4

1. Primary access commitments

The primary access commitment of a patent pledge is generally a broad statement indicating the nature of the access to its patent that the patent holder wishes to give to the public.¹⁹ That is, will the patent holder (1) refrain from asserting the patent against a specified class of potential infringers (i.e., manufacturers of products complying with a standard, small businesses, etc.), (2) license the patent on FRAND terms, or (3) license the patent on royalty-free terms? As among these three

¹⁹ Patent pledges made within SDOs generally cover only patents that are “essential” to a particular standard. *See, e.g.,* ABA COMM. ON TECH. STANDARDIZATION, SECTION OF SCI. & TECHN. LAW, STANDARDS DEVELOPMENT PATENT POLICY MANUAL 11 (Jorge L. Contreras ed., 2007) [hereinafter ABA PATENT POLICY MANUAL].

options, the frequency with which each option is selected varies according to context. For example, some SDOs require that *all* participants license their standards-essential patents on FRAND terms. Others, including the World Wide Web Consortium (W3C), require royalty-free licensing or non-assertion in most cases.²⁰ And in some SDOs, such as the Internet Engineering Task Force (IETF), participants are free to select which primary access commitment, if any, they wish to make.²¹

2. Secondary royalty commitments

When a patent holder makes a FRAND commitment, it pledges that it will license the covered patents under terms that are “fair, reasonable and non-discriminatory.” These general descriptors, of course, do not specify royalty rates or other contractual terms, and numerous disputes have arisen over conflicting views of the level of “reasonable” royalty rates.²² In an effort to avoid such disputes and provide greater visibility and predictability to potential manufacturers of standardized products, some firms have elected, outside the SDO process, to make additional commitments regarding the royalty rates that they will charge for standards-essential patents.

a) Maximum royalties A number of firms have pledged that they will cap royalty rates for certain product-patent configurations. Maximum royalties may be specified in terms of a percentage royalty rate (e.g., 2.5% of the product sales price), or a per-unit charge (e.g., \$0.05 per unit). To date, such approaches have been adopted primarily in the wireless telecommunications sector. Table 1.4 illustrates a number of maximum royalty commitments that have been made and proposed in this sector.

²⁰ *W3C Patent Policy*, Sec. 5, W3C, <http://www.w3.org/Consortium/Patent-Policy-20040205/> [hereinafter W3C Patent Policy].

²¹ INTERNET ENG'G TASK FORCE, RFC 3979: INTELLECTUAL PROPERTY RIGHTS IN IETF TECHNOLOGY § 8, at 13 (2005), <http://tools.ietf.org/pdf/rfc3979.pdf>.

²² See, e.g., *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 WL 2111217, at *1–4 (W.D. Wash. Apr. 25, 2013); *Apple, Inc. v. Motorola Mobility, Inc.*, 886 F. Supp. 2d 1061, 1087 (W.D. Wis. 2012).

Table 1.4 Maximum royalty pledges in the wireless telecommunications sector

Year	Pledge	Pledgor(s)	Maximum Royalty
2002	Cumulative royalty for W-CDMA (proposed)	Nokia	Cumulative cap of 5% on all royalties covering patents essential to the W-CDMA standard
2008	Framework for LTE technology IPR licensing	Alcatel-Lucent, Ericsson, NEC, NextWave, Nokia, Nokia Siemens Networks, Sony Ericsson	Handsets: single-digit percentage of the sales price Notebooks: single-digit dollar amount
2010	Licensing policy on LTE and service architecture evolution essential patents	Nokia	1.5% of the sales price of end-user devices that deploy LTE as the only wireless communication standard 2.0% for devices in which other standards are utilized in addition to LTE
2012	Letter to IEEE clarifying FRAND commitments	Motorola Mobility	2.25% of net product selling price*
2013	LTE/WiMax pricing statement	Qualcomm	3.25% of the wholesale sale price of devices that implement the LTE/WiMax standards, but not any 3G CDMA standards

Note: * Despite this commitment, Motorola and Microsoft disagreed significantly regarding the appropriate product base pricing to which this 2.25% royalty should be applied, leading to proposed royalties that differed by a factor of 1,000. Microsoft Corp. v. Motorola Mobility, No. C10-1823JLR, 2013 WL 2111217.

b) Royalty calculations Some patent pledges, rather than establishing a maximum royalty, instead specify the methodology that the patent holder will use to calculate royalties. Such commitments often seek to clarify issues such as the royalty “base” that the patent holder intends to

use to calculate royalties,²³ or the manner in which products covered by multiple patents will be addressed (i.e., the well-known issue of royalty “stacking”).²⁴ Like maximum royalty commitments, these pledges occur most frequently in the wireless telecommunications sector. Table 1.5 illustrates selected royalty calculation pledges in this sector.

Table 1.5 Selected royalty calculation pledges in wireless telecommunications sector

Year	Pledge	Pledgor(s)	Royalty Calculation
n/d	Patent licensing practices for industry standards	Intel	Royalty base should not exceed the cost of the smallest unit that practices the standard, the technical value of the patented feature compared to alternatives available during the standard-setting process, and the overall royalty that could reasonably be charged for all patents essential to the standard
2002	Modest royalty rates for W-CDMA	NTT DoCoMo, Ericsson, Nokia, Siemens, Fujitsu, NEC, Mitsubishi Electric, Panasonic, Sony	Royalty to be proportional to the number of essential patents held by each company
2008	Framework for LTE technology IPR licensing	Alcatel-Lucent, Ericsson, NEC, NextWave, Nokia, Nokia Siemens Networks, Sony Ericsson	Each patent holder will charge a proportional share of all standard essential IPR for the relevant product category

Like maximum royalty commitments, royalty calculation pledges have largely been made outside the SDO setting. However, at least one major SDO, the IEEE Standards Association, has recently adopted amendments

²³ The royalty base is the price on which a percentage royalty is calculated. For example, if the royalty rate is 5% of net selling price, and the applicable product has a sale price of \$100 (the royalty base), then the royalty would be \$5.

²⁴ See, e.g., Jorge L. Contreras, *Standards, Royalty Stacking and Collective Action*, 3 CPI ANTITRUST CHRON. (2015); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007).

to its policies seeking to clarify and circumscribe the manner in which its members must calculate FRAND royalties.²⁵

3. Non-royalty commitments

In addition to pledges offering a primary access commitment or relating to the royalties that patent holders will charge, other types of patent pledges have emerged outside the SDO setting. These pledges limit the patent holder's ability to enforce and otherwise maximize rents from its patents, but in ways that are not directly tied to licensing royalties. Two principal examples of these pledges are discussed below.

a) No injunctions One of the most contentious issues facing participants in standard-setting activities is whether a patent holder that has made a FRAND commitment may seek an injunction preventing the use of standardized technology after the parties have failed to agree on FRAND licensing terms. Commitments not to seek such injunctions have been sought and obtained by both the Federal Trade Commission (FTC) and European Commission in actions brought against large patent holders involved in standards-development activities.²⁶ The question has also been considered by the U.S. federal courts²⁷ and the International Trade Commission.²⁸ While courts, administrative agencies, and SDOs continue to wrestle with this issue, several firms including Apple, Google, Intel, and Microsoft have voluntarily pledged to reduce the circumstances under which they may seek to enjoin the use of standards as to which they have made FRAND commitments.²⁹

b) No NPE transfers A small but growing number of patent pledges seek to address issues that may arise in connection with the sale or transfer of patents. First, due to the highly publicized increase in lawsuits

²⁵ See Michael A. Lindsay & Konstantinos Karachalios, *Updating a Patent Policy: The IEEE Experience*, CPI ANTITRUST CHRON. (Mar. 2015).

²⁶ In the Matter of Robert Bosch GmbH, FTC File No. 121-0081 (Nov. 26, 2012); In the Matter of Motorola Mobility LLC and Google Inc., FTC File No. 121-0120 (July 23, 2013); Press Release, European Comm'n, Samsung: Enforcement of ETSI Standards Essential Patents (SEPs) (Dec. 21, 2012).

²⁷ Apple Inc. v. Motorola, Inc., 757 F.3d 1286, 1331–32 (Fed. Cir. 2014).

²⁸ In the Matter of Certain Elec. Devices, Including Wireless Comm'n Devices, Portable Music and Data Processing Devices, and Tablet Computs., USITC Inv. No. 337-TA-794, 2013 WL 2453722 (June 4, 2013).

²⁹ See Patent Pledge Database.

brought by non-practicing entities (NPEs),³⁰ a number of firms have expressly pledged not to transfer their patents to NPEs. In a similar vein, the Defensive Patent License (DPL), which does not outright prohibit the transfer of patents to NPEs, allows all DPL pledgors to terminate their licenses if such a transfer occurs.

III. FORM OF PATENT PLEDGES

Patent pledges may be divided into two principal categories in terms of their origin: *coordinated pledges* and *unilateral pledges*. Coordinated pledges are typically made by members of a defined group, according to some predetermined form or formula, with respect to a defined technology or set of patents. All coordinated pledges made by the members of the group need not be identical, but at least the set of pledges within any such group share some basic characteristics. The best-known coordinated pledges are FRAND commitments made in SDOs, but several other important varieties are discussed below. *Unilateral* pledges, on the other hand, are one-off commitments made independently and voluntarily by patent holders.

A. Coordinated Patent Pledges

As noted above, *coordinated* patent pledges are made by members of a specific group according to some predetermined form or formula, usually with respect to a defined technology or set of patents. The group may be the participants in an SDO, or a less formal group of like-minded firms working toward the promotion of a common technology platform or architecture.

1. Pledges made in standards-development organizations

As noted above, the structures of SDOs are diverse, ranging from small groups of firms focusing on a single product category to international bodies that produce standards in a broad range of industries.³¹ Thus, even

³⁰ NPEs generally acquire patents for the primary purpose of asserting them in licensing negotiations or litigation, without producing products. They are also known as “patent assertion entities” and, more pejoratively, “patent trolls.” See, e.g., Colleen Chien, *Of Trolls, Davids, Goliaths, and Kings: Narratives and Evidence in the Litigation of High-Tech Patents*, 87 N.C. L. REV. 1571 (2009).

³¹ See *supra* note 13 and accompanying text.

within the SDO context, patent pledges take on a number of different formats and structures. These include the following:³²

- (i) *Contractual*: Some pledges are included in contractual documents signed by SDO participants, either among participants or between each participant and the SDO.³³
- (ii) *Bylaws/Policy*: Many SDOs include patent licensing commitments in their corporate bylaws or policy documents. In some cases, participants must agree to comply with such bylaws and policies when they submit a membership application (often done online) to the SDO, or join a particular technical subgroup.³⁴ In other cases, the binding effect of these policies is assumed, based on a participant's membership in, or engagement in activities within, the SDO.³⁵
- (iii) *Letters of Assurance (LOAs)*: Some SDOs require participants to submit a written document (referred to variously as a "letter of assurance," "licensing declaration," or "written assurance") stating their intentions, if any, regarding the licensing of patents. Different SDOs require such LOAs to be submitted at different times during the standardization process. Often, LOAs are template documents that only permit the participant to check a box to indicate whether its licensing approach will be FRAND, royalty-free, non-assertion, or otherwise.

2. Other pledge communities

Not all coordinated patent pledges are made within SDOs. The structures of such pledges vary, but all are characterized by two common elements:

³² A more detailed analysis of the different forms in which SDO patent pledges are made can be found in Jorge L. Contreras, *A Market Reliance Theory for FRAND Commitments and Other Patent Pledges*, 2015 UTAH L. REV. 479, at Part I.D.2 (2015) [hereinafter Contreras, *Market Reliance*].

³³ See Brad Biddle, Frank X. Curci, Timothy F. Haslach, Gary E. Marchant, Andrew Askland, and Lyn Gaudet, *The Expanding Role and Importance of Standards in the Information and Communications Technology Industry*, 52 JURIMETRICS 177, 186–87 (2012) (describing such "contractual consortia" and examples of the same).

³⁴ See Rudi Bekkers & Andrew Updegrove, *A Study of IPR Policies and Practices of a Representative Group of Standard Setting Organizations Worldwide*, U.S. NAT'L ACAD. OF SCI., 28 (Oct. 3, 2012), http://sites.nationalacademies.org/xpeditio/groups/pgasite/documents/webpage/pgs_072197.pdf, (noting that in such cases, the SDOs have a relatively narrow technical scope).

³⁵ See ABA PATENT POLICY MANUAL, *supra* note 19, at 82.

the existence of a uniform format in which pledges are made, and some organized community that supports and makes the pledge.

These communities vary in formality and degree of organization. For example, the Eco-Patent Commons (EPC), discussed above, was a relatively well-organized group administered by the Environmental Law Institute (ELI). Participants in the EPC were required to apply to join,³⁶ and members were required to comply with a detailed set of “Ground Rules” that included the terms of the pledge and other details regarding membership.³⁷

Less formal arrangements exist, in which standardized pledge terms are made available by organizations such as the Open Web Foundation (OWF) for adoption by any group that wishes to use them. OWF publishes a Final Specification Agreement that firms involved in the development of a standard outside an SDO can use to make commitments regarding their patents.³⁸ Table 1.6 offers examples of non-SDO coordinated patent pledges found in the Patent Pledge Database.

3. Unilateral patent pledges

Unlike coordinated patent pledges, *unilateral* pledges are made by firms acting independently. They may vary in their level of formality and specificity, but in each case the firm making the pledge does so on its own terms, without the express involvement of others.

a) Unilateral pledges in SDOs Despite the fact that most SDOs require participants to use standardized forms when making patent pledges, some SDOs permit participants to make pledges on terms of their own choosing. The most prominent example of this pledge type arises in the Internet Engineering Task Force (IETF), which develops standards for the Internet. IETF requires that its participants disclose patents and patent applications that are likely to claim technologies implementing IETF standards and specifications.³⁹ However, there is no

³⁶ *Eco-Patent Commons: Joining or Submitting Additional Patents to the Commons*, ECO-PATENT COMMONS, <http://ecopatentcommons.org/join>.

³⁷ Eco-Patent Commons Ground Rules 6, WORLD BUS. COUNCIL FOR SUSTAINABLE DEV., <http://www.wbcds.org/pages/adm/download.aspx?id=314&objecttypeid=7> [hereinafter EPC Ground Rules].

³⁸ *Open Web Foundation Final Specification Agreement (OWFa 1.0) (Patent and Copyright Grants)*, OPENWEB FOUNDATION, <http://www.openwebfoundation.org/legal/the-owf-1-0-agreements/owfa-1-0>.

³⁹ Scott Bradner, *Intellectual Property Rights in IETF Technology BCP79*, BEST CURRENT PRACTICE (March 2005), <https://tools.ietf.org/html/bcp79>.

Table 1.6 Non-SDO coordinated patent pledges

Name	Pledgors (Community)
Open Invention Network (OIN)	More than 1,000 firms
Eco-Patent Commons	Bosch, Dow, DuPont, Fuji-Xerox, Hitachi, HP, IBM, Nokia, Pitney Bowes, Ricoh, Sony, Taisei, Xerox
The Patent Pledge	33 firms including Airbnb and Dropbox
OWF Final Specification Agreements	
DMARC	AOL, Bank of America, Cloudmark, Comcast, eCert, Facebook, Fidelity, Linked-In, Microsoft, PayPal, ReturnPath, TrueDomain, Trusted Domain, Yahoo!
Simple Identity Cloud Management	CANAIRE, Cisco, Ping Identity, SailPoint, Salesforce.com, Technology Nexus, Unbound ID
JSON	Citizen Agency, IBM, Mozilla, StatusNet, VMWare
GeoServices REST	ESRI
Leap2A	Pebble Learning
Open Compute Project Battery Cabinet Hardware	Facebook
Oauth WRAP	Facebook, Yahoo!
Motherboard hardware	Facebook
Open Graph Protocol	Facebook
MASHSSL Core	SafeMashups
MediaRSS	Yahoo!
Wireless Industry Leaders LTE pledge	Alcatel-Lucent, Ericsson, NEC, NextWave, Nokia, Nokia Siemens Networks, Sony Ericsson
Modest Royalty Rates for W-CDMA	NTT DoCoMo, Ericsson, Nokia, Siemens, Fujitsu, NEC, Mitsubishi Electric, Panasonic, Sony
Leading Tech Companies United to Support OSGi Technology	Gatespace Telematics, IBM, Nokia, ProSyst, Samsung
Non-Assert for Tuschi I siRNA patent applications	MIT, Whitehead, U. Mass, Max Planck

formal requirement that participants license these patents and patent applications to others on any particular terms (i.e., IETF imposes no FRAND commitment). As a result, firms involved in standards development at IETF frequently make voluntary patent licensing commitments along with their patent disclosures. These commitments, which are predominantly non-assertion or royalty-free licensing commitments,⁴⁰ take a variety of forms, and each IETF participant is free to develop its own style and language for such pledges.

b) Web site postings and press releases Many unilateral patent pledges are made by firms outside the context of an organized standard-setting activity, though the pledges themselves may relate to one or more technical standards. Most such unilateral pledges are made (or at least published) through posting on corporate web sites, often accompanied by a press release or other announcement. Microsoft, for example, maintains a web site dedicated to patent pledges that it has made over the years.⁴¹ Though Microsoft's pledges are relatively detailed and legally robust, their content is determined solely by Microsoft as the pledgor. Other firms take a less formal approach, exemplified by the short pledge initially posted in Tesla Motors' online blog.⁴²

c) Statements to government officials Some patent pledges are made in the form of statements to governmental officials, which may later be memorialized in correspondence, official announcements, or agency orders. The manner in which such pledges are made varies. In some cases, pledges are made during negotiations with an agency, and they are only referenced in the agency's subsequent order or announcement in the case.⁴³ In other instances, a patent holder may direct the agency to an existing document, whether an online statement or correspondence with

⁴⁰ See Contreras, *Ex Ante*, *supra* note 18, at 178.

⁴¹ *Open Specifications Dev Center*, MICROSOFT CORP., <https://msdn.microsoft.com/en-us/openspecifications/default>. See also *infra* notes 71–74 and accompanying text (discussing Microsoft pledges in greater detail).

⁴² Some months after Elon Musk of Tesla Motors posted his now-infamous blog *All Our Patents Are Belong to You*, the company revised and clarified its patent pledge substantially. See Tesla Motors, Appendix.

⁴³ *Statement of the Department of Justice's Antitrust Division on Its Decision to Close Its Investigations of Google Inc.'s Acquisition of Motorola Mobility Holdings Inc. and the Acquisitions of Certain Patents by Apple Inc., Microsoft Corp. and Research in Motion Ltd.*, U.S. DEPT. JUSTICE (Feb. 13, 2012) [hereinafter *DOJ 2012 Approval Statement*].

an SDO, as embodying its pledge.⁴⁴ Finally, in some cases, pledges made to regulatory authorities may appear in formal consent decrees or judicial orders.⁴⁵

d) Other public statements In addition to the forms described above, patent pledges can be made in a variety of less formal settings including speeches, press releases, interviews, and testimony. For example, in 2013, Mark Chandler, the General Counsel of Cisco Systems, wrote an online article in *Forbes* that criticized firms that had sold patents to non-practicing entities (so-called “patent trolls”).⁴⁶ In the article, Chandler admitted that Cisco had itself sold a small number of patents to a non-practicing entity, but in the next breath pledged that the company “won’t do it again.”⁴⁷ Randy Milch, the General Counsel of Verizon, made a similar admission and pledge verbally during a recorded public symposium,⁴⁸ and Yahoo! made a similar statement in testimony that it submitted to the House Committee on the Judiciary.⁴⁹

The apparent informality of some of these statements may give one pause. Nevertheless, it appears that at least some subset of these statements are intended to function as binding commitments, and should be treated as such.

⁴⁴ Id.

⁴⁵ See Jorge L. Contreras, *A Brief History of FRAND: Analyzing Current Debates in Standard Setting and Antitrust Through a Historical Lens*, 80 ANTITRUST L.J. 39 (2015) (detailing a long lineage of antitrust consent decrees containing patent licensing commitments).

⁴⁶ Mark Chandler, *Good News for the Innovation Economy: The Tide’s Turning Against Patent Trolls*, FORBES (Oct. 20, 2013, 5:30 am).

⁴⁷ Id.

⁴⁸ Randy Milch, General Counsel, Verizon, *Software Patents and Their Challenges Conference at Colorado Law: Panel 3* (Oct. 9, 2013), http://www.youtube.com/watch?v=j_jgV6UKnp8&list=PLwFq2GL-i5UjaeZNyVOGbSKaJ5rPmvVNC&index=3 (oral statement at 41:44: “[w]e have sold patents to non-practicing entities. That’s wrong. I shouldn’t do it. ... I have made it clear that we are not selling anymore to non-practicing entities”).

⁴⁹ *Improving the Patent System to Promote American Innovation and Competitiveness: Hearing Before the H. Comm. on the Judiciary*, 113th Cong. 5 (2013) (testimony of Kevin T. Kramer, VP and Dep. Gen. Counsel, IP, Yahoo! Inc.) (“[W]e act responsibly when selling patents. Our policy has been to sell patents only to operating entities rather than to non-practicing entities. We do not want our patents to be obtained by a troll and irresponsibly asserted against others in the Internet industry”).

IV. CLASSIFYING PATENT PLEDGES: A TAXONOMY

The analysis of patent pledges as a general phenomenon requires an understanding of the rationales that motivate patent holders to give up important patent rights without consideration. Four basic motivations emerge from the range of pledges that are made across industries and organizational structures: *inducement*, *collective action*, *voluntary restraint*, and *philanthropy*. These motivations are by no means exclusive, and patent holders may seek to achieve a number of complementary goals by making particular pledges. However, the taxonomy developed below serves as a useful framework for assessing the optimal legal effect of different types of pledges.

A. Inducement

The most common form of patent pledge is made in order to induce other market participants to do something. The action that the pledgor seeks to induce in others can vary, but it is generally related to third parties' adoption of certain technology choices that are favored by the pledgor. There are three principal sub-categories of Inducement pledges: those intended to induce other firms to adopt and make investments in products that comply with one or more interoperability standards, those intended to induce other firms to adopt a particular technology platform favored, if not actually sold, by the pledgor, and those intended to induce market participants to adopt a broad platform technology. In each of these cases, the pledgor calculates that it is likely to derive greater benefit from the behavior that it seeks to induce in others than from using its patents to exclude others from the market.

1. Interoperability

Interoperability standards such as USB, Wi-Fi, 3G/4G, DVD, and HTTP enable devices manufactured by different vendors to communicate and interoperate with each other without the need for customized interfaces or translation. The market-wide benefits and efficiencies generated through product interoperability are known as “network effects,” and often increase as the number of compatible devices in a given network grows.⁵⁰ Interoperability also opens markets for new products and services, thus fostering innovation, competition, consumer choice, and

⁵⁰ See CARL SHAPIRO & HAL R. VARIAN, INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY 45–46 (1999).

economic growth.⁵¹ The public welfare benefits of standards that enable product interoperability have been recognized widely by courts, regulators, and commentators.⁵²

a) *Pledges promoting interoperability through SDO standards* Despite the acknowledged benefits of interoperability standards, concerns have been raised that opportunistic patent holders could obtain and then assert patents against products complying with a standard after manufacturers have made significant investments in the standardized technology (e.g., plant, inventory, labor, product design, and training). Once a manufacturer has made such investments, it is considered to be “locked-in” and cannot switch to an alternative technology without incurring a substantial cost.⁵³ Not surprisingly, after a manufacturer is locked-in, a patent holder would have substantial leverage in negotiating a license with the manufacturer, and could charge a super-competitive royalty based, in part, on the manufacturer’s high cost of switching.⁵⁴ This phenomenon is sometimes referred to as patent “hold-up” and is discussed extensively in the literature.⁵⁵

To alleviate the risk of hold-up, to encourage the broadest adoption of standards, and to induce manufacturers to make the investments necessary to develop and deploy standardized technologies, many SDOs have adopted policies requiring their participants to make patent pledges. One of the most common of these policies imposes a licensing commitment,⁵⁶

⁵¹ See FED. TRADE COMM’N, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION 191 (2011) [hereinafter FTC EVOLVING IP MARKETPLACE].

⁵² See U.S. DEPT. OF JUSTICE & FED. TRADE COMM’N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROP. RIGHTS: PROMOTING INNOVATION AND COMPETITION 33 (2007) [hereinafter DOJ/FTC Antitrust and IP Report] (“Industry standards are widely acknowledged to be one of the engines driving the modern economy. Standards can make products less costly for firms to produce and more valuable to consumers”).

⁵³ See SHAPIRO & VARIAN, *supra* note 51, at 103–16.

⁵⁴ *Id.* at 116–30.

⁵⁵ See, e.g., Jorge L. Contreras, *Technical Standards, Standard-Setting Organizations and Intellectual Property: A Survey of the Literature*, in 2 RESEARCH HANDBOOK ON THE ECON. OF INTELLECTUAL PROP. LAW: ANALYTICAL METHODS (Peter S. Menell & David Schwartz eds., 2017, forthcoming) (reviewing literature).

⁵⁶ Another common, and related, SDO policy requires patent holders to disclose to the SDO and other participants any patents that may be essential to a standard. Disclosure policies often work side by side with licensing policies, but

which requires each SDO participant to promise that it will not use patents to block the use of a standard. Licensing commitments come in several different flavors. Patent holders can commit to license their essential patents on terms that are “fair, reasonable and non-discriminatory” (FRAND), they can commit to license these patents on reasonable terms without a royalty, or they can commit not to enforce these patents at all (non-assertion).⁵⁷

While the market-wide benefits of patent pledges in the standardization context are relatively well understood, the motivation for individual patent holders to make such pledges is more nuanced. Many patent holders, of course, are manufacturers of products that will benefit from standardization. These patent holders are likely to profit directly from the interoperability enabled by standards, and may thus determine that their potential product-related profits will outweigh any loss of revenue attributable to the constraints imposed by the pledge.⁵⁸ In some cases, they may determine that the benefits of broad, rapidly available interoperability are so great that they prefer all patent holders to license their essential patents on a royalty-free basis, thus eliminating any patent-related barrier to adoption of the standard. But whether the patent holder’s pledge is to license its patents on FRAND or royalty-free terms, its primary motivation is to induce other market participants to adopt the relevant standard and make complementary investments.

b) Pledges promoting interoperability outside of SDOs Patent pledges pertaining to industry standards do not arise exclusively within SDOs. In fact, many such pledges are made outside of the SDO process, either with respect to SDO-developed standards as to which firms have elected to make supplemental pledges, or with respect to standards that were not developed within SDOs. Nevertheless, as explained below, the motivations and goals for non-SDO Interoperability pledges are nearly the same as those applicable to SDO-based Interoperability pledges.

In some cases, firms may elect to make pledges with respect to interoperability standards that were developed within SDOs and as to

are not required to make licensing policies effective. *See* ABA PATENT POLICY MANUAL, *supra* note 19, at 15; Bekkers & Updegrove, *supra* note 35, at 13.

⁵⁷ *See* ABA PATENT POLICY MANUAL, *supra* note 19, at 23.

⁵⁸ Recent litigation results have demonstrated that patent royalties subject to a FRAND commitment may, indeed, be far less than the patent holder initially sought or desired. *See* Jorge L. Contreras, *Fixing FRAND: A Pseudo-Pool Approach to Standards-Based Patent Licensing*, 79 ANTITRUST L.J. 47, 79–80 (2013) [hereinafter Contreras, *Fixing FRAND*].

which additional SDO-based pledges may already exist. As discussed above, the pledges required by SDOs are usually primary access commitments, in which the patent holder must commit either to license its standards-essential patents on FRAND or royalty-free terms, or not to assert those patents at all. However, individual firms or groups of firms may sometimes wish to offer additional assurances to the market to further encourage use of the standards. For example, in 2002 NTT DoCoMo, Ericsson, Nokia, Siemens, and several Japanese manufacturers pledged that they would license their patents that were essential to the W-CDMA 3G wireless telecommunications standard at rates proportional to the number of such patents held by each company.⁵⁹ Similar pledges have been made by these and other industry participants with respect to subsequent wireless mobile device standards.

There are several reasons why firms may wish to make pledges above and beyond their SDO commitments. With respect to maximum royalty commitments (Table 1.5), they may wish to alleviate market concerns regarding potential patent stacking when patent-heavy technologies are concerned.⁶⁰ Likewise, royalty calculation pledges reduce uncertainty surrounding the royalty base to be used when calculating royalties for multi-component products. In both of these cases, SDOs, which can only act by consent of their membership, may be unable to achieve sufficient consensus to implement these requirements in their official policies. Thus, to the extent that individual SDO participants determine that it is in their best interest to take additional steps to induce the market to adopt a particular standard, these firms may elect to make such pledges unilaterally.

2. Platform leadership

Interoperability considerations lead firms to make patent pledges when they wish their products to be interoperable with other products adhering to the same standard. It is often the case that no single firm controls such

⁵⁹ Press Release, Nokia, Industry Leaders NTT DoCoMo, Ericsson, Nokia and Siemens, and Japanese Manufacturers Reach a Mutual Understanding to Support Modest Royalty Rates for the W-CDMA Technology Worldwide (Nov. 6, 2002).

⁶⁰ Several commentators have theorized that maximum royalty commitments of one kind or another can avert many of the potential problems inherent to patent stacking. See Contreras, *Fixing FRAND*, *supra* note 59, at 67; Mark A. Lemley, *Ten Things to Do About Patent Holdup of Standards (and One Not To)*, 48 B.C. L. REV. 149 (2007); Josh Lerner & Jean Tirole, *A Better Route to Tech Standards*, 343 SCI. 972 (2014).

standards, and the pledging firm's principal benefit derives from being part of a network or ecosystem of interoperable products.

Sometimes, however, a single firm does exert control over a particular technology platform, whether through ownership of proprietary interfaces often referred to as “de facto” standards, or other market forces.⁶¹ In some cases, de facto standards have emerged after “standards wars,” such as the contest between Sony's Betamax and Matsushita's VHS video tape formats. In standards wars, the champions of competing formats generally use all weapons at their disposal, including patents, to gain market share.⁶² But de facto standards need not emerge through warfare. They can also emerge naturally, based on the market's recognition of a particular technology's benefits and superiority over the competition.⁶³

Firms that control particular de facto standards can gain significant market advantages if other firms develop products that operate with or depend on their technology.⁶⁴ Such “platform” technologies can become the basis for entire industries.⁶⁵ Firms thus often strive to persuade product developers, service providers, and end users to adopt and develop products compatible with their proprietary technology platforms.

This is what happened in the 1980s when Philips and Sony offered attractive licenses of their new compact disc (CD) media format to both disc and player manufacturers worldwide.⁶⁶ Their openness to all potential market entrants enabled CD technology to overtake competing home

⁶¹ ABA SECTION OF ANTITRUST LAW, HANDBOOK ON THE ANTITRUST ASPECTS OF STANDARD SETTING 6 (2d ed., 2011) [hereinafter ABA ANTITRUST MANUAL]; MICHAEL CARRIER, INNOVATION FOR THE 21ST CENTURY: HARNESSING THE POWER OF INTELLECTUAL PROPERTY AND ANTITRUST LAW 325 (2009); Timothy F. Bresnahan & Pai-Ling Yin, *Standard Setting in Markets: The Browser War*, in STANDARDS AND PUBLIC POLICY 18 (Shane Greenstein & Victor Stango, eds., 2007).

⁶² SHAPIRO & VARIAN, *supra* note 51, at 261–96 (discussing standards wars over AM radio, wireless phones, 56k modems, and Internet browsers); *see generally* DOJ/FTC Antitrust and IP Report, *supra* note 53, at 34.

⁶³ *See* SHAPIRO & VARIAN, *supra* note 51, at 261–62.

⁶⁴ The owners of proprietary platforms often enable developers to create products that are compatible with or run on the platform through application programmer interfaces (APIs) and other means. *See* David S. Evans, *The Antitrust Analysis of Rules and Standards for Software Platforms*, COASE-SANDOR WORKING PAPER SERIES IN LAW AND ECONOMICS, Nov. 8, 2014, at 5–6.

⁶⁵ *See id.* at 7 (collecting data on prevalence of users and applications written for particular software platforms, including Microsoft Windows (1.35 billion devices and 4 million applications) and Apple iOS (800 million devices and 1.2 million applications)).

⁶⁶ *See* SHAPIRO & VARIAN, *supra* note 51, at 261–62.

audio technologies (cassette tape, 8-track tape, phonograph) within a short period of time.⁶⁷ By the same token, it has been argued that Matsushita's flexibility in licensing its VHS video cassette recorder (VCR) technology led to greater market adoption of VHS than Sony's technically superior, but more tightly controlled, Betamax technology.⁶⁸

Patent pledges in which the owner of a proprietary platform assures the market that it will make its patents available to those who wish to develop compatible products and services may help the patent holder achieve market acceptance of its platform.⁶⁹ These patent pledges are termed Platform Leadership pledges, as they are made to induce the market to adopt the patent holder's proprietary technology platform.

Microsoft has arguably made a number of such Platform Leadership pledges relating to its product interfaces and specifications.⁷⁰ Among the most significant of these are Microsoft's Interoperability Principles, in which it pledges to license all patents that cover certain open protocols on FRAND terms at "low" royalty rates.⁷¹ Microsoft's Interoperability Principles cover hundreds of different standards and protocols.⁷² Among these is the Microsoft Exchange ActiveSync suite of protocols, which enable the synchronization of email messages between corporate email accounts and mobile devices. Microsoft claims that ActiveSync has become "the industry standard for mobile messaging synchronization."⁷³ John Harkrider has argued that the emergence of ActiveSync as a de facto

⁶⁷ Id.

⁶⁸ See Oren Bar-Gill & Gideon Parchomovsky, *The Value of Giving Away Secrets* 11 (2003) ("facilitating rather than excluding cumulative innovation will often be in the best interest of the initial patent holder").

⁶⁹ See Anne Layne-Farrar, *Moving Past the SEP RAND Obsession: Some Thoughts on the Economic Implications of Unilateral Commitments and the Complexities of Patent Licensing*, 21 GEO. MASON L. REV. 1093, 1098 (2014) ("[V]oluntary intellectual property ... licensing announcements offer an important tool for persuading other industry participants to buy into a firm's technology option, thereby facilitating its acceptance as a de facto standard").

⁷⁰ *The Microsoft Patent Pledges for Implementations of Microsoft Workgroup Server Protocol Program Technical Specifications*, MICROSOFT CORP., <https://msdn.microsoft.com/en-us/openspecifications/dn646763>.

⁷¹ *Interoperability Principles Program*, MICROSOFT CORP., <https://msdn.microsoft.com/en-us/openspecifications/dn646764>.

⁷² *Patent Promises and Patents*, MICROSOFT CORP., <https://msdn.microsoft.com/en-us/openspecifications/dn750984>.

⁷³ Julia White, *Exchange ActiveSync: The Industry Standard for Mobile Messaging*, TECHNET BLOGS: THE MICROSOFT LYNC BLOG (Nov. 16, 2010, 9:12 am).

standard can be attributed, at least in part, to Microsoft's patent pledge covering the protocol. He explains:

Unlike many other *de facto* standards, which emerged solely from technical superiority or unfettered marketplace competition, Microsoft encouraged the industry to standardize on ActiveSync by promising to license its ActiveSync-essential patents on FRAND terms, at 'low royalty rates.' In doing so, Microsoft hoped both to encourage widespread implementation and, as a corollary, to discourage the development of alternative technologies.⁷⁴

3. Market development

Market Development pledges are made to promote the broad adoption of a nascent or emerging platform technology, generally one in which the patent holder is a leader. These pledges, unlike Interoperability and Platform Leadership pledges, are generally directed to a broad technology category rather than a single standard or product. For example, a patent holder making an Interoperability pledge might commit not to assert its patents against any product implementing the Bluetooth short-range wireless networking standard, whereas a patent holder making a Market Development pledge might commit not to assert its patents against any product using short-range wireless networking. In the first instance, the pledgor wishes to promote the adoption and use of the Bluetooth standard over competing standards, whereas in the second instance, the pledgor wishes to promote the widespread use of short-range wireless networking products, more generally, over competing technologies such as in-home optical fiber.

Market Development pledges are most likely to be made when there is competition among different technology platforms, or when the backers of a new technology platform seek to displace an existing platform.⁷⁵ For example, as discussed in the Introduction, in 2014 Tesla Motors pledged not to assert its portfolio of more than a hundred electric vehicle power management patents against electric vehicle manufacturers.⁷⁶ Though

⁷⁴ John D. Harkrider, *REPs Not SEPs: A Reasonable and Non-Discriminatory Approach to Licensing Commitments*, COMPETITION POL'Y INT'L ANTITRUST CHRON. (Oct. 2013).

⁷⁵ Cf. Dorothy Gill Raymond, *Benefits and Risks of Patent Pooling for Standard-Setting Organizations*, 16 ANTITRUST 41, 45 (observing that firms forming patent pools are likely to offer royalty-free licenses only when "there is the economic expectation of opening up new markets").

⁷⁶ See Tesla Pledge, Appendix. See also Jorge L. Contreras, *Tesla Motors and the Rise of Non-ICT Patent Pledges*, PATENTLY-O (June 16, 2014).

Tesla's announcement was perplexing to some,⁷⁷ and viewed as a mere publicity stunt by others,⁷⁸ Tesla CEO Elon Musk professed a desire to create a "safe space" in which the embryonic electric vehicle industry could grow, particularly in the face of massive competition from conventional automobiles. He explained that "Tesla, other companies making electric cars, and the world would all benefit from a common, rapidly-evolving technology platform" for electric vehicles.⁷⁹

Market Development pledges, including Tesla's, are similar to Interoperability and Platform Leadership pledges in that they seek to promote the adoption of a particular technology architecture or platform. In Tesla's case, the platform is a national electric vehicle infrastructure including charging stations, parts suppliers, and automobiles, all conforming to Tesla's standards and design choices.⁸⁰ Though Tesla does not own every aspect of this infrastructure, nationwide adoption of an electric vehicle platform could yield huge dividends to Tesla as a first mover and supplier of vehicles, parts, batteries, charging stations, and the like, and could also help the fledgling electric vehicle industry to compete more effectively against conventional automobile manufacturers.

In some cases, firms may seek a more direct payoff in exchange for their open source patent pledges. For example, Yochai Benkler explains IBM's support for the Linux operating system as motivated by its desire both to facilitate the development and improvement of the operating system run by its own hardware servers and to expand its own Linux-based service business.⁸¹ He observes that "[w]ithin a span of four years, [IBM's] Linux-related services category moved from accounting for

⁷⁷ See Ashlee Vance, *Why Elon Musk Just Opened Tesla's Patents to His Biggest Rivals*, BLOOMBERG BUSINESS (June 12, 2014) (noting Tesla's advances in battery design, software, and power management).

⁷⁸ See Paul Nunes & Joshua Bellin, *Elon Musk's Patent Decision Reflects Three Strategic Truths*, HARV. BUS. REV. BLOG NETWORK (July 1, 2014) (discussing possible rationales for Tesla's pledge, including a "mere bid for publicity").

⁷⁹ Tesla Pledge, Appendix.

⁸⁰ See Nunes & Bellin, *supra* note 78.

⁸¹ YOCHAI BENKLER, *THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM* 46 (2006). See also CYNTHIA CANNADY, *TECHNOLOGY LICENSING AND DEVELOPMENT AGREEMENTS* § 2.3 (Matthew Bender, rev. ed. 2015) (IBM's non-assertion pledge "is a licensing strategy to promote IBM products using Open Source ... not an anti-IP strategy"). See also Robert P. Merges, Colloquium, *A New Dynamism in the Public Domain*, 71 U. CHI. L. REV. 183, 186 (analysing IBM's Linux strategy as an essentially anti-Microsoft strategy).

practically no revenues to providing double the revenues from all patent-related sources.”⁸² Similar conclusions have been drawn about Google’s support for the Android mobile operating system and other corporate support for open source platforms.⁸³

B. Collective Action

Markets are routinely confronted with collective action challenges in which each market participant understands that it will benefit from some action if taken by a large number of participants, but the participant itself is unwilling to incur the cost of taking the action. Collective action problems often manifest themselves in the environmental arena, as all firms will likely benefit from taking measures to reduce emissions, conserve energy, and use sustainable materials, but few are willing to incur substantial costs to advance these goals independently. Patent pledges made by groups of firms, such as the participants in the Eco-Patent Commons, can help to address such collective action problems and achieve common ends without excessive individual expenditures.

Others have observed collective action issues in the area of patent litigation, inasmuch as firms that sell patents to non-practicing entities (NPEs) understand that by doing so they fuel potentially disruptive and costly NPE litigation, but are unwilling to forego the compensation that NPEs are willing to pay for their underutilized patents. Pledges not to transfer patents to NPEs, or to terminate licenses upon such transfers, are useful to the pledgor only to the extent that others make similar pledges. Thus, like Inducement pledges, Collective Action pledges are made primarily in order to encourage action by others. However, the action that the pledgor seeks to induce is not the adoption of a particular standard or technology platform, but the making of a similar patent pledge.

Coordinated pledges such as the Defensive Patent License (DPL) (discussed in Chapter 8) expressly depend on the participation of

⁸² BENKLER, *supra* note 81, at 46.

⁸³ See Brian Behlendorf, *Open Source as a Business Strategy*, in OPEN SOURCES VOICES FROM THE OPEN SOURCE REVOLUTION 149 (Chris DiBona, Sam Ockman & Mark Stone eds. 1999); Robert Young, *Giving It Away: How Red Hat Software Stumbled Across a New Economic Model and Helped Improve an Industry*, in OPEN SOURCES VOICES FROM THE OPEN SOURCE REVOLUTION 113–14 (Chris DiBona, Sam Ockman & Mark Stone eds. 1999); Bradley M. Kuhn, *The State of Free Software in Mobile Devices*, TECH. INNOV. MANAGEMENT REV. (Mar. 2010).

multiple parties. But even individual non-NPE transfer pledges derive most of their value from their ability to inspire, cajole, and shame other like-minded firms and executives to make similar commitments. Thus, Collective Action pledges are made largely to induce imitative behavior by other firms in order to provide the pledgor with the benefits of a collective action.

C. Voluntary Restraint

In some cases, a patent holder may make a pledge in order to persuade the market, or particular market actors, that it will not assert its patents in a particular manner or against particular classes of infringers. In effect, the patent holder, by making the pledge, voluntarily ties its own hands to prevent itself from undertaking certain actions. This approach is often adopted when a fear exists, either across the market or among particular actors, that the patent holder is both able and likely to exert its patents in a manner that is viewed as undesirable.

The market actors to whom such pledges are often directed are governmental authorities, and the pledges are made to persuade such authorities to approve a transaction under review or to discontinue an investigation of the patent holder's activities. Patent pledges, and FRAND commitments in particular, limit the ability of firms participating in standards development to exclude competitors from the market for standardized products and to charge excessive prices for access to essential patents. As a result, antitrust and competition enforcement agencies in both the U.S. and Europe have found FRAND commitments to be one of the principal means by which firms can mitigate antitrust risk arising from collaborative standards development.⁸⁴

While FRAND commitments, and most other forms of patent pledge, can generally be viewed as Voluntary Restraint pledges, there are more specific instances in which firms have made patent pledges to influence the decisions of antitrust enforcement agencies. For example, in early 2012, Apple, Microsoft, and Google each made assurances to the U.S.

⁸⁴ See Fiona M. Scott-Morton, Deputy Assistant Att'y Gen. for Econ. Analysis, U.S. Dep't of Justice, *The Role of Standards in the Current Patent Wars*, Address Before the Charles River Associates Annual Brussels Conference: Economic Developments in European Competition Policy 5 (Dec 5, 2012) ("FRAND commitments are designed to reduce occurrences of opportunistic or exploitative conduct in the implementation of standards. It is these commitments, along with other things, that make competition authorities more comfortable with these collective decisions").

Department of Justice (DOJ) that it would not seek injunctive relief against implementers of certain wireless telecommunications standards.⁸⁵ The impetus for these voluntary declarations was the pending review by the DOJ and the European Commission of three significant patent-based transactions: the \$12 billion acquisition of Motorola Mobility by Google, the \$4.5 billion purchase of a large patent portfolio from the estate of bankrupt Nortel Networks by Rockstar Bidco (a coalition including Microsoft, Apple, Research in Motion, Sony, and Ericsson), and the acquisition by Apple of Novell's Linux patents.⁸⁶ The DOJ cited the pledges made by these three firms as key factors in its decision to approve the proposed acquisitions.⁸⁷ The European Commission, which also received such pledges, approved Google's acquisition of Motorola Mobility on the same day.⁸⁸

Not all Voluntary Restraint pledges are made to appease enforcement agencies. In some cases, the intended audience for a Voluntary Restraint pledge may be a court. For example, Myriad Genetics recently came under intense public pressure for the pricing of its BRAC Analysis genetic diagnostic tests and threatening to assert its patents against academic institutions offering similar tests to the public.⁸⁹ Myriad's pledge not to assert its DNA patents against academic researchers,⁹⁰ a pledge that cost the firm relatively little in terms of real competitive ground, enabled it to represent to the court that it was not an aggressive enforcer of its patents, and that it broadly supported biomedical research.⁹¹

⁸⁵ *DOJ 2012 Approval Statement*, *supra* note 44.

⁸⁶ See Jorge L. Contreras, *The February of FRAND*, PATENTLY-O (Mar. 6, 2012).

⁸⁷ Joseph F. Wayland, Acting Assistant Att'y Gen., U.S. Dep't of Justice, Antitrust Policy in the Information Age: Protecting Innovation and Competition, Remarks as prepared for the Fordham Competition Law Institute 7 (Sept. 21, 2012) ("The commitments made by Apple and Microsoft substantially lessened the Antitrust Division's concerns about potential anticompetitive use of FRAND-encumbered standard-essential patents"); see also *DOJ 2012 Approval Statement*, *supra* note 44.

⁸⁸ Press Release, European Commission, Mergers: Commission approves acquisition of Motorola Mobility by Google (Feb. 13, 2012).

⁸⁹ *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2114 (2013).

⁹⁰ The Myriad Pledge, MYRIAD GENETICS, INC., <https://www.myriad.com/myriad-cares-2/the-myriad-pledge/>.

⁹¹ Brief for Respondents at 10, *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107 (2013) (No. 12-398) ("[S]ince the [Myriad]

D. Philanthropy

Finally, a growing number of patent pledges are made with the outward goal of advancing social causes and public welfare. For example, the Eco-Patent Commons (EPC) explained that “[s]haring environmental patents can help others become more eco-efficient and operate in a more environmentally sustainable manner—enabling technology innovation to meet social innovation.”⁹² Likewise, numerous firms have pledged not to assert software patents against businesses having fewer than 25 employees in an effort to promote entrepreneurship and the growth of small businesses.⁹³

All of these pledges can be characterized as supporting broad social welfare goals, either by promoting the unencumbered development of socially valuable technologies or by reducing the cost burden of patent litigation on an industry. The firms making such Philanthropic pledges are motivated by a range of factors, few of which are purely philanthropic. First, pledging firms themselves may benefit from the effects of their pledges. Thus, whether it is because the increased use of green technology will create a healthier environment and population, or because the growth of small businesses is believed to have a beneficial effect on the marketplace, workforce, and economy, the pledging firm may benefit directly from the collective effect of pledges supporting the same cause.⁹⁴

Another, more direct, justification for Philanthropic pledges is the public relations (PR) benefit that often accompanies their announcement. If the value of the patents to the pledging firm is low, this PR benefit may actually exceed the value that is given up through the pledge. For example, the EPC acknowledged that the patents pledged by its members

patents issued, over 18,000 researchers have conducted studies on BRCA1/2 genes, published over 8,000 papers, and conducted over 130 clinical trials. Indeed, one named plaintiff conceded that she may ‘sequence the BRCA1 and BRCA2 genes for purely research purposes,’ and has been doing so without impediment” (citations omitted)).

⁹² Overview, WORLD BUS. COUNCIL FOR SUSTAINABLE DEV., <http://www.wbcsd.org/work-program/capacity-building/eco-patent-commons/overview.aspx>.

⁹³ THE PATENT PLEDGE, <http://thepatentpledge.org/>.

⁹⁴ Note, however, that the potential to benefit from the collective effect of philanthropic pledges does not render such pledges Collective Action pledges, as discussed in Section IV.A.2, above. The difference being that the maker of a Philanthropic pledge does not make the pledge primarily to induce other market actors to make the same pledge and thereby achieve some mutually desired result, such as the reduction of NPE litigation.

are not necessarily strategic to their primary businesses,⁹⁵ and that these firms receive positive publicity by supporting environmentally friendly initiatives. In a related vein, firms that become the subject of *negative* publicity may seek to improve their public images by making pledges that seemingly benefit the public. The cost-benefit analysis in this case is relatively simple: a firm is better off pledging low-value patents in exchange for a PR benefit than allowing them to gather dust.

Some pledges that fall predominantly into other categories may have some attributes of Philanthropic pledges. For example, Voluntary Restraint pledges, which are primarily intended to assuage public or governmental concerns regarding the patent holders' use of patents, may also be characterized as actions taken for the public good, with concomitant PR benefits for the pledgors.

Likewise, Inducement pledges directed toward the growth of industries perceived to promote social benefits can sometimes share attributes of Philanthropic pledges. The open source "movement" had ideological origins and has long been associated with ideals of volunteerism, transparency, sharing, and openness. Thus, though many patent pledges made with respect to open source code may be classified as Market Development pledges, elements of altruism and community spirit may also influence a firm's decision to make such pledges.

CONCLUSION

Patent pledges are made in a wide variety of industries and contexts. Yet careful analysis of these pledges identifies both commonalities and differences among them. The four-part taxonomy developed in this chapter classifies patent pledges based on the economic and other motivations that lead patent holders to make them. Classification on this basis sheds light on the anticipated effect that these pledges have on other market actors.

⁹⁵ In 2011, investigators studying the value of patents pledged to the Eco-Patent Commons (EPC) found that the number of patents that firms pledged to the EPC was very small in comparison to their overall patent portfolios, yet the patents did not appear to be substantially less valuable than other patents in the firms' portfolios. Bronwyn H. Hall & Christian Helmers, *Innovation and Diffusion of Clean/Green Technology: Can Patent Commons Help?*, 66 J. ENVTL. ECON. & MGT. 33, 47 (2013).