Coase 2.0 and the Patent System
Why Policy Makers Need To Focus on the Information Sharing Incentives and Mechanisms in Patent Law

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1. History and evolution of patent monetization models

2. Patent law is unable to deal with downstream pathologies such as holdup and the inability of stakeholders to value patents

3. What the Big Data Revolution in Patent Law will look like, and what we need to do to get there.

4. What to expect for the future.
Theory: Introducing “Coase 2.0” to the Debate

(1937) Ronald Coase: transaction costs are a central determinant of how economic activity is organized.

(1970’s) Gilson, et. al.: Imperfect markets give rise to intermediaries to lift the wedge between parties. (Lawyers as transaction cost engineers)

“When markets fall short of perfection, incentives exist for private innovation”

(2015) Shanahan, Goodenough, McGinnis, etc.: Technology supplements lawyers as transaction cost engineers. (“Coase 2.0”)

1. Will it become a controlling determinant in the transaction cost of lawyers?

2. What are the controlling variables in determining the cost economizing effects of technology on transactions? (both in the patent space and beyond)
Paper 1: Technology enabled intermediaries, or Technology AS the intermediary

- 2020+ Prediction
  - Technology intermediaries
  - Semantic AI
  - Probability Models
  - Automated Transactions
  - Network Patent Ledgers
What is it going to take?
It appears government and private practice suffer from systemic issues with patent IT infrastructure.
```python
# pats is a list of the 10K most recently changed pending PAIR applications

output = []
for pat, data in pull_pats(pats):
    ADS_count = data.count('<IMAGE_CODE>ADS</IMAGE_CODE>')</n    if ADS_count > 1:
        dates = []
        for i in pull(data, 'IMAGE'):
            if not '<IMAGE_CODE>ADS</IMAGE_CODE>' in i: continue
            date = try_pull(i, 'IMAGE_MAIL_DATE')
            dates.append(date)
        dates.sort()
        dates = [yyyyymmdd_2_mmddyyyy(x) for x in dates]
        output.append((pat, str(ADS_count), ', '.join(dates)))
```

~44K Errors
Patent Maintenance Fees

Please enter both a patent number and its corresponding application number to do the following:

- Click on 'Retrieve Fees to Pay' to pay a maintenance fee.
- Click on 'Get Bibliographic Data' to obtain patent bibliographic data.
- Click on View Payment Windows' to determine when maintenance fees are due.
- Select the applicable year (4, 8 or 12) from the drop-down list box next to 'Payment Window' and click 'View Statement' to print a statement showing receipt of a maintenance fee payment.

We are unable to display the requested information. Please note that all requests must be made using this form consistent with the Terms of Use displayed below.

**Patent Number** (exclude special characters; e.g. commas): 8615723

**Application Number** (must be 8 numeric digits - see NOTE below): 13597134
The USPTO Has Implemented a Verification System in Public PAIR

The United States Patent and Trademark Office (USPTO) has implemented a two-word verification code to improve data access for Public PAIR users. Public PAIR users are now required to manually enter a two-word verification code into the reCAPTCHA validation screen before accessing Public PAIR data. The USPTO takes seriously its responsibility to promote the progress of science by providing free access to patent data via Private and Public PAIR. The USPTO implemented a CAPTCHA security response.

CAPTCHA (Completely Automated Turing Test to Tell Computers and Humans Apart) is an industry-accepted security feature to ensure that humans, and not bots, are accessing computer programs. The version of CAPTCHA that the USPTO implemented is named reCAPTCHA (for additional details http://recaptcha.net/), a project of the School of Computer Science at Carnegie Mellon University. The reCAPTCHA deployment was an immediate response to a system outage problem caused by bots. The USPTO continues to explore long-term solutions to address the need for open access to the data by the Intellectual Property community.
The USPTO will continue to develop an acquisition strategy under the previously posted RFP (DOC52PAPT1000025) using competition to the maximum extent possible for establishing the long-term no cost solution to public data dissemination and transparency of governmental data.
Transactions are all about information, the rest is distributive.

Paper 1 Policy Suggestions

1. Transaction costs are high because information gathering between “patent wanters” and “patent (rights) holders” is messy. Focus on this.

2. Focus on ex ante informational distribution versus ex post “penalties”. OR, devise penalties around incentivizing ex ante disclosure. *(Review current laws that have to do with information sharing: i.e. IDS filings, Willful Infringement, Assignment filing, Real Party at Interest - do these work? If not, then why?)*

3. Define a technical standard for what the Congressional Mandate for Dissemination of Public Records means. *(Is this an XML api? Is this bulk downloads? New terms of service that encourages innovation in transactions and information sharing.)*
Research Opportunity: “Coasean Mapping” Applied Coase 2.0

Transaction cost economizing
Paper 2 Roadmap:

1. Government information mechanisms: Regulation & Doctrines

2. Private Sector information mechanisms: Services & Technologies

3. Economic model for processing these inputs
USPTO Advocacy for equal access / parity of information policies?

Some insights from SEC equal access & parity of information policies:

“[t]he essential objective of securities legislation is to protect those who do not know market conditions from the overreaching of those who do.” (1943)

Rule 10b-5 is “based in policy on the justifiable expectation of the securities marketplace that all investors trading on impersonal exchanges have relatively equal access to material information ....” (1968)

In its rule 19b-2 release, the SEC identified as a major policy goal “the removal or limitation of the special trading advantages which any one group or classification of investors holds over another.” (1973)

Comment on Information as a Public Good.

“Unregulated markets allocate a suboptimal amount of resources to research and invention because information is a “public good,” like national defense, lighthouses, clean air, weather broadcasts, bridges, and open spaces, for which the market could not simultaneously provide optimal production and consumption.” (Arrow 1962)
If deemed a public good, then access to patent data must be provided under a well-defined standard, which matches access norms of the times.

The distance between innovation and the marketplace is shrinking. Said another way, innovation is moving more quickly from creation to manufacture and distribution. IP is often a necessary instrument for innovators and businesses to capture value as ideas move to market. In performing its mission, the USPTO faces significant challenges. These challenges include:

- Funding authority to support agency performance objectives.
- The volume of applications.
- Rapid advances in technologies.
- Necessity for global cooperation and protection.
- Antiquated and decaying IT infrastructure.
- Hiring, retaining, and training examiners.
- Balancing competing objectives.
- The need for greater transparency in defining accountability.
Benefits of certain disclosure requirements

1. Requirement of reporting real-party at Interest with contact information
   Effect: Identifies if the patent holder is the type to litigate or enforce. Permits parties to discuss potential of a transaction.

2. Requiring a certified prior art search
   Effect: Identifies relevant patents and informs on landscape. Creates & maintains a patent search standard.

3. Compelling licensing discussions if patent reads closely
   Effect: exchange of information to inform on strategy

4. All transactions, their prices and terms must be recorded & published
   Effect: Leverage existing pricing work and research.

5. Removal of Willful Infringement Doctrine
   Effect: Promotes the collection and creation of valuable patent information and the strategic & efficient use of a company’s patent budget.
Effects of a Penalty Default Rule: Compelling Disclosure

Wagner, Maskin, Stigler, Ayers and even some Posner.

Wagner 2002: Prosecution History Estoppel (Festo case)
“prosecution history estoppel is best viewed as an information-forcing default penalty rule, where the possibility of lost patent scope induces patentees to produce socially valuable information early in the life of the patent. Other benefits include the internalization of costs related to certain activities during patent prosecution, and increased enforcement of the institutional arrangements between the Patent Office and the judiciary. Indeed, the considerable analytic advantages observed in this context strongly suggest that the Article’s methodological approach of reconsidering the patent law in an explicitly ex ante framework has applications well beyond prosecution history estoppel.”

Ayers 2006: “Legal information-forcing”
“The “legal information-forcing” rules are most plausible when there is asymmetric information about the content of the law itself. In the face of asymmetric legal information, a straightforward solution is to set the default against the more knowledgeable party. In many contexts, for example, one contractor is a repeat player and the other is not. The repeat player–think retail business or insurance company–is more likely to learn the content of the legal rule than the one-off consumer. The natural response is to establish a default that disfavors the repeat player.”
Information + legal technology is the ultimate transaction cost engineer

- Patent Database
- APIs
- Licensing Databases
- Ownership Databases
- License/Sale Databases
- Goods & Services meta data

- Practice Management Automation
- Semantic Patent Search & Rank
- Machine Learning Licensor ID
- Computable Contracts
- Predictive Modeling
- Real-time landscape analytics
Proposed Normative Model

\[(c - T) + s = \text{total transaction costs minus } T \text{ which represents use of technology in information cost reduction.}\]

Where
\[s = \text{total cost spent on software purchase per year, averaged to price per hour spent on transaction.}\]

Or alternatively:

\[(e - T) + s = \text{entire expenditure on care minus } T \text{ which represents use of technology in cost reduction associated with taking care.}\]

i.e. cost of drafting a patent license agreement

\[\text{Fully Human} \quad \text{fully human} \quad \text{Fully Machine} \]

\[II (T) = \text{probability of successful transaction. The higher the seller's and buyer's use of technology, the higher the probability of success. where II is an increasing function of } T \text{ (the higher the use of technology to take care, the higher the probability of success).}\]
Plugging values into Eric Maskin’s Default Penalty Rule Model

\[ B_S - p_S - c = \Pi(e_S)B_S - e_S - c \geq \Pi(e_N)B_S + (1 - \Pi(e_N))B_N - p_N = \Pi(e_N)B_S - e_N \]

“comparing default rules may depend critically on which particular costs (if any) are important. Unfortunately, empirical work has not advanced anywhere near the point where we have a good understanding of the various costs' absolute or relative magnitudes.”

The Task of Verifying e:

Sellers e = R&D, prosecuting the patent, identifying commercial use of patent, hiring a broker, spending time reaching out to a potential licensor, constructing an information package that is easy for a potential buyer to understand, and collecting all existing information regarding similar transactions in the space.

Buyers e = conducting a freedom to operate search, joining a patent pool, licensing existing patents, conducting due diligence, filing a new patent, maintaining & growing a portfolio.
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