

Litigating Trade Secrets: An
International Comparative
Assessment Of Civil And
Criminal Trade Secret
Enforcement (Oct. 2018)

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Litigating Trade Secrets: An International Comparative Assessment of Civil and Criminal Trade Secret Enforcement

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ABSTRACT

Trade secrets are, by some measures, the most important intellectual property rights, but they remain the least studied and the least affected by international harmonization. This lack of attention is changing, as businesses and policymakers recognize the importance of trade secret laws and seek greater harmonization. This paper analyses the under-studied topic of trade secret litigation in a broad sample of countries. The effectiveness of trade secret law is ultimately determined in the crucible of litigation – there is no other way to establish the existence of a trade secret. Building on the authors’ previous empirical work for the OECD (Schultz and Lippoldt, 2014; Lippoldt and Schultz, 2014), the paper identifies key points of divergence: evidentiary requirements, procedures for investigating claims, protection during litigation, remedies – including criminal remedies, and legal system quality. The paper also includes several case studies, which illustrate that: 1) trade secret litigation is increasingly cross-border and international; 2) the ability to investigate and seek remedies for trade secret theft across borders is also increasingly important, and 3) criminal law is an essential, but limited, tool for investigating particularly challenging trade secret claims. To achieve meaningful and effective change, any harmonization efforts will need to address these issues.

LITIGATING TRADE SECRETS – AN ANALYSIS AND COMPARATIVE ASSESSMENT OF HOW TRADE SECRET OWNERS FARE IN LITIGATION WORLDWIDE

I. Introduction

This paper analyses the choices and constraints that a trade secret owner seeking to defend trade secrets through litigation may face in a large sample of countries. It considers how litigants may obtain evidence to prove their cases, protections afforded to trade secrets during litigation, available remedies, the significance of the availability of criminal remedies, and the quality of the legal system. The paper builds on the foundation developed in previous work the authors have done for the OECD in a paper that created a global index of trade secret protection (Schultz and Lippoldt, 2014), as well as a second paper that examined an expanded sample of countries, providing a qualitative and empirical assessment (Lippoldt and Schultz, 2014).

The authors’ previous work found that while certain aspects of trade secret protection have tended to converge across countries, important differences remain with respect to factors affecting the ability to litigate trade secrets effectively. Schultz and Lippoldt (2014) developed the Trade Secrets Protection Index (TSPI), a numerical index that aggregates elements constituting the protection of trade secrecy. The TSPI enables the measurement of the variation in stringency of available protection for trade secrets across countries – 33 are covered in this paper – and time. The authors have found that while components of the index such as “definitions and coverage;” and “specific duties and misappropriation” have converged, wider variance remains in other factors such as “enforcement, investigation & discovery;” and “system functioning and related regulation.” The factors where variance remains wider are the ones more likely to affect litigation.

These differences call for further analysis and study, since trade secret owners may be particularly sensitive to rules, procedures and other factors affecting the ability to litigate trade secrets effectively. First, small and medium size enterprises (SMEs) may particularly rely on trade secrecy (Brant and Lohse, 2013). Given the comparatively limited resources available to such firms, factors making litigation more costly or resource intensive may particularly matter. Second, trade secrets are by their nature capable of

being concealed, and thus evidence of a defendant's wrongdoing is difficult to obtain in many cases, making investigative procedures important. Third, trade secrets are easily destroyed by exposure, and thus quick, certain remedies that halt disclosure are important to trade secret owners, as is protection of secrets in litigation. These considerations and the factors affecting them are considered in detail in this paper

This paper draws on the analysis and data collected during the course of the OECD Trade Secrets project to assess the factors affecting the litigation of trade secrets. It does so by three means: (1) presenting descriptive statistics regarding various factors likely to affect trade secret litigation derived from the Trade Secret Protection Index (TSPI, discussed in Section 2, below); (2) a comparative legal analysis of the variance in those factors and how that variance may affect litigation decisions; and (3) two case studies that illuminate and illustrate some of the current realities and challenges of trade secret litigation. The paper's methodology is mainly qualitative, though it draws on an objective comparative legal analysis that has been quantified by the TSPI and on one case study that provides descriptive statistics regarding criminal prosecution of trade secret theft.²

The paper's analysis provides several insights with respect to how a trade secret owner's ability to enforce rights is likely to be affected by the approaches countries employ with respect to the litigation of trade secrets. One particularly consequential set of factors concerns the investigation of trade secret claims: it appears that a relatively restrictive approach taken by some countries with respect to the means available for investigation can make it more challenging to prove a claim. In addition, the ability to investigate trade secret claims is affected by the availability of sanctions under criminal law, and, consequently the availability of governmental authority and assistance in investigating challenging trade secret claims. Another important factor is the effectiveness of protection of trade secrets during litigation, as less protective procedures may cause litigation to exacerbate, rather than relieve the harm of theft (i.e. due to further potential disclosure of the secret during the course of litigation). There is also some variance in remedies, particularly the availability of injunctions, which is likely to affect litigation strategy. Finally, this paper's case studies illuminate several points, including that: 1) protection of trade secrets via criminal law is an essential, though specialised, tool for investigating particularly challenging claims; 2) trade secret issues are increasingly cross-border and international in nature; and 3) the cross-border nature of trade secret theft makes the ability to investigate and seek remedies for trade secret theft across borders important.

The discussion proceeds as follows: Section 2 provides an overview of trade secret protection and the TSPI. Section 3 provides a literature review of the limited empirical work available regarding trade secret litigation. Section 4 turns to analysing the factors presented in the TSPI most likely to affect litigation of trade secrets and presents a comparative legal analysis of those factors. Section 5 presents two case studies. The first considers the AMSC – Sinovel dispute regarding the alleged theft of trade secrets in green technology. That dispute spans three countries thus far, taking place in both criminal and civil courts. The second examines the experience of expanding criminal jurisdiction over trade secret theft considering the examples of France, Japan, Sweden and the United States. The conclusions highlight policy-relevant

² While a multi-country empirical analysis of trade secret claims filed would be desirable, such a study is impracticable given currently available data and resources. Like others before them, the authors of this study have found that few countries keep statistics on trade secret claims filed or specifically identify trade secret claims in their litigation systems (e.g. Hogan Lovells, 2012; Baker & McKenzie, 2013; Almeling et al., 2009, 2010; and Lerner, 2006). Even in the United States, where competing commercial databases of pleadings are available, a dearth of data and resource constraints have made it necessary for most researchers to study judicial opinions published rather than claims filed (Almeling et al. 2009, 2010; Lerner, 2006). An exception is the study of U.S. Economic Espionage Act prosecutions by Toren (2012), as those pleadings are more readily identifiable, accessible and manageable than civil claims in the U.S. or elsewhere.

findings with respect to the implications of the procedures and remedies for litigating claims available for trade secret owners.

II. Overview: Definition of Trade Secrets, the International Framework for Trade Secret Protection, and the Trade Secret Protection Index

A. Definition

Trade secret law protects undisclosed technical or business information that derives value from being kept secret. The information must actually be secret, which means that it may not be generally known in the relevant industry and it should not be easy to ascertain from publicly available sources. Moreover, the owner is required to employ reasonable efforts to keep the information secret. Finally, the information must be commercially valuable, which is typically indicated by the investment made in creating the information or the value of the information to ongoing business.

With respect to enforcement, the scope of trade secret protection provides an exclusive right to use information developed by the trade secret owner, but does not prevent others from using the same information if they independently develop it or fairly obtain it from the public domain.³ This right differs from the case of patent rights, for example, where independent development typically is not a defence and the owner may prevent others from using an invention developed without reference to the patent owner's invention. In enforcing trade secrets, the owner must show that the defendant wrongly took the information from plaintiff and did not independently develop it.

B. The International Framework for Trade Secret Protection

The World Trade Organisation's (WTO) *Agreement on Trade-Related Aspects of Intellectual Property Rights* (TRIPS) was the first multilateral agreement to directly impose on its members obligations to protect undisclosed information (Box 1). Guided by the provisions of Article 39 of the TRIPS agreement, the definition of trade secrets has tended to converge across the countries considered in this assessment (Schultz and Lippoldt, 2014, pp. 7-8).

As Box 1 shows, the TRIPS Agreement does not provide much guidance on the specifics of the national systems to be put in place to protect trade secrets.⁴ TRIPS does specify, however, certain aspects of intellectual property rights enforcement for all such rights covered by TRIPS. It specifies in Article 42 that civil judicial procedures should be available. It further specifies in Article 43 that judicial authorities should have the authority to require the production of evidence and it requires the availability of remedies, including injunctions (Article 44) and damages (Article 46).

However, TRIPS also leaves certain latitude to its members with respect to enforcement. The treaty specifies that it does not require a distinct judicial system for the enforcement of intellectual property rights. Nor does it require prioritisation of intellectual property enforcement. Article 41, paragraph 5 makes this point clear:

It is understood that this Part does not create any obligation to put in place a judicial system for the enforcement of intellectual property rights distinct from that for the

³ This sort of property right is a usufructory right, a type of right that is frequently used for resources such as water. See Claeys (2013) for a detailed explanation as to its relevance to trade secrecy.

⁴ The reader may refer to Schultz and Lippoldt (2014) for further information regarding how this definition is implemented worldwide.

enforcement of law in general, nor does it affect the capacity of Members to enforce their law in general. Nothing in this Part creates any obligation with respect to the distribution of resources as between enforcement of intellectual property rights and the enforcement of law in general.

As detailed in the next sections of the present paper, there is great variance with respect to how countries enforce trade secret rights. While some have developed intellectual property-specific procedures and systems, those procedures may not apply to trade secrets (e.g. the European Union's Enforcement Directive).

Box 1. The TRIPS Agreement on Undisclosed Information

Protection of undisclosed information is addressed in Article 39 of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organization (WTO). This agreement entered into force on 1 January 1995 and established an international standard requiring WTO Members to protect undisclosed information including agricultural and pharmaceutical test data.

**Section 7: Protection of Undisclosed Information, Article 39
[of the TRIPS Agreement]**

1. In the course of ensuring effective protection against unfair competition as provided in Article 10bis of the Paris Convention (1967), Members shall protect undisclosed information in accordance with paragraph 2 and data submitted to governments or governmental agencies in accordance with paragraph 3.¹
2. Natural and legal persons shall have the possibility of preventing information lawfully within their control from being disclosed to, acquired by, or used by others without their consent in a manner contrary to honest commercial practices² so long as such information:
 - (a) is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question;
 - (b) has commercial value because it is secret; and
 - (c) has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.
3. Members, when requiring, as a condition of approving the marketing of pharmaceutical or of agricultural chemical products which utilise new chemical entities, the submission of undisclosed test or other data, the origination of which involves a considerable effort, shall protect such data against unfair commercial use. In addition, Members shall protect such data against disclosure, except where necessary to protect the public, or unless steps are taken to ensure that the data are protected against unfair commercial use.

Footnotes:

¹ These paragraph references refer to paragraphs 2 and 3 of Article 39 of the TRIPS Agreement.

² At this point in the original text, there is a footnote, numbered 10, that states:

For the purpose of this provision, “a manner contrary to honest commercial practices” shall mean at least practices such as breach of contract, breach of confidence and inducement to breach, and includes the acquisition of undisclosed information by third parties who knew, or were grossly negligent in failing to know, that such practices were involved in the acquisition.

Source: Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), WTO.

C. Trade Secrets Protection Index

1. Index Composition

In order to measure the extent of the variation in stringency of available protection for trade secrets, Schultz and Lippoldt (2014) developed the Trade Secrets Protection Index (TSPI). The development of this

index is a pioneering effort in the analysis of protection of trade secrets.⁵ It provides an objective, detailed assessment of the stringency of trade secret protection in each country analysed, examining multiple components. Both the process of assembling that information and the results embodied in the TSPI enable the comparative assessment provided by this paper of factors affecting the litigation of trade secrets.

The TSPI measures laws on the books, but goes beyond that to measure factors likely to affect enforcement, and accounts for expert opinion about trade secret protection in individual countries – both as a factor and in how it measures the actual presence or absence of particular factors.⁶ On the other hand, the TSPI is non-normative: the index's function is descriptive and the scores it produces are neither grades nor ratings. Rather, it measures stringency of protection. Chart 1 presents the detailed composition of the index and its scoring. The index is structured around five main components:

1. Definitions and coverage
2. Specific duties and misappropriation
3. Remedies and restrictions on liability
4. Enforcement, investigation & discovery; data exclusivity
5. System functioning and related regulation.

The approach to scoring provides up to one point for each of the five main components of the index and a maximum total score for the index of five points. In order to maintain balance across the five components of the index, the scoring for the various elements under each of the five main components was normalised to ensure equal weighting. Thus, the elements for each main component add up to a maximum score of one. Overall, the index is designed to capture information on the stringency of the available protection in a manner that is internationally comparable. For further details on assembling the index, consult Schultz and Lippoldt (2014), and Lippoldt and Schultz (2014).⁷

⁵ However, it should be noted that a variety of similar indices exist in the literature covering various types of intellectual property. For example, Ginarte and Park (1997) and Park (2008) employed laws-on-the-books approaches to examine protection of patents, trademarks and copyright. Pugatch et al. (2014) developed an empirically based index of the strength of IPR protection, which also incorporated industry perspectives. Png (2012) developed an indicator for use in his analytical work on trade secrets protection. Also, the Fraser Institute and World Economic Forum, among others, have developed substantial sets of relevant systemic indicators for use in economic analyses. Such indicators have been utilized in a number of studies conducted by the OECD, for example: Park and Lippoldt (2005) and Park and Lippoldt (2008).

⁶ For example, if experts note, as in the case of China, that the courts insist on documentary evidence to establish a trade secret, then the TSPI accounts for the need to reduce the secret to writing – even if that requirement is not set forth statutorily.

⁷ Lippoldt and Schultz (2014) explain the considerations that motivated the design of the index:

“First, the five components represent key aspects of protection of trade secrets where there is some variation across countries that may influence the stringency of protection. Second, the elements of the TSPI were structured to enable scoring based primarily on objective criteria, supplemented in some cases by qualitative information as necessary (e.g. in certain areas related to system operation). Third, in order to ensure coherence across the components, the index employs an integrated index approach rather than separate indicators. Fourth, the presentation of the index emphasises transparency, with scores supported by a text chart for each country and verifiable references. Fifth, the index is designed to provide an indication of the stringency of available protection; it aims to be neutral in this assessment. In other words, a higher or low score reflects the strength of protection and not an assessment of the appropriate level of protection.”

The present paper considers data on 33 countries (listed in Chart 2) for the period from 1995 to 2010. Despite some convergence during this period, the data reveal significant variance across time and among countries in certain aspects of trade secrets protection. Section 4 of this paper further examines the components of the TSPI that are most relevant to the conduct of litigation.

III. Literature Review

The academic literature assessing how trade secret claims fare in litigation is quite limited. We have identified a handful of empirical studies and a survey on this issue. One of the reasons for this paucity of research may be that few countries appear to track statistics on trade secret litigation. In fact, most of the research is US-based, likely owing in part to the availability of database resources there as well as the comparatively large volume of cases. Yet, even in the United States, the empirical literature on this topic is not extensive.

Almeling et al. published two studies providing exhaustive descriptive statistics regarding trade secret decisions based on published judicial opinions. One addressed federal cases using published trial court opinions (Almeling et al., 2009) and the other addressed litigation in the state courts using published appellate court opinions (Almeling et al., 2010).

Through the studies, Almeling et al. were able to identify a number of characteristics and trends in US trade secret litigation, at least as indicated by judicial opinions. Among their findings were the following:

- The vast majority of defendants are known to the plaintiffs – either employees, former employees, or a business partner – the percentage was over 85%.
- Federal cases, at least as indicted by trial court opinions, are growing at an exponential rate.
- There is great diversity in the types of secrets litigated, but leading categories include confidential business information, technical information and know how, and customer lists.

Lerner (2006) similarly examined published judicial opinions to understand trade secret litigation outcomes. His sample covered cases from Massachusetts and California (the California opinions were appellate opinions). Among Lerner's key findings indicate that: (1) trade secret cases were increasing in number in those two states; (2) computer programming was the industry most represented in his sample; (3) 38% of the opinions found a trade secret valuation; and (4) the average damage award in cases where damages were awarded was USD 1.5 million in 2004.

Toren (2012) addresses federal criminal cases brought under the Economic Espionage Act since its passage in 1996. For further discussion of that study, see Section 5.2.4 of this paper, which extensively discusses and supplements that study.

In 2012, the European Commission released a study regarding trade secret protection by the law firm of Hogan Lovells. The Hogan Lovells report included a survey of the law in EU member countries, including litigation-related provisions. It queried a small sample of countries with the question: "Approximately how many trade secret actions are heard by the civil courts in your jurisdiction each year?" The report recorded the following answers:

Bulgaria: Four cases in 2011; four cases in 2010; and one case in 2009.⁸

⁸ Hogan Lovells Report, Appendix 3 at 15 (2012).

Sweden: “The Swedish courts do not have any statistical information with regard to how many trade secret actions are heard by the courts each year. Therefore, we cannot provide any reliable information about this issue. However, based on our own experience we would roughly estimate that the Swedish courts hear approximately 20 cases a year that relate to trade secrets.”⁹

United Kingdom: “Statistics from the UK's Ministry of Justice indicate that the number of issued trade secret/confidential information claims is growing (from three in 2006 to 95 in 2009). Note that these statistics are for claims issued; only a handful of these cases will reach trial as many will settle.”¹⁰

In 2013, the European Commission released a study by the law firm of Baker & McKenzie regarding trade secret protection.¹¹ That study presented a survey of firms regarding their experiences with trade secrecy, including questions concerning litigation. The sample covered Austria, Belgium, Czech Republic, France, Germany, Hungary, Italy, The Netherlands, Poland, Spain, Sweden, Switzerland and the United Kingdom. The survey reported that of the firms that had experienced trade secret misappropriation in the past 10 years in the EU, a portion of them had chosen not to seek legal remedies. When asked why they did not litigate their claims in the EU, among the most cited reasons were: the difficulty in collecting evidence (43%), the risk that initiating legal action would bring the case to public attention (30%), the litigation costs (30%), the lack of effective legal remedies (28.6%), and the inability to quantify damages (27%).¹² The Baker & McKenzie study also included a survey of the law in EU member countries, including litigation-related provisions.

IV. A Comparative Analysis of Components of the Trade Secret Protection Most Likely to Affect the Conduct of Litigation

There are several reasons to believe that owners – or potential developers – of trade secrets are particularly sensitive to the rules, procedures and practicalities governing litigation of trade secrets. Trade secrets are vulnerable, and easily destroyed by exposure. Evidence of wrongdoing may be difficult to obtain, because it is easily concealed and may be in the hands of the defendant. These characteristics of trade secrets make procedures for obtaining evidence, the availability of injunctive relief, and protection of confidentiality during litigation particularly important to trade secret owners. This Section explores differences among countries’ laws with respect to these factors, first examining how they vary in the context of the TSPI and then presenting a comparative legal analysis.

A. Diversity of Approaches Reflected in the TSPI

Figure 1 presents the TSPI scores for a broad sample of developed and developing countries as of 2010. The chart highlights the contributions of the various components to the overall score. With reference to the current legal concerns of rights holders, the most relevant TSPI components may include:

- Component 3, Remedies and Restrictions on Liability;
- Component 4, Enforcement, investigation and discover; data exclusivity; and

⁹ Ibid at 59.

¹⁰ Ibid at 66.

¹¹ Baker & McKenzie (2013).

¹² Ibid at 145.

- Component 5, System functioning and related regulation.

The variation in scores for Components 4 and 5 is more substantial than for the other components and this variation plays a substantial role in contributing to the final rankings shown in the Figure. This can be seen statistically in Tables 1 and 2. During the period from 1995 to 2010, the average scores for the countries shown increased gradually overall from 3.24 to 3.62. During that time, the average scores for “4 Enforcement, investigation and discovery; data exclusivity” and “5 System functioning and related regulation” remained generally lower than for the other components of the index. In some cases, the minimum scores across the sample remained quite low throughout this timeframe, while the maximum scores increased to hit the theoretical maximum in three of the five categories.

Indicators for dispersion of scores in each category reflected increased alignment with respect to the components for “Definition and coverage,” “Duties and misappropriation,” and “Remedies and restrictions on liability.” Despite some increased alignment for the “Enforcement, investigation and discovery; data exclusivity” and “System functioning and related regulation,” the levels of dispersion for these components remain significantly higher than for the other components.¹³

With respect to the total scores, the dispersion in 2005 and 2006 declined to a level that is lower than for the individual components. This reduction in overall dispersion and persistence of variation in some of the individual categories indicates that countries are achieving their overall TSPI scores with various combinations of the individual components. Among the sample countries, there is some lack of consistency in the manner in which they achieve a particular score. A country that turns in a relatively high and rising score for the Enforcement component, may turn in a low score for System functioning component, or vice versa. Moreover, within these broad components, there is further diversity in the scoring for the individual elements within each component for each country.

Such lack of harmonisation may prove to be a challenge for businesses trying to develop or protect trade secrets as part of their strategies for competitive advantage (Baker & McKenzie, 2013). The divergence may create gaps in protection domestically and can introduce risks for businesses seeking to enter foreign markets. In some cases, these risks may not be very obvious in the absence of a thorough legal review. This variation can prove to be a particular management challenge for businesses operating international R&D initiatives, where the employees in different countries may be subject to different rules concerning key aspects of trade secrecy. Hence, it is not surprising that business interests in some countries and regions have advocated initiatives to promote further harmonisation. Some governments are responding to these concerns, as is the European Commission which proposed a draft directive for adoption in EU member countries.¹⁴

¹³ With respect to TSPI components 4 *Enforcement, investigation and discovery; data exclusivity* and 5 *System functioning and related regulation*, the standard deviation and coefficient of variation scores are notably higher than for the other components. While the scores for components 4 and 5 are not particularly high in statistical terms, the variation may nonetheless have important implications for the functioning of the associated trade secrets protection, as discussed in the qualitative assessment that follows in the next sections.

¹⁴ The EC roadmap for the project to improve harmonisation of trade secrets rules in the EU is available on-line here: http://ec.europa.eu/smart-regulation/impact/planned_ia/docs/2013 Markt_002_trade_secrets_en.pdf; an EC draft directive on the rules for harmonisation is available here: http://ec.europa.eu/internal_market/iprenforcement/trade_secrets/index_en.htm (both as of May 2015).

B. Obtaining Proof in Trade Secret Cases: Investigation and Discovery

One important source of variance in the stringency of trade secret litigation is the availability and nature of measures enabling trade secret owners to investigate and prove their case. Proving a claim of trade secret infringement can be challenging – arguably more challenging than proving other claims regarding rights in intangibles such as patents or copyrights.

A trade secret owner must demonstrate that the defendant wrongfully appropriated the trade secret, either through a breach of duty or through misappropriation. This proof may be challenging to obtain and is likely to be affected greatly on rules regarding investigation and discovery of evidence. By definition, a trade secret must be possible to conceal. Trade secrets are typically explicitly defined as (and virtually universally required to be) information that is “not generally known or readily ascertainable.”¹⁵ A party that misappropriates a trade secret has every reason to conceal its wrongful act and the trade secret itself, both because it wishes to avoid liability and because it likely wishes to share in the competitive advantage the trade secret confers against everyone but the original owner. The trade secret owner thus bears the burden of proving wrongful acts by a party with the motive and likely capability to conceal them.

This situation raises further challenges because a culpable defendant is most likely to be in sole possession of much of the evidence that the trade secret owner needs to establish wrongful appropriation. Moreover, independent creation and reverse engineering appear to be a defense to trade secret theft in virtually all jurisdictions. Thus, defendant’s mere possession of the secret is not enough to establish trade secret theft. Instead, a plaintiff must establish that the defendant wrongfully acquired the secret from plaintiff, rather than through independent development or reverse engineering, as defendant may claim. A trade secret plaintiff thus likely will need access to non-public information possessed by the defendant. For example, the plaintiff may need recourse to the defendant’s records (e.g. lab notebooks, emails, or drafts of documents), the recollections of the defendant’s employees, and the defendant’s premises.

Rules and institutions affecting a plaintiff’s ability to gather evidence are thus likely to have significant effects on the ability to prove a trade secret claim. A survey conducted on behalf of the European Commission covering firms in EU member countries and other developed nations found that 45% of respondents had refrained from pursuing a trade secret claim despite experiencing misappropriation.¹⁶ Of the firms that did not seek legal remedies, the most common reason stated (by a plurality of 43%) was “difficulty in collecting evidence.”¹⁷ It thus appears that the availability of effective measures for obtaining evidence may influence decisions with respect to whether to pursue a trade secret claim.

The research leading to the Trade Secrets Protection Index found considerable diversity in such elements of trade secret protection. In relatively robust systems, there are two types of institutions that enable plaintiffs to obtain the proof they need to obtain their claims: (1) preliminary measures to preserve proof, and (2) rules and procedures regarding the disclosure and discovery of evidence. There is great variance among countries’ legal systems with respect to both institutions. Table 3 displays this variance as of 2010 among the 33 countries in the initial sample.

¹⁵ For example, this is the language used by the Uniform Trade Secrets Act in the United States. The proposed Trade Secret Directive in the EU uses similar language, as does Article 39 of TRIPS.

¹⁶ Baker & McKenzie (2013).

¹⁷ Ibid at 130.

1. *Preliminary Measures to Preserve Proof*

Preliminary measures to preserve evidence are available before a case commences, in order to obtain proof that may later become unavailable. Trade secret owners may face difficulties in obtaining proof of infringement if potential defendants have sufficient warning and opportunity to conceal their actions. Preliminary search procedures launched before litigation to secure proof can alleviate this difficulty, but not all jurisdictions offer such measures in trade secret cases.

To address such concerns, legal systems may provide various emergency measures that enable a plaintiff to preserve proof by initiating a search and seizure of evidence before or at the very start of a lawsuit. The most expansive form of this procedure allows a plaintiff to obtain a search without prior notice to the defendant (an *ex parte* order) and to direct the search through plaintiff's own representative. Plaintiffs in trade secret cases value these features, as the lack of advance warning prevents a prospective defendant from concealing evidence. Also, the presence of plaintiff's representative at the search makes it much more likely that the search finds relevant evidence because of the plaintiff's expertise and detailed knowledge of the trade secret. However, these features are not available in most countries surveyed for the TSPI. In fact, several countries have no preliminary search procedure at all.

As Table 3 shows, these measures may differ with respect to at least two key elements:

- *Availability of Ex Parte Relief.* In some systems, a trade secret owner may seek an emergency search before commencing a legal action and without prior notice to the accused party. In other systems, the accused party receives prior notice.
- *Participation of Plaintiff in Search.* In some instances, the plaintiff may direct the search (but it appears to be the case that there are always officials of some sort present to execute the search). In other instances, the plaintiff merely has a right to be present. In still other cases, a court official conducts the search or an independent third party is appointed to do so. The participation of the plaintiff may be particularly significant for two reasons. First, the nature of a trade secret is not readily apparent on its face, unlike a patented invention, which is described in an official document, or a copyrighted work, which is embodied in an identifiable medium. The first time a trade secret is established with certainty is when the owner proves its existence in litigation. Prior to litigation, the trade secret owner is likely in a far better position than any third party to identify its trade secret as well as evidence indicating misappropriation. Second, a trade secret may be specialised or technical in nature, requiring expertise to identify, particularly given its previously undisclosed nature.

There are two examples of preliminary measures to preserve proof that are widely implemented and well known in a large sample of countries. The experience with each is informative in different ways.

2. *Examples of Preliminary Measures to Preserve Proof*

The EU Enforcement Directive. The first example is the EU Directive on the Enforcement of Intellectual Property Rights ("EU Enforcement Directive").¹⁸ Article 7 of the EU Enforcement Directive contains the following "[m]easures for preserving evidence":

¹⁸ Directive 2004/48/EC of the European Parliament and of the Council of 29 April 2004 on the enforcement of intellectual property rights.

Member States shall ensure that, even before the commencement of proceedings on the merits of the case, the competent judicial authorities may, on application by a party who has presented reasonably available evidence to support his/her claims that his/her intellectual property right has been infringed or is about to be infringed, order prompt and effective provisional measures to preserve relevant evidence in respect of the alleged infringement, subject to the protection of confidential information. Such measures may include the detailed description, with or without the taking of samples, or the physical seizure of the infringing goods, and, in appropriate cases, the materials and implements used in the production and/or distribution of these goods and the documents relating thereto. Those measures shall be taken, if necessary without the other party having been heard, in particular where any delay is likely to cause irreparable harm to the rightholder or where there is a demonstrable risk of evidence being destroyed.¹⁹

The EU Enforcement Directive thus requires the availability of preliminary measures to obtain proof of intellectual property infringement, including, if necessary, without notice to the accused party. However, the EU Enforcement Directive applies to *intellectual property*, and in most EU member countries, trade secrets are not considered intellectual property. (There are a few exceptions – e.g., Italy.²⁰) The Enforcement Directive’s preliminary measures thus do not apply to trade secrets in most EU member countries. The newly-proposed EU directive on trade secrets would not alter this outcome, as it contains no such provision.²¹

Even though the Enforcement Directive is typically inapplicable to trade secrets, many EU member nations provide for the possibility of ex parte search orders in *theory*. However, their availability in *practice* is a different matter. In a study commissioned by the European Commission in 2013,²² the law firm of Baker & McKenzie found that ex parte searches to secure evidence were, in principle, available in several countries.²³ However, the study observed that “often such remedy is granted only in connection with the enforcement of an intellectual property right (for example, in the Netherlands).”²⁴ In other words, availability with respect to a trade secrets case depends on tying the claim to an intellectual property claim, where the (typically) much clearer and certain requirements of the Enforcement Directive apply. Moreover, the study further observed, “where the right to apply for a search order exists in principle, in practice such orders are rarely awarded by courts and no case law has been reported.”²⁵ Even where remedies exist, an uncooperative defendant faces few sanctions. As the Baker & McKenzie study reported:

most of the countries do not have specific coercive measures to force the infringer to comply with the court’s order. In general, non-compliance with court orders only matters for evidentiary purposes (i.e., the court may consider the conduct of the defendant as a plea of guilty). Only France and Portugal reported the possibility for the court to fine the infringer’s

¹⁹ Ibid at Article 7.

²⁰ Schultz and Lippoldt (2014).

²¹ Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure

²² Baker & McKenzie (2013).

²³ Ibid at 32 – 33.

²⁴ Ibid at 33.

²⁵ Ibid.

refusal to comply with the court's order to submit a document or other piece of evidence or information.²⁶

The measures that the Enforcement Directive makes available to intellectual property litigants provide an illustrative contrast with those provided to trade secret litigants in many of the same countries. As discussed, the challenges with respect to establishing the occurrence of an allegedly wrongful act may often be similar for patent, copyright and trade secret litigant, and arguably occur with more consistency and difficulty for trade secret owners. However, in many EU member countries, trade secret litigants have recourse to fewer measures for obtaining evidence than do patent and copyright litigants.

Anton Piller Orders. Another example of a widely used preliminary measure to obtain evidence is the Anton Piller Order. Anton Piller Orders originated in the United Kingdom and are available in many other countries that share English legal origins. The order is named for the case where the procedure originated, the 1975 case of *Anton Piller KG v Manufacturing Processes Ltd & Ors.*²⁷ In that case, Anton Piller KG, the plaintiff, claimed that the defendant was wrongfully disclosing confidential information and providing copies of technical drawings and manuals in violation of copyright. The plaintiffs sought an ex parte order allowing it to enter the defendant's premises to inspect and remove the relevant documents. While the trial court refused, the appellate court granted the order.

Lord Justice Omrod set forth three criteria for granting such orders, which are frequently quoted and cited:²⁸

- (1) "there must be an extremely strong prima facie case."
- (2) "the damage, potential or actual, must be very serious for the applicant."
- (3) "there must be clear evidence that the defendants have in their possession incriminating documents or things, and that there is a real possibility that they may destroy such material before any application inter partes can be made."

The procedure has proven to be desirable to plaintiffs in trade secret cases. The plaintiff is able to apply to the court without prior notice to the potential defendant. When the order is granted, the plaintiff may conduct a search of the defendant's premises and seize documents. The order is granted at the discretion of the court upon a showing that it is necessary to preserve evidence. The use of the procedure quickly spread among countries with English legal origins (in whole or in part). The countries where it has been used include Australia, Canada, Hong Kong, India, Ireland, Israel, New Zealand and South Africa.²⁹

The initial experience with the procedure proved problematic, thus dampening enthusiasm. The lawyer who initially designed and sought the first Anton Piller order was Sir Hugh Laddie, who later became a High Court judge and renowned scholar of intellectual property law. His obituary observed that "[h]is fellow lawyers called [the Anton Piller Order] 'the legal equivalent of a nuclear weapon', but he

²⁶ Ibid. The TSPI reflects the existence of a right to preliminary search measures only where such right exists independently with respect to trade secrets (e.g. it is not pendent to another claim) and where there is no clear evidence that such right has been disregarded in practice.

²⁷ *Anton Piller KG v Manufacturing Processes Ltd & Ors*, [1976] 1 All ER 779, [1975] EWCA Civ 12, [1976] Ch 55.

²⁸ Ibid.

²⁹ Background paper.

later described it as a Frankenstein's monster that went far beyond his original design brief.”³⁰ One somewhat ironic concern that arose was that Anton Piller Orders were being abused to misappropriate *defendants'* confidential information.³¹

A number of jurisdictions curtailed the use of Anton Piller Orders and installed safeguards to ensure that they are used only in exceptional cases. In Australia, the Chief Justice of the Australian Federal Court issued “Federal Court Practice Note No. 24—Search Orders (also known as “Anton Piller Orders”)” (5 May 2006), which instituted a number of safeguards to curb abuses. In *Celanese Canada Inc. v. Murray Demolition Corp.*,³² the Canadian Supreme Court, following both the Australian and UK Courts, set forth detailed guidelines, noting the “Searches are an exception to the oldest and most fundamental principles of the common law, and as such the power to search should be strictly controlled.”³³ Among the safeguards required were:

- (1) the appointment of an independent solicitor to supervise the search;
- (2) posting of security to pay damages to the defendant if the order was unwarranted;
- (3) a requirement that the order be narrow in scope and that no material be removed from defendant's premises unless clearly covered by the order;
- (4) a brief period (two hours was suggested) for defendant to gather confidential or attorney-client privileged documents and hand them over to the independent supervising solicitor's care;
- (5) an order limiting use of the items seized for purposes of litigation only;
- (6) a provision allowing defendant to apply to the court promptly to seek to dissolve the order or increase the amount of security; and
- (7) a provision requiring prompt return of seized materials to counsel.

The court went on to create further rules for the conduct of the search and procedures following the search.

The United States offers procedures similar to the Anton Piller Order, but also curtails their use. The courts have also cautioned that this procedure is not to be used routinely. For example, in *First Technology Safety Systems, Inc. v. Depinet*,³⁴ the appellate court reversed the trial court's *ex parte* seizure and impoundment order in a trade secret case. The trial court had erred in granting an order based on its general belief that electronic recordkeeping has generally made records easier to destroy, rather than specific risk of concealment or destruction raised by that particular defendant or case. As this case demonstrates, US courts do not treat such orders as routine and grant them only in exceptional cases. In addition, it is important to note that civil trade secret actions are based on the laws of each state of the US, rather than on federal law.³⁵ The availability of preliminary procedures to preserve proof varies among US states and may pose difficulties across state borders.

³⁰ “Obituary: Professor Sir Hugh Laddie,” *The Telegraph*, 3 December 2008, available at <http://www.telegraph.co.uk/news/obituaries/3546410/Professor-Sir-Hugh-Laddie.html>.

³¹ Andrews, N.H. (1987), “Abuse of Anton Piller Orders,” *The Cambridge Law Journal*, 46(1), pp. 50-52.

³² *Celanese Canada Inc. v. Murray Demolition Corp.*, [2006] 2 S.C.R. 189, 2006 SCC 36

³³ *Ibid.*

³⁴ 11 F.3d 641 (6th Cir. 1993).

³⁵ As of this writing, there are currently legislative proposals to establish a federal (national) law to protect trade secrets under US law, in addition to, but not as a substitute for, state law.

All of these caveats and safeguards suggest that many of the countries with the most extensive experience with preliminary measures to secure proof have learned caution. Apparently, the procedure has proven worthwhile enough to retain, but experience appears to have taught several jurisdictions the need to be careful to limit such orders to cases where there is reason to believe that destruction of evidence is possible. The experience with Anton Piller type orders indicates that the needs of a plaintiff to obtain evidence quickly may need to be balanced against the rights of a defendant – including the right to protect the defendant’s own confidential information.

One thing to note about jurisdictions where the Anton Piller Order was initially embraced and then curtailed is that the procedure often exists alongside a robust system requiring mandatory voluntary disclosure of relevant documents by both parties. In this context, the Anton Piller Order can be seen as simply one end of a spectrum of measures allowing a plaintiff a full opportunity to secure the evidence it needs to prove its case. However, such relatively liberal pre-trial discovery is not common throughout the world.

3. *Rules and Procedures Regarding the Disclosure and Discovery Of Evidence*

Legal systems differ greatly with respect to pre-trial procedures and opportunities to gather evidence necessary to prove their cases (“discovery”). These differences are, for the most part, not specific to trade secret cases, but rather are related to the origin of the legal system. Countries with an English legal origin tend to favour some amount of voluntary pre-trial disclosure of evidence between the parties, outside of the direct supervision and compulsion of the court. By contrast, civil law countries have much more limited, or no, pre-trial discovery. In some civil law jurisdictions, parties may obtain limited documentary evidence through and under the supervision of the court, while in others parties must wait until a court proceeding to obtain evidence.

Because of the challenges that plaintiffs face in proving trade secret cases, the availability of pre-trial discovery is likely to affect decision-making regarding trade secret development and litigation. The Trade Secret Protection Index breaks pre-trial discovery into three elements, with increasing scores for each: (a) unavailable; (b) documentary only or strict limitations; and (c) ready availability of documentary and interrogatories. This categorisation captures much of the variation, but not all, of course, particularly at the more liberal end of the spectrum. Table 4 and Figure 1 set forth scores with respect to discovery procedures and related elements (Component 4) in the sample of countries studied thus far.

In some countries pre-trial discovery is so limited that it appears likely to inhibit a plaintiff’s ability to prove its case. For example, in Russia limited pre-trial discovery and disclosure is available in theory. In practice, however, experts observe that its uses “are few and far between.”³⁶ In fact, most discovery occurs at trial, with parties allowed to produce evidence up to the very end of the proceedings. As a result, “some lawyers produce evidence . . . a matter of minutes prior to delivery of the judgment of the first instance court.”³⁷ In a trade secret case, where access to evidence in a defendant’s hands can be so important, such limitations are likely to undermine reliance on trade secret protection.

Nevertheless, a trade secret plaintiff or any other litigant may not necessarily view very liberal discovery as an unqualified benefit. The United States largely stands alone in its embrace of very extensive pre-trial discovery, with its wide ranging documentary review, its resort to depositions, and access to parties not part of the case. On the one hand, plaintiffs welcome the chance to access evidence that is

³⁶ Anna Grishchenkova, *The Discovery Process in Russia. Will the New Era Come?*, FBK Legal (June 2012) <http://www.legal500.com/developments/20074>.

³⁷ *Ibid.*

otherwise difficult to obtain, particularly in trade secret litigation. On the other hand, extensive discovery can greatly raise the expense of a case, because of increased attorney fees for time spent on discovery, litigation over discovery issues, and time and resources devoted to complying with discovery requests.

Discovery expense, both in terms of out of pocket and transaction costs, is thus also likely to influence firm level decision-making regarding trade secrets. A common critique of the US system is its expense and the time it takes to resolve cases. Indeed, although the US is generally regarded as having a strong rule of law, the quality of its legal system is not ranked among the very highest in various international indices, a fact which is reflected in the TSPI scores described in this article.

Although discovery procedures are typically largely uniform within a country (at least in their broad contours), some countries enhance discovery for certain types of claims. Most notable for the current topic is the EU's Enforcement Directive. In addition to the measures for preserving evidence already described above (which may apply before commencement of the action *or* as part of pre-trial discovery) the Enforcement Directive provides that

Member States shall ensure that, on application by a party which has presented reasonably available evidence sufficient to support its claims, and has, in substantiating those claims, specified evidence which lies in the control of the opposing party, the competent judicial authorities may order that such evidence be presented by the opposing party, subject to the protection of confidential information.³⁸

As discussed earlier, the EU Enforcement Directive is largely inapplicable to trade secrets because most EU members do not consider trade secrets to be intellectual property.

Despite the inapplicability of the EU Enforcement Directive to trade secrets, however, its existence points to the possibility for more liberal discovery procedures with respect to particular subject matter. The concerns that motivate the EU Enforcement Directive regarding the difficulty of obtaining evidence of violations of intangible rights are at least as great with respect to trade secrets.

Finally, limitations on discovery can interact with stringent evidentiary requirements in ways that essentially undermine the existence of the trade secret right. For example, China has extremely limited discovery, but experts observe that courts also prefer original, documentary evidence to prove a case. One expert described the combined effect in trade secret cases as follows:

The evidentiary requirements for court actions in China are very stringent. Little weight is generally accorded to affidavits and witness testimonies while physical evidence and documentary evidence are favoured. Such evidence is difficult to obtain in trade secret infringement cases. This problem is compounded by the problems relating to the lack of a discovery process in the PRC. In the PRC system, each party needs to adduce sufficient evidence to prove its claims. Although the court has the power to assist parties to gather evidence, such power is rarely used. Particularly when a rightholder is trying to gather evidence of infringement from an established infringer

³⁸ Article 6, Directive 2004/48/EC of the European Parliament and of the Council of 29 April 2004 on the enforcement of intellectual property rights.

where it is often difficult to gain entry, there may be undue hardship for the rightholder.³⁹

Thus, China combines a de facto requirement for documentary evidence that is difficult to obtain in trade secret cases with a system that lacks a means for obtaining the evidence. It is notable also that the need for documentary evidence creates a de facto requirement that the trade secret be reduced to writing in most cases, which further reduces the scope of trade secret protection.

C. *Gathering Evidence in Criminal Cases and the its Use in Civil Proceedings*

A number of countries do not provide criminal sanctions for trade secret theft. When they do so, however, a prosecutor's investigative authority is much broader than a civil plaintiff's rights to discovery. The study of trade secrecy in the EU by Baker & McKenzie found that prosecutors virtually universally possessed the power to make searches and seizures of evidence without prior notice to the defendant.⁴⁰ Of course, this finding is unremarkable in that such criminal investigative authority is in the nature of the police power of states.

The broad investigative authority of prosecutors may lead aggrieved trade secret owners to seek criminal prosecution instead of filing a civil claim. This choice depends first on the availability of criminal remedies and second on the relative merits of civil and criminal for the trade secret owner.

Even where criminal remedies are provided by law, the trade secret owner typically faces the challenge of persuading the authorities that its claim is worthy of attention taking into account the many other prosecutorial priorities (including other trade secret cases). In China, for example, certain experts have noted that it may be difficult to get the attention of authorities:

it is not always easy to get police interested in run-of-the-mill trade secret cases. In the authors' experiences, the police are more interested in high profile cases. Consequently, the authors advise that one should try to "package" the case as "high profile" to enhance the chance of criminal prosecution. It also is important to build good relationships with the local community, including the local police, before any misappropriation happens.⁴¹

However, it is fair to note that observations such as this may be applied to the exercise of prosecutorial discretion in many different contexts across many countries.

In several jurisdictions, trade secret owners find it in their interest to seek criminal prosecution because of the lack of pre-trial discovery in civil cases. They then use the proof gathered by the prosecutor to support a civil cause of action. This is the case for example in Germany, which lacks pre-trial discovery and trade secret owners may rely on public prosecutors bringing criminal actions to initially gather proof.⁴²

Even where pre-trial discovery is liberal, the investigative authority of prosecutors may offer significant advantages over what a civil plaintiff can accomplish. Civil litigation and discovery is usually

³⁹ Terrence F. MacLaren, Chiang Ling Li, 1 *Trade Secrets Throughout the World* § 8.52 (2012) (hereafter "MacLaren, Trade Secrets Throughout the World").

⁴⁰ Baker & McKenzie (2013).

⁴¹ Benjamin Bai & Guoping Da, Strategies for Trade Secrets Protection in China, 9 *Northwestern Journal of Technology and Intellectual Property* 351, 365 (2011).

⁴² Hogan Lovells International LLP, Report on Trade Secrets for the European Commission, Appendix 2, at 93; MacLaren, *Trade Secrets Throughout the World* § 15:29 (2012).

sufficient to investigate ordinary cases where secrets are taken by departing employees or through the opportunism of a competitor that exploits a passing weakness in security. However, investigation may exceed the resources and powers of civil plaintiffs and their attorneys when the trade secret owner is targeted by sophisticated corporate espionage, particularly involving foreign companies or state-sponsored espionage.

Thus, even in the United States with its liberal discovery regime, trade secret owners may find they need to rely on the investigatory powers of prosecutors. A telling example is the case of *United States v. Hsu*.⁴³ In that case, a company based in Chinese Taipei targeted Bristol-Myers Squibb with a sophisticated conspiracy to steal trade secrets regarding the manufacture of the lucrative cancer drug Taxol. The Federal Bureau of Investigation used its criminal powers to investigate and document the conspiracy in the course of a 14-month investigation. The investigation included undercover agents and a “sting” operation with a staged meeting with a Bristol-Myers Squibb employee who was actually a double agent prepped by the government.⁴⁴

There are, however, potential disadvantages to relying on criminal proceedings to gather proof. In addition to the need to persuade authorities to take the case, a criminal proceeding may disadvantage the trade secret owner because it may require greater openness or access to information, as discussed in this paper’s case study on criminal prosecution of trade secrets set forth in Section 5 of this paper.

D. The Security of Confidential Information in Trade Secret Litigation

Another important factor in litigation likely to affect the decisions by trade secret developers and owners is the security of confidential information in trade secret litigation. There is considerable diversity among countries regarding how they treat this factor, as shown by Table 3. The diversity has a wide variety of sources. In many countries, for example, the United States and Germany, there are specific provisions for the protection of trade secrets during litigation. The Republic of Korea, conscious that its procedures were lacking in this regard, adopted new procedures in 2012.⁴⁵

By contrast, in some countries, the lack of security is the product of express design, reflecting constitutional or legal requirements for open proceedings. As described above, the Japanese constitution has such a requirement in criminal proceedings (but secrets are extensively protected in civil litigation). In France, the civil procedure code does not allow in camera hearings unless both parties request one, and the judgment must be made public.⁴⁶ Similarly in Italy, hearings before the investigating judge may be closed, but there is a final hearing before a panel of judges that must be public, as well as the final decision.⁴⁷

In still other countries, the lack of security may occur by default. For example, in Sweden, the decision to close the record is at the discretion of the court at each stage of litigation (trial and appellate). Thus, a party cannot be certain that its secrets will be secured and remain secure. As one expert observed:

⁴³ 155 F.3d 189 (3d Cir. 1998)

⁴⁴ Ibid.

⁴⁵ MacLaren, *Trade Secrets Throughout the World* § 24:32 (2012).

⁴⁶ J.-P. Stouls et al., *Protection of Trade Secrets Through IP and Unfair Competition Law*, AIPPI Report Q215, France 18 (2010).

⁴⁷ Hogan Lovells International LLP, *Report on Trade Secrets for the European Commission*, Appendix 3, 49 (2012).

As a consequence a party submitting its secret information to the Court can never be certain that the Court will indeed classify the information as secret. Also, even if a party requests the Court to take such an action at the same time as the information is submitted, it may take some time before the Court has decided on the question of secrecy and during that time the information is left open for inspection.⁴⁸

In any event, a party likely will consider the security of its confidential information in litigation before bringing a claim (and, by extension before making other decisions with respect to trade secrets). It may be to the trade secret owner's advantage to live with a single competitor knowing its secret than to risk either extinguishing the secret by exposing it to all other competitors or providing the defendant more information than it already has obtained.

In the European Commission study described earlier where 45% of respondents had refrained from pursuing a trade secret claim, a significant numbers of firms reported reasons that appear to relate, at least in part, to concerns about the security of litigation.⁴⁹

- 30.2% reported as a reason that “initiating legal action would bring the case to public attention;”
- 15.9% reported as a reason “lack of trust of the judicial system of the relevant Member State;” and
- 14.3% reported “fear of losing [the trade secret] in court proceedings.”

E. Remedies in Trade Secret Litigation

There is some diversity among countries with respect to the remedies available in trade secret cases. The greatest variance is with respect to the availability of preliminary injunctions. Table 4 shows the variety of remedies available in the sample the TSPI covers.

The availability of preliminary injunctive relief is important to trade secret owners. If possible, the first and primary goal of a trade secret owner is likely to be to preserve the valuable trade secret. A defendant may not wish to maintain the secret or, even if it does, may not be effective at doing so. In any event, a plaintiff will wish to preserve its profits and business relationships from the defendant's intrusion. Therefore, a plaintiff likely will want an injunction as soon as possible.

However, not all jurisdictions make preliminary relief available to plaintiffs, although it is relatively common. First, there is some variance with respect to the availability of ex parte injunctions. There are a few jurisdictions that do not provide them, notably including Japan.⁵⁰ In addition, there are other jurisdictions where injunctions are notably slow in coming. Where this sort of remedy is subject to delays, it may not fulfil its purpose in that the trade secret may be lost. This is the case in Brazil, where one expert observed: “Although injunctions are rendered, the slowness of our Judiciary system is often incompatible with trade secret dynamics.”⁵¹ Similarly in Japan, experts note that: “Although the proceedings for

⁴⁸ Marianne Levin et al., Protection of Trade Secrets Through IP and Unfair Competition Law, AIPPI Report Q215, Sweden at 9 (2012).

⁴⁹ Baker & McKenzie (2013).

⁵⁰ Kazuo Ubukata, Question Q215: Protection of Trade Secrets Through IPR and Unfair Competition Law, AIPPI Report on Japan8- 9 (2010).

⁵¹ Elisabeth K. Fekete, et al., AIPPI Report Q215, Protection of Trade Secrets Through IP and Unfair Competition Law, Brazil 9 - 10 (2010).

preliminary injunction are faster than a normal civil trial, it usually takes several months before a ruling is made.”⁵²

Finally, in some jurisdictions the law provides for preliminary injunctions, but they are not in fact available for the most part (or at all). Such is the case in China and Russia. As one expert observes regarding China:

Unlike a patent, trademark, or copyright, a trade secret is not a right granted by a government agency. Whether something constitutes a trade secret is almost always subject to disputes. As such, the likelihood of success on the merits is more difficult to prove for trade secret cases. Moreover, China has not adopted the inevitable disclosure doctrine. Therefore, it is rather unusual to obtain a preliminary injunction for trade secret misappropriation.⁵³

In Russia, the law appears to provide for preliminary injunctions, but expert opinion indicates that injunctive relief is not in fact available in trade secret cases, especially with respect to former employees.⁵⁴

By contrast, other remedies are available more consistently across jurisdictions.⁵⁵ Thus, permanent injunctions are generally available. So are monetary damages, although there is variance with respect to the details. Some jurisdictions provide a wide array of measures for damages – for example, providing for compensatory damages, plaintiff’s lost profits, and recoupment of defendant’s profits. Others may offer more limited measures, such as compensatory damages. Although the preference for plaintiffs is to obtain a preliminary injunction before significant damages occur, that is not always possible. Damages in cases addressing intangible rights can be difficult to prove. Therefore, a plaintiff may see it as marginally better to have several measures from which to choose.

V. Case Studies of Trade Secret Enforcement

This section provides two cases studies of trade secret enforcement to illustrate examples of the operation of protection in practice. The first considers a series of cases worldwide arising from the alleged misappropriation of green technology – software used to operate windmill turbines – from AMSC by Sinovel, a former strategic partner. The second focuses on criminal trade secret protection in a number of countries, including brief summaries of most of the cases brought in the last two years, 2012 – 2014.

Case studies have both limits and virtues. On the one hand, they provide insufficient data from which to draw statistically valid inferences. The experience of one trade secret owner (e.g. AMSC) constitutes a sample size that is insufficient for purposes of statistical inference. Similarly, trends in criminal trade secret prosecutions in a few selected countries are not necessarily representative of prosecutions worldwide. On the other hand, case studies can demonstrate possibilities, provide insights into challenges, serve as illustrative examples of broadly described trends, and point to issues that may

⁵² Kazuo Ubukata, Question Q215: Protection of Trade Secrets Through IPR and Unfair Competition Law, AIPPI Report on Japan8- 9 (2010).

⁵³ Benjamin Bai & Guoping Da, Strategies for Trade Secrets Protection in China, 9 *Northwestern Journal of Technology and Intellectual Property* 351, 361 (2011). See also, Shan Hailing, Protection of Trade Secrets Through IP and Unfair Competition Law, AIPPI Report Q215, China 35 (2010), available at <https://www.aippi.org/download/committees/215/GR215china.pdf>.

⁵⁴ See Schultz and Lippoldt (2014), Annex 2.

⁵⁵ See Schultz and Lippoldt (2014), Annex 1.

merit further investigation but may not be immediately apparent from the available data. If kept in proper perspective, case studies can thus be useful.

The case studies presented here indicate several interesting lessons. In broad terms, they are as follows:

- The AMSC vs. Sinovel dispute illustrates a number of truisms: Globalisation has dispersed high technology economic activity and, it is said, trade secret disputes are increasingly across borders. This dispute illustrates just how easily a trade secret claim can reach across borders, as well as how it may be necessary to employ the legal systems of several countries to obtain relief, with all the challenges that necessity entails.
- Corporate espionage is growing more sophisticated and, with it, so is the need for sophisticated investigative tools. As illustrated by the trends and cases discussed in the second case study, criminal trade secret law can provide such tools because of the government's greater powers and resources. However, because such investigations and prosecutions are resource-intensive and criminal laws narrowly drafted and applied, criminal law can only be one tool in combatting trade secret law, albeit an important one.
- A significant proportion of US criminal trade secret cases (where the data are most readily available) have a foreign connection, with China appearing most often.

A. *The AMSC – Sinovel Dispute*

A dispute regarding the alleged theft of trade secrets from a “green tech” company, American Superconductor Corp (“AMSC”) illustrates the challenges that a trade secret owner may face in a major industrial espionage case.⁵⁶ The case concerns software used in alternative energy applications.

AMSC has been unusually forthcoming about the circumstances of the dispute in the media, providing a unique glimpse into a major cross-border trade secrets case. The dispute spans three countries: Austria, China and the United States. To date, an employee of an AMSC subsidiary has been prosecuted in Austria, AMSC has brought four cases against Sinovel in China, and the United States government has initiated prosecution of Sinovel in the United States. The case is both interesting and illustrative of challenges posed by cross-border trade secret claims: all three countries have different systems for litigating trade secret claims; the alleged loss is hundreds of millions of dollars; the proceedings have proven to be prolonged and challenging; and the case starts with a single weak link vis-à-vis an employee in a foreign subsidiary.

AMSC is a company based in the United States that developed and licenses software used to operate windmill turbines and make them run more efficiently. AMSC employed hundreds of employees before the dispute began. Sinovel Wind Group Co., a Chinese company, makes, sells and operates energy-generating windmills. Sinovel was founded in the early 2000s with initial financing from the Chinese government. The investment furthered China's strategy of pursuing leadership in the alternative energy industry.

⁵⁶ This discussion is based on several news accounts and review of the docket in the U.S. case. The news accounts include the following: Bruce Vielmetti, Chinese Company Charged With Stealing Clean Energy Software from Wisconsin, Milwaukee Journal Sentinel, 18 July 2013; Erin Ailworth, Files Trace Betrayal of a Prized China-Mass. Partnership, The Boston Globe, 10 July 2013; Ed Crooks, US Charges Sinovel with Trade Secret Theft, Financial Times, 28 June 2013; Michael Riley, China's Sinovel Charged by U.S. with Stealing Trade Secret, Bloomberg News, 27 June 2013; Keith Johnson, China to Weigh Corporate Spy Case, Wall Street Journal, 26 October 2012; Erin Ailworth and Eugen Freund, Engineer Guilty in Software Theft, Boston Globe, 24 September 2011.

“As with many businesses in strategic industries targeted by Chinese planners, Sinovel sought the knowhow of a foreign partner.”⁵⁷ It partnered with AMSC, with Sinovel manufacturing the wind turbines and AMSC providing the control software. By 2009, Sinovel was one of the leading manufacturers of wind turbines. By 2011, Sinovel was AMSC’s biggest customer accounting for about 80% of AMSC’s business (which had revenue reaching USD286.6 million in that year). US President Barack Obama touted the Sinovel-AMSC partnership as a model for other US companies.⁵⁸

In 2011, however, that partnership unraveled. In March 2011, Sinovel began cancelling contracts with AMSC, stopped accepting shipments, and stopped making payments due to AMSC. AMSC’s revenues and stocked value plunged, with its market value shrinking from USD 1.6 billion to about USD 200 million. It eventually laid off more than half of its workforce – about 500 employees. Soon after, AMSC began to suspect Sinovel of stealing its turbine software, which led to this dispute.

One issue the case illustrates well is the challenge of protecting trade secrets and enforcing trade secret rights in a globalised economy. One of the bedrock principles of international intellectual property law is territoriality. Territoriality dictates that intellectual property laws are national in nature, and thus, national courts can only redress harms with a reasonably strong connection to the country concerned. In this case, an American company suffered misappropriation by an employee at an Austrian subsidiary, who allegedly passed the secrets to a Chinese company, which allegedly used the secrets in products manufactured and used in China, and then, later shipped allegedly infringing products to the United States.

Largely because of the principle of territoriality, there is no single law covering all of these actions, nor is there a single court system that can redress them all. AMSC had to pursue its employee in Austria, its former licensee in China, and seek redress in the United States for the infringing goods shipped to the Sinovel customers in the United States. A portion of the litigation concerned disputes as to the proper place for AMSC to bring its claims.

1. Austrian Prosecution of Karabasevic

Shortly after Sinovel cancelled contracts with AMSC, an AMSC crew inspecting turbines in China came across an imperfect version of AMSC’s software running some of the turbines. AMSC began investigating the matter and eventually concluded that Dejan Karabasevic, an AMSC employee in Austria, had given Sinovel the software algorithms necessary to copy it. In July 2011, Karabasevic was arrested in Austria.

Karabasevic, an engineer who worked at AMSC Windtec, confessed to copying and selling AMSC codes that allowed Sinovel to upgrade copies of AMSC software that Sinovel had already allegedly cracked.⁵⁹ Karabasevic had developed a relationship with Sinovel due to frequent business trips to China on AMSC’s behalf.⁶⁰ Austrian prosecutors said that Sinovel paid Karabasevic \$20,700 for the codes.⁶¹ An AMSC attorney also claimed also that “there is evidence that Sinovel wooed Karabasevic by offering him an apartment, a five year contract at twice his current pay, and ‘all the human contact’, he wanted, ‘in particular, female co-workers.’”⁶²

⁵⁷ Erin Ailworth, *Files Trace Betrayal of a Prized China-Mass. Partnership*, *The Boston Globe*, 10 July 2013.

⁵⁸ *Ibid.*

⁵⁹ Erin Ailworth and Eugen Freund, *Engineer Guilty in Software Theft*, *Boston Globe*, 24 September 2011.

⁶⁰ *Ibid.*

⁶¹ *Ibid.*

⁶² *Ibid.*

Criminal investigations in Austria and the US uncovered electronic communications between Karabasevic and Sinovel employees in China.⁶³ The communications allegedly indicated that Karabasevic was helping them to disable encryption on AMSC software.⁶⁴ News reports recount the contents of an electronic chat alleged to have occurred between Karabasevic and Sinovel's deputy director of research and development, Su Liying.⁶⁵ As recounted by the Wall Street Journal:⁶⁶

Sinovel's Ms. Su said in a May 10, 2011, Internet chat that other Sinovel executives wanted her to make sure the software Mr. Karabasevic was supplying would be compatible with new technical standards for the Chinese power grid.

“Pressure is big,” Ms. Su wrote.

Mr. Karabasevic remarked, “If you succeed, Sinovel can separate from AMSC.”

“And I need your strong help. Haha,” answered Ms. Su, according to the transcript.

After pleading guilty to the charges, Karabasevic was sentenced to one year in prison and two years of probation on September 23, 2011. He was also ordered to pay damages of about USD 270 000. After serving his sentence, Karabasevic returned to his home in Serbia, which has no extradition treaty with the United States. He thus appears to be beyond the reach of AMSC as either a defendant in a US criminal case or a witness in any other case.

2. *AMSC's Chinese Claims against Sinovel*

Shortly after Karabasevic's sentence, AMSC initiated civil, criminal and commercial actions against Sinovel in China. First, AMSC filed a civil action alleging unauthorised copying and use of AMSC's wind turbine software in over 1000 turbines and seeking to recover about USD 450 000 000 in damages for trade secret misappropriation. AMSC also started a copyright action against Sinovel based on infringement of its software code seeking a cease-and-desist order and damages of about USD 200 000. Furthermore, AMSC started arbitration seeking USD 70 000 000 for products shipped to Sinovel as well as enforcement of about USD 700 million worth of contracts that Sinovel cancelled around March 2011. While initial hearings occurred in 2012, the next hearing date has yet to be set. The claims total about USD 1.2 billion.

So far, the claims in the court cases have not been heard because Sinovel contested the jurisdiction of Chinese courts over the claims. Sinovel argued that the appropriate forum for the claims was arbitration. The parties fought the jurisdictional issue all the way to the Chinese Supreme People's Court, and the Court ruled in AMSC's favour on 19 February 2014. Although AMSC heralded the ruling and its stock soared, a financial analyst put the decision in perspective, saying “There's no guarantee of any positive outcome. It could be a number of months before it even hits the docket. As strong as the evidence appears to be in favour of AMSC, there's no dollars changing hands . . .”⁶⁷ Indeed, as of spring 2015, no new progress in the Chinese litigation has been publicly reported.

⁶³ Erin Ailworth, Files Trace Betrayal of a Prized China-Mass. Partnership, *The Boston Globe*, 10 July 2013.

⁶⁴ *Ibid.*

⁶⁵ *Ibid.*

⁶⁶ Keith Johnson, China to Weigh Corporate Spy Case, *Wall Street Journal*, 26 October 2012.

⁶⁷ Justin Doom, China Supreme Court Ruling Favors AMSC in Two Sinovel Suits, *Bloomberg News*, 19 February 2014.

3. *United States Criminal Prosecutions*

Sinovel sold wind turbines into the US market that allegedly contained the infringing AMSC software. In fact, one of these turbines was sold to the state government in AMSC's home state of Massachusetts. After the allegedly infringing turbines were discovered, in June 2013, the US government brought criminal charges against Sinovel, two of its employees and Karabasevic for conspiracy to commit trade secret theft, copyright infringement and wire fraud. The United States is alleging over USD 2 billion in harm. If found guilty, the maximum penalty can be up to twice the loss for each of the counts, totalling about USD 4.5 billion, as well as possible prison sentences for the individuals involved. However, Sinovel is also contesting jurisdictional issues in the United States. Sinovel's attorneys contend that the charges cannot be properly served on Sinovel.⁶⁸ Meanwhile, it appears unlikely that Karabasevic (as noted above) or the two Sinovel employees will be arrested, since the US does not have extradition treaties with Serbia or China.

There are a few lessons to draw from the AMSC-Sinovel dispute. First, the dispute validates much of the conventional wisdom in current policy discussions regarding trade secrets. Observers often assert that trade secrets have become more valuable, that trade secret theft is increasingly international, and that it is being aggressively pursued via corporate espionage. Trade secret theft can indeed inflict huge damages on owners. If AMSC's claims are ultimately confirmed, its losses were in the billions and over 500 people lost their jobs. Moreover, it shows a single weak link – here Karabasevic – being purposefully targeted by an aggressive foreign competitor. Finally, it shows how trade secret disputes may indeed become increasingly global and cross-border in nature. While one dispute cannot confirm that all of these assertions are true, it can illustrate why they are plausible.

In addition, the dispute illustrates the challenges faced by a trade secret owner when an alleged theft goes across borders. The first challenge is in finding a venue to be heard. The parties have spent time and money arguing as to the proper place for AMSC to bring its claims. Based on the assertions of Sinovel in both Chinese and US courts, Sinovel contends that the cases belong in neither Chinese nor US courts, which poses the question of where AMSC would properly go for redress. Austria seems an unlikely place, as only Karabasevic's actions occurred there, but the alleged actions of Sinovel employees did not. Much of the relevant evidence and actors would seem to be in China. Moreover, once a competitor begins to ship allegedly infringing products world-wide, the trade secret owner may find its claims in the courts of the importing countries. Another challenge is with respect to the obstacles raised by discovery practices in the laws of various countries. AMSC's had a break in this case through its choice to approach Austrian prosecutors to bring charges against Karabasevic. The Austrian authorities were able to obtain evidence from Karabasevic's computer. Moreover, once the prosecution was underway, Karabasevic cooperated with private investigators hired by AMSC, giving them access to an apartment he kept in Beijing.

Without the initial prosecution in Austria, AMSC as well as the US government most likely would have found it impossible to gather the evidence they now have. As discussed earlier, practitioners report that it is extremely hard to gather evidence in China. Moreover, Austria does not provide pre-trial discovery in civil trade secret cases.⁶⁹ Thus, the litigation systems of neither China nor Austria would have been likely to yield evidence sufficient to break this case open. AMSC would have been left with suspicions and some circumstantial evidence, but, as discussed earlier, the evidence of the alleged misappropriation would have remained in the hands of the defendants, Karabasevic and Sinovel.

⁶⁸ Bruce Vielmetti, *Chinese Company Charged With Stealing Clean Energy Software from Wisconsin*, Milwaukee Journal Sentinel, 18 July 2013.

⁶⁹ Baker & McKenzie (2013).

This dispute illustrates the challenges posed to businesses by cross-border trade secret infringement as the world economy becomes more integrated. AMSC operated in a global environment, but even if its business were more local, it still would have faced the challenge of having to compete with allegedly infringing products imported into its home market. In such an environment, a company may be forced to litigate in several jurisdictions. As this paper's analysis shows, countries' trade secret laws differ in significant ways. One of those differences is the availability of investigative procedures. Not only does cross-border litigation come with jurisdictional, cost and knowledge challenges, but also the lack of investigative procedures in any one country could thwart an investigation.

B. Criminal Trade Secret Enforcement

In recent years, a number of countries have instituted or enhanced criminal trade secret protection in various ways. This section considers the examples of France, Japan, Sweden and the United States. Their experiences provide some insight into this phenomenon, showing both the benefits of criminal trade secret protection and its limits.

1. France

French law has long protected trade secrets under criminal law, but that protection has been limited in important respects. The 1844 Criminal Code included sanctions against employees who revealed manufacturing secrets (*secrets de fabrique*). The current version of this provision states that:

Every manager or employee of a business who communicates or attempts to communicate a trade secret, may be punished by imprisonment of two years and by a fine of EUR 30 000. The court may also decide as additional punishment, for five years at most, to suspend civic, civil and family rights⁷⁰

There are three ways in which this provision provides relatively limited protection. First, it is limited to employees and managers of the trade secret owner. Second, it applies only to disclosure or attempted disclosure by such parties. Third, it applies only to manufacturing secrets. The High Court, or *Cour de Cassation*, has defined a *secret de fabrique* as a "manufacturing process which has a practical or commercial interest and which the manufacturer keeps hidden from its competitors."⁷¹

The combined effect of these limitations was to limit the applicability of criminal law to trade secret theft in France. First, and foremost, this provision cannot be used to combat industrial espionage. A third party who obtains information illicitly is not subject to the provision. In fact, it only applies to disclosure. If the employee or manager uses the secret for his own benefit (e.g. to compete without disclosing the secret to others), the provision is inapplicable. Moreover, it does not cover confidential business information. Thus, only technical information is covered and not items such as customer lists.

The effect of these limitations apparently has resulted in little use being made of this provision. A recent report by the French Assembly observed that "legislation relative to unfair competition applies only

⁷⁰ Labour Code Article L. 1227-1 Translation from MacLaren, *Trade Secrets Throughout the World* § 14:3 (2012).

⁷¹ Cass. crim., 19 September 2006, No. 05-85360, translation from MacLaren, *Trade Secrets Throughout the World* § 14:4 (2012).

in conditions which are difficult to bring together and which are not particularly restrictive for violators.”⁷² Another expert report observed that:

there have been relatively few examples of case law over the past decade and, in case of conviction, but for exceptions, the penalties which are imposed are limited to modest damages; prohibition of use is quite rare. . . . This might lead one to think that the protection of trade secrets in France would not generally be very effective.⁷³

Nevertheless, France has, like several other countries, attempted to broaden its criminal protection against trade secret theft in recent years. In the case of France, the process has been driven by prosecutors and courts applying old provisions in new ways. Starting in 2000, French prosecutors began to use Article 314-1 of the Criminal Code to prosecute trade secret misappropriation.⁷⁴ This article states that

Breach of trust is the act of a person’s misappropriating, to the prejudice of others, funds, securities or any property transmitted to him and which he accepted while being responsible for returning them, representing them, or using them in a specific way. Breach of trust is punished by three years of imprisonment and a fine of 375 000 Euros.⁷⁵

Prosecutors began to apply this provision to intangible property, starting with bank card numbers, then internet access, and then an industrial “project” without reference to a physical medium. In 2010, it was successfully used to prosecute a Michelin employee who attempted to sell technology to a competitor.⁷⁶

This relatively new use of Article 314-1 was validated by the French High Court at the end of 2011. In *Poruvois*, Cass. crim., 16 November 2011, no. 10-87.866, the Court held that property protected by Section 314-1 included intangible property. In that case, the appropriation of customer lists was at issue. The Court stated that “the provisions of this text apply to any goods, which may be appropriated” and that “the information relating to customers constitutes a good that may be misappropriated.”⁷⁷

The use of this provision has allowed French prosecutors to overcome some of the limitations of other provisions. It covers both confidential business information as well as technical information. It also is not simply limited to disclosure but rather applies to use. Art. 314-1 thus now appears to offer a viable tool for prosecuting trade secret misappropriation. It does, however, have a significant limitation. The accused party must have been in a position of trust, with some prior obligation relating to the property. It is most

⁷² Jean-Pierre Stouls et al., Protection of Trade Secrets Through IP and Unfair Competition Law, AIPPI Report Q215, France 1 (2010).

⁷³ Ibid.

⁷⁴ Christophe Garin, “Customer poaching can now be punished by criminal courts on the ground of breach of trust,” Lexology (24 May 2012) at: <http://www.lexology.com/library/detail.aspx?g=e11830fd-5222-4084-afdd-a160047f2fec>.

⁷⁵ Art 314-1 of the Criminal Code. Translation from Hogan Lovells International LLP, Report on Trade Secrets for the European Commission, Appendix 2 at 67 (2012).

⁷⁶ Hogan Lovells International LLP, Report on Trade Secrets for the European Commission, Appendix 2 at 67 (2012), citing Tribunal Correctionnel de Clermont-Ferrand, 21 June 2010).

⁷⁷ Translation from Christophe Garin, “Customer poaching can now be punished by criminal courts on the ground of breach of trust,” Lexology (24 May 2012) at: <http://www.lexology.com/library/detail.aspx?g=e11830fd-5222-4084-afdd-a160047f2fec>.

likely that the defendant must have agreed to such an obligation, or implicitly have such an obligation due to employment or professional status.

2. *Japan*

Japan first expressly enacted criminal protection against trade secret theft in 2001 and 2003 amendments to the Unfair Competition Prevention Law.⁷⁸ Article 21(1) of the Unfair Competition Prevention Law imposes criminal sanctions for trade secret theft. The Act sanctions both misappropriation by third parties and breach of duty by employees and others. Amendments to the Act in 2005 and 2009 further broadened and strengthened criminal trade secret law in Japan. So far, however, these provisions have not been used a great deal. The reason is that in Japan constitutional requirements in criminal proceedings expose trade secrets to the risk of disclosure. The rights of defendants require that the proceedings and record must stay open.⁷⁹ Experts note that as a consequence, in Japan “criminal remedies are rarely used against the acts of trade secret infringement.”⁸⁰

3. *Sweden*

Sweden first enacted both civil and criminal protection for trade secrets in 1990 in the Act on the Protection of Trade Secrets⁸¹ (Trade Secrets Act). The scope of criminal liability is theoretically broad, but has been narrowed due to a judicial interpretation of the statute, as discussed below. The Trade Secrets Act sanctions two types of criminal conduct: “trade espionage” and “unauthorised dealing.” Article 3 provides that “[a]nyone who wilfully and without authorisation accesses a trade secret shall be sentenced for trade espionage.”⁸² Article 4 sanctions “unauthorised dealing,” or tampering, with a trade secret, providing that “[a]nyone who obtains a trade secret knowing that the person who makes available the secret, or anyone before him, has accessed it through an act of trade espionage shall be punished for unauthorised dealing with a trade secret.”⁸³

If information meets the definition of a trade secret, then any unauthorised access constitutes an act of criminal infringement. Moreover, the criminal liability continues through the transfer of possession of the secret, as parties who knowingly obtain trade secrets that were previously accessed without authorisation are also liable. However, the statute has been limited by judicial interpretation, essentially exempting employees and others who breach trust. In a prosecution for theft of Ericsson’s trade secrets, an employee with authorisation to access trade secrets disclosed them to an agent, who passed them to

⁷⁸ Before those amendments, however, prosecutors did use other provisions of the Criminal Code where applicable to prosecute trade secret theft, such as larceny (Art. 235), embezzlement (Arts. 252 and 253) breach of trust (Art. 247).

⁷⁹ Kazuo Ubukata, Question Q215: Protection of Trade Secrets Through IPR and Unfair Competition Law, AIPPI Report on Japan 9 (2010).

⁸⁰ *Ibid.*

⁸¹ Act on the Protection of Trade Secrets (SFS 1990:409).

⁸² Article 3, Act on the Protection of Trade Secrets (Act 1990:409, of 31 May 1990). English translation from Hogan Lovells International LLP, Report on Trade Secrets for the European Commission, Appendix 2 at 245 (2012).

⁸³ Article 4, Act on the Protection of Trade Secrets (Act 1990:409, of May 31, 1990). English translation from Hogan Lovells International LLP, Report on Trade Secrets for the European Commission, Appendix 2 at 246 (2012).

Russian agents.⁸⁴ The employee was not guilty under Articles 3 and 4, because those provisions sanction unauthorised *access* to the trade secret but not *unauthorised disclosure*. Since the employee was authorised to access the trade secret, the employee could not be prosecuted (in contrast to the agent). One report describes the case as follows:

The judgment in the so-called Ericsson case (Svea Court of Appeals of 20 October 2003 in case B 5221-03) demonstrated deficiencies in the current rules. The case involved, among other things, an employee who had access to business secrets in his work and disclosed them to another person who in turn disclosed them to foreign intelligence agents. The prosecution of the employee for participating in grave corporate espionage was rejected, while the person who provided the details to the agents was sentenced to 8 years imprisonment for grave espionage. Apparently, the criminal responsibility under the Trade Secrets Act did not extend to also cover certain unauthorised disclosures and the use of business secrets effected by persons with lawful access to the secret, for example, employees.⁸⁵

Thus, a party who originally had lawful access to a trade secret cannot be prosecuted for disclosing it. While a Legislative Committee recommended in 2008 that this issue be fixed, it has not yet been addressed.⁸⁶

The number of cases pursued in Sweden appears to be relatively low. As discussed earlier, although the Swedish courts do not keep statistical information on the number of trade secret cases, expert opinion estimates “that the Swedish courts hear approximately 20 cases a year that relate to trade secrets.”⁸⁷ That estimate apparently applies to both civil and criminal cases.

4. *The United States*

The United States has had criminal protection against trade secret theft at the national level since 1996. It provides criminal sanctions pursuant to federal (national) law pursuant to the Economic Espionage Act of 1996 (“EEA”), 18 USC §§ 1831 – 1839. The EEA specifies two types of offenses: economic espionage in Section 1831 and theft of trade secrets in section 1832. The two offenses are defined virtually identically, with the difference being that “economic espionage” carries the added requirement that the trade secret theft be committed “intending or knowing that the offense will benefit any foreign government, foreign instrumentality, or foreign agent . . .”⁸⁸

Under Section 1832 of the Economic Espionage Act, theft of a trade secret occurs where a party acts:

with intent to convert a trade secret, that is related to a product or service used in or intended for use in interstate or foreign commerce, to the economic benefit of anyone other than the owner thereof, and intending or knowing that the offense will, injure any owner of that trade secret, knowingly—

⁸⁴ Marianne Levin et al., *Protection of Trade Secrets through IP and Unfair Competition Law*, AIPPI Report Q215, Sweden 5 (2010).

⁸⁵ *Ibid.*

⁸⁶ *Ibid* at 13.

⁸⁷ *Ibid* at 59.

⁸⁸ 18 USC § 1831(a) (2013).

- (1) steals, or without authorisation appropriates, takes, carries away, or conceals, or by fraud, artifice, or deception obtains such information;
- (2) without authorisation copies, duplicates, sketches, draws, photographs, downloads, uploads, alters, destroys, photocopies, replicates, transmits, delivers, sends, mails, communicates or conveys such information;
- (3) receives, buys or possesses such information, knowing the same to have been stolen or appropriated, obtained or converted without authorisation;
- (4) attempts to commit any offense described in paragraphs (1) through (3); or
- (5) conspires with one or more other persons to commit any offense described in paragraphs (1) through (3), and one or more of such persons do any act to effect the object of the conspiracy...⁸⁹

As in other countries discussed thus far, the scope of the EEA was limited in an important respect, but has since been clarified and expanded. Formerly, the EEA applied only to *products* produced or placed in interstate commerce. A 2012 appellate court decision reversed the conviction of a former Goldman Sachs employee who had stolen a computer program that was used only internally at the firm, because the secrets related only to services provided by the firm, rather than a product that it sold.⁹⁰ The US Congress moved promptly to close what a sponsor of the bill called “a dangerous loophole.”⁹¹ The Theft of Trade Secrets Act⁹² expands the definition of trade secrets to include secrets related to both products and services that are used or intended for use in interstate or foreign commerce.

In terms of remedies, the Economic Espionage Act provides for both significant fines and prison time as sanctions. Here also it distinguishes between theft performed for competitors and trade secret theft performed for “any foreign government, foreign instrumentality, or foreign agent.” The latter bears a heavier penalty. The Economic Espionage Act was passed in 1996, and prosecutions commenced immediately. Thus, there is 18 years of accumulated experience with EEA prosecutions. Some lessons can be drawn regarding the volume of prosecutions, the nature of the cases, the relationship between plaintiffs and defendants, and the relationship of the defendants or cases to foreign countries and companies.

A 2012 study by attorney, former federal prosecutor, and trade secret expert Peter Toren provides much of the information set forth below. The present analysis confirms Toren’s research and extends it into the entire 2012 and 2013 calendar years. We also provide an annex with brief summaries of every federal criminal trade secret case filed during 2012 and 2013 (see Annex 1). Toren found a total of 9 cases brought pursuant to Section 1831 (economic espionage) and 115 cases brought pursuant to Section 1832 (theft of trade secrets) since the EEA became effective, as of September 2012. We update Toren’s research through the end 2013, finding the following totals for prosecutions under the EEA since it came into effect in 1996:

Cases Brought Under the Economic Espionage Act

1996 - 2014

	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	Total
§1831	0	0	0	0	0	1	1	0	1	0	0	1	2	0	1	2	0	1	1	11

⁸⁹ 18 USC § 1832 (2013).

⁹⁰ United States v. Aleynikov, 676 F.3d 71, 75 (2d Cir. 2012).

⁹¹ 158 Cong. Rec. H6849 (daily ed. 18 December 2012) (statement of Rep. Smith).

⁹² S. 3642, 112th Cong. (2012).

§1832	1	3	8	5	6	4	8	7	3	6	11	6	10	10	11	11	11	7	9	137
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Sources: For years: 1996 – 2011⁹³ For years: 2012 - 2014⁹⁴

A few things are immediately apparent based solely on the volume of cases alone. First, the numbers are not large, neither in absolute terms nor relative to the number of civil trade secret cases filed.

It is not known how many civil trade secret cases are filed annually, as the US federal courts and most state courts do not track that particular number. However, it is possible to estimate some extreme lower bounds from two studies of US judicial opinions in civil trade secret cases, Almeling et al. (2009, 2010). Those studies examined judicial opinions (not cases filed) in trade secret cases. Among their findings was that there were 121 federal trial court trade secret *opinions* in civil cases in 2008, a number which is likely exceeded significantly by the number of cases *filed*. This is because the cases with opinions exclude the large number of cases that are abandoned, settled, or tried to a jury verdict without an opinion. Taking account of Almeling et al.'s state study, the overall number of state cases is likely to be even larger. Even with just at least 121 cases in federal court alone in 2008 (and that should be a very conservative lower bound), it appears very likely that the number of federal civil cases in trade secret law significantly exceeds the number of federal criminal cases. Thus, federal criminal law has proven to be a tool used selectively compared to civil litigation.

The numbers also do not indicate an increasing trend of bringing prosecutions (in contrast to Almeling et al.'s finding that federal civil claims appear to be increasing exponentially). The first five years of the EEA's existence represented a kind of test period. During that initial five years, "neither economic espionage nor trade secret violations of its provisions could be prosecuted without the approval of senior Justice Department officials. Prosecutors must still secure approval before bringing charges of economic espionage, but approval is no longer necessary for the prosecution of theft of trade secret charges."⁹⁵ After that time, the numbers picked up a bit, but appear to have more or less stabilised in recent years.

Toren's research examined the cases that had been brought and found several notable characteristics about these prosecutions:

- Defendants tended to have a high level of education. As Toren observed, "Theft of trade secrets is truly a white-collar crime. The defendant is most often well educated and by virtue of his senior position had access to the company's valuable proprietary information. Indeed, in a number of cases, the defendant had a doctorate and was highly regarded in his field."⁹⁶

⁹³ Toren (2012), at 4.

⁹⁴ Prosecutions under the Economic Espionage Act for 2012 through 2014 were found using Bloomberg BNA's "Search Docket" function. The search was conducted as follows using the Bloomberg BNA court dockets database: (1) Source: All U.S. District Courts; (2) Dockets & Proceedings; (3) Case Type: Criminal; (4) Date Range: 01/01/2012 – 12/31/2014. The keywords utilized were: "economic espionage" OR "theft of trade secrets" OR "trade secrets theft" OR "18:1831" OR "18:1832" OR "misappropriation of trade secrets" OR "trade secret misappropriation." The search results were then parsed to ensure that they included only prosecutions under 18 U.S.C. 1831 or 18 U.S.C. 1832. Moreover, all cases that have not proceeded to indictment were excluded (where the court docket indicates that no proceedings have followed the filing of a complaint).

⁹⁵ Charles Doyle, Stealing Trade Secrets and Economic Espionage: An Overview of 18 U.S.C. 1831 and 1832 at 12 (Congressional Research Service 28 January 2013).

⁹⁶ Toren (2012) at 4.

- Defendants tended to be “insiders” – more than 90% were either employees or contractors with access to sensitive information.⁹⁷ They often appropriated the information shortly before leaving the company.
- There was great variety in the type of trade secrets stolen. The most common category was source code, but other categories include drug formulas, designs for car parts, and information related to pricing, customer lists and other confidential business information.⁹⁸

Toren also observed that many of the cases had a connection to China:

While more than a majority of the individual defendants are US citizens, there is a “China connection” in a high percentage of the prosecutions. . . . [T]he defendant, in slightly less than 30 percent of the total EEA prosecutions, misappropriated the trade secrets to benefit the Chinese government, an existing Chinese company or to start a company there.⁹⁹

Moreover, the so-called China connection represents an increasing trend. Toren found that:

Since 2008, the government has indicted 50 cases under both sections of the EEA, and approximately 40 percent have a China connection. In 2010, six out of the seven cases that were adjudicated under the EEA involved a link to China. Further, seven of the nine prosecutions that the government has brought under Section 1831 involve an allegation of Chinese government involvement. This does not mean that an entity of the Chinese government was charged in each case, but that the defendant(s) acted to benefit an entity associated with the Chinese government.¹⁰⁰

In extending Toren’s research through the period from 2012 to 2014, the present analysis confirms that the trends observed by Toren have continued. The last three years of indictments (summarised in Annex 1) provide a sense of the particulars of these cases. Defendants continue to be white collar workers, they tend to be insiders, and the types of secrets targeted are diverse. The so-called “China connection” continued during the years 2012 to 2014.¹⁰¹ Of the 29 indictments under the EEA in those two years, at least 12 of them expressly addressed a scheme to transfer technology to a Chinese company or institution. Both of the times charges were filed pursuant to Section 1831 involved an allegation of Chinese involvement.

5. *Conclusions from Experience with Criminal Trade Secret Prosecutions in Several Countries*

There are several lessons one can draw from the experiences of France, Japan, Sweden and the United States with criminal trade secret prosecutions. The law in all of these jurisdictions reflects an increased interest in the use of criminal law to sanction trade secrets. Experience shows both the advantages and challenges of the use of criminal law in this field.

⁹⁷ Ibid at 5.

⁹⁸ Ibid at 6.

⁹⁹ Ibid at 5.

¹⁰⁰ Ibid.

¹⁰¹ See Annex 1, *infra*.

First, criminal trade secret law appears to be useful for combatting trade secret theft because of the investigatory powers that governments typically possess. As discussed earlier, law enforcement and prosecutors have the ability to conduct more extensive investigations and searches and to mount months-long sting operations. The US experience particularly supports this point, as highlighted by a review of the case summaries in Annex 1. For example, in *United States v. Lu*, the government devoted FBI agents to the case with training and experience to address Chinese industrial espionage. They made use of the government's power to conduct surveillance, obtain travel records, make an arrest and conduct an unannounced, extensive search. Similarly, in *United States v. Huang*, the FBI conducted a sting operation through a confidential informant to catch two Chinese nationals attempting to buy industrial secrets. From these examples it appears that criminal trade secret investigations can involve capabilities and powers far beyond those available to trade secret owners. This particularly appears to be the case where the theft involves industrial espionage on behalf of foreign interests, where there are language issues, flight risks, and the actions of the thieves are at least somewhat sophisticated.

Second, despite its advantages in some circumstances, the use of criminal trade secret law has limits. In all of the countries examined here, the application of the criminal laws has been limited in some way, due to narrow drafting of statutes, cautious judicial interpretation, or constitutional protections. These limitations naturally result from the caution with which most legal systems treat criminal law and criminal prosecution. Since the fundamental rights of defendants are at stake, legislatures tend to draft, and courts tend to interpret, criminal statutes more narrowly. Moreover, burdens of proof are typically higher in criminal cases.

In addition, the number of criminal trade secret cases appears to be relatively low in the countries examined here. Even in a country such as the United States with a wealth of resources devoted to its legal system, criminal trade secret prosecutions are low in number in absolute terms.¹⁰² These relatively low numbers can likely be explained in part by the resource-intensive nature of criminal trade secret cases. While the government's greater investigative resources allow it to do more to investigate a case than a civil plaintiff, those resources are still costly. Prosecutors face trade-offs and constraints in their resources, and must prioritise among their potential cases. Toren makes the case that if the government wants to deter trade secret theft, it needs to increase enforcement and provide the resources to do so. However:

This will not be that easy to accomplish, especially in an era of limited financial resources. . . . In comparison with many other types of federal crimes, EEA investigations and prosecutions are more resource intensive and complex. Often they require the ability to understand complex technologies and science that is generally not part of a federal prosecutor's job description. Given these constraints, the FBI and US Attorney's Offices may be reluctant to commit scarce resources to investigate and prosecute a single matter when the same effort could result in the prosecution and conviction of multiple other federal crimes.¹⁰³

Third, the US experience with prosecutions under the EEA appears to confirm growing concerns worldwide about corporate espionage on behalf of Chinese interests. The authors documented these

¹⁰² Some caution is warranted in drawing a conclusion from the vast imbalance between civil claims and federal criminal prosecutions. Over 25 of the 50 states have criminal trade secret provisions, so trade secret owners may be appealing to state prosecutors for help. Still, there is reason to believe that state authorities are even less equipped to deal with trade secret theft and thus less likely to be able, and less likely to be sought, to investigate trade secret claims. The interstate nature of the crimes, the expertise required, and the specialised resources needed argue against it except in larger, more commercial states.

¹⁰³ Toren (2012) at 4.

concerns in an earlier paper.¹⁰⁴ In sum, surveys of the business sector and a number of statements from several governments “have expressed grave concerns about theft of trade secrets originating from China.”¹⁰⁵ The large and growing percentage of EEA cases with a Chinese connection appears to confirm these concerns. One must concede that the sample size here is small, and investigators and prosecutors do have discretion in the cases they choose to prosecute. They thus could be responding to various sorts of incentives to focus on these cases. However, it should also be noted that prosecutors are also constrained by a variety of incentives that cut the other way, including professional codes of ethics, the norms of their profession, a desire to win cases, and resource limitations. The cases with Chinese connections appear to be among the more difficult, resource-intensive EEA cases, and it appears doubtful that of the limited number of cases prosecutors are pursuing, they would disproportionately favour the more expensive, difficult cases.

Overall, the experience of the countries examined here with criminal trade secret prosecutions shows the potential importance of trade secret protection, while placing it in context. The challenge of investigating and deterring trade secret theft does appear to be growing in complexity. The trend of establishing and relying more on criminal law is a logical response, and potentially useful to plaintiffs. However, criminal trade secret protection is not a panacea because of the inherent limits on criminal law imposed by both resource constraints and the rights of defendants.

VI. Conclusion

This paper’s analysis provides evidence of the significant variation that persists in some aspects of trade secrets protection across a broad sample of countries. This variation is most notable with respect to two dimensions of protection:

- Enforcement, investigation & discovery; data exclusivity, and
- System functioning and related regulation

It highlights the options and challenges faced by a trade secret owner who seeks to enforce his rights. Those constraints are imposed by the country-specific legal rules and procedures and by the nature of trade secrets. The paper points to four main conclusions:

First, procedures for the investigation of trade secret claims play a critical role and yet they vary widely across countries. The importance of these procedures is linked to the nature of trade secrets. Evidence in trade secret cases is unlikely to be public, and defendants are often likely to possess important evidence. A trade secret owner may find it difficult or impossible to prove its case without pre-trial discovery of some sort to obtain such evidence. Moreover, their opportunities for sufficient investigation are greatly enhanced by preliminary, *ex parte* actions to obtain and preserve proof. However, these procedures are available only in a subset of countries.

Second, the availability of criminal procedures is important in this context because of the greater investigatory powers of government. However, as this paper’s case studies indicate, criminal prosecution can only satisfy some of the needs of litigants. It is a useful tool, but one with limited purposes. Many current statutes are drafted in such a way as to leave significant types of offenses unreached. Even where more broadly drafted and construed criminal law can only redress some claims due to limited resources.

¹⁰⁴ Schultz and Lippoldt (2014), annex 2, China Summary.

¹⁰⁵ *Ibid.*

Third, trade secrets are fragile, since they are vulnerable to being exposed. The actual availability of preliminary injunctions and protection of confidential information in litigation is thus important. However, there is significant diversity of approaches with respect to these issues. In some countries, injunctions cannot be obtained quickly. In others, protection during litigation is lacking.

Fourth, this paper's case studies confirm the observation and concern that trade secret protection is becoming more challenging in a global environment. Trade secret owners must increasingly face a diverse international legal landscape and contend with more sophisticated corporate espionage.

In sum, trade secrets protection was mandated by the TRIPS Agreement, but key aspects of the required systems of protection were left unspecified. In this environment, countries have taken a diverse range of approaches to deliver trade secrets protection. With globalised markets, trade secrets cases have become increasingly cross-border in nature. Complexity has emerged from a situation where many trade secrets disputes are international, but the specifics of protection are defined nationally.

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CHARTS, TABLES AND FIGURES

Chart 1. Trade Secrets Protection Index

Components and scoring	Score range	Normalised score
1. Definition and Coverage	0-13	0-1
a) Scope		
<ul style="list-style-type: none"> If scope covers all confidential business information, subject to: 1) deriving value from secrecy and 2) the owner's reasonable efforts to maintain secrecy, score = 1; If scope also subject to requirement that information is imparted to the recipient in confidence, score = ½ 	0,1	
b) Additional Elements of Definition		
<ul style="list-style-type: none"> Inventory of trade secrets required (requirement=0; no requirement=1) 	0,1	
<ul style="list-style-type: none"> Must be reduced to writing (requirement=0; no requirement=1) 	0,1	
<ul style="list-style-type: none"> Must be identified as a trade secret to recipient (requirement=0; no requirement=1) 	0,1	
<ul style="list-style-type: none"> Written notice to recipient required (requirement=0; no requirement=1) 	0,1	
c) Acts covered as <u>civil</u> infringement:		
<ul style="list-style-type: none"> Breach of duty (not covered=0, partially covered=½¹⁰⁶, covered=1) 	0,1	
<ul style="list-style-type: none"> Wrongful acquisition or misappropriation (not covered=0, covered=1) 	0,1	
<ul style="list-style-type: none"> Third party liability for acquisition with knowledge or reason to know (not available=0, available=1) 	0,1	
<ul style="list-style-type: none"> Third party liability for acquisition without knowledge - enjoin "innocent parties" (not available=0, available=1) 	0,1	
d) Acts covered by <u>criminal</u> law		
<ul style="list-style-type: none"> Breach of duty (not covered=0, partially covered=½, covered=1) 	0,1	
<ul style="list-style-type: none"> Wrongful acquisition or misappropriation (not covered=0, covered=1) 	0,1	
<ul style="list-style-type: none"> Third party liability for acquisition with knowledge or reason to know (not available=0, available=1) 	0,1	
<ul style="list-style-type: none"> Third party liability for acquisition without knowledge, enjoin "innocent parties" (not available=0, available=1) 	0,1	

¹⁰⁶ E.g. the duty of confidentiality might be imposed on employees, fiduciaries and third parties with access to information. Partial coverage might arise if under a country's legal regime licensees cannot be covered.

Chart 1. Trade Secrets Protection Index (continued)

Components and scoring	Score range	Normalised score
2. Specific duties and misappropriation¹⁰⁷	0-5	0-1
<ul style="list-style-type: none"> • Commercial relationship (covered if arising from: express agreement ½ + implied duty ½) • Current employment relationship (covered if arising from: express agreement ½ + implied duty ½) • Past employment relationship (covered if arising from: express agreement ½ + implied duty ½) • Restrictions on post-relationship duty of confidentiality (if any restrictions on matters beyond general skills and knowledge, by relationship: commercial ½ + employment ½) • Validity of contractual restrictions on competition (if unenforceable=0, significant limitations=½ (e.g., limited by time or place for either commercial or post-employment situations), generally enforceable=1) 	0,1 0,1 0,1 0,1 0,1	
3. Remedies and Restrictions on liability	0-11	0-1
a) Restrictions on liability		
<ul style="list-style-type: none"> • Additional elements of proof in infringement claims (if none: civil=½ + criminal=½, criminal ½ point; score 1 if there no criminal law and civil score is ½) 	0,1	
b) Civil remedies		
<ul style="list-style-type: none"> • Preliminary injunction (if available = 1, if not = 0) • Ex parte action available under preliminary injunction (if available = 1, if not = 0) • Permanent injunction (if available = 1, if not = 0) • Injunction to eliminate wrongful head start (if available = 1, if not = 0) • Delivery or destruction of infringing materials (if available = 1, if not = 0) • Compensatory damages (direct or out of pocket damages or consideration of profits or other damages= 1) • Yielding of defendant's profits (if available = 1, if not = 0) • Availability of punitive or statutory damages (if available = 1, if not = 0) 	0,1 0,1 0,1 0,1 0,1 0,1 0,1	
c) Criminal remedies		
<ul style="list-style-type: none"> • Fines, damages or loss of assets (if not available = 0, if minimal per expert opinion= ½, if substantial = 1) • Jail sentence (if available = 1, if not = 0) 	0,1 0,1	

¹⁰⁷ The treatment of duties is split within this framework. General coverage of duties is scored under index component 1 (Definitions & Coverage). Component 2 responds to the availability of recourse for specific duties. The detailed assessment helps ensure the indicator responds to variation in key elements.

Chart 1. Trade Secrets Protection Index (continued)

Components and scoring	Score range	Normalised score
4. Enforcement, investigation and discovery; data exclusivity	0-6	0-1
a) Enforcement, investigation and discovery		
• Emergency search to preserve and obtain proof (unavailable=0, available but with significant restrictions= ½ (e.g., conducted solely by an official or 3rd party expert), readily available=1)	0,1	
• Ex parte emergency search availability (unavailable=0, available but with significant restrictions=½, readily available=1)	0,1	
• Pre-trial discovery (unavailable=0, documentary only or strict limitations = ½, ready availability of documentary and interrogatories = 1)	0,1	
• Protection of confidentiality of trade secrets in litigation (none=0, partial= ½, fully available=1)	0,1	
b) Data exclusivity		
• Drugs (years: 0=0; 0.1-3=1/3; 3.1-7.9=2/3; >8=1)	0,1	
• Agricultural chemicals (years: 0=0, 0.1-4.9=1/3, 5-8=2/3; > 8=1)	0,1	
5. System functioning and related regulation	0-4	0-1
• Technology transfer: registration requirement (none=1; one or more = 0)	0,1	
• Technology transfer: substantive review or regulation (none=1; one or more = 0)	0,1	
• Fraser Institute score for <i>Legal System and Security of Property Rights</i> (score ranging from 0 to 10, divided by 10) ¹⁰⁸	0,1	
• Expert characterisation of the operation of the protection in practice (NB, based on internationally recognised or peer-reviewed sources; see country charts for details) (Negative = 0; none = ½; positive = 1)	0,1	
Index Total		=====
		0-5

¹⁰⁸ The Fraser Institute (2012, pp. 3 and 273-5) score for *Legal System and Security of Property Rights* is a composite indicator produced annually. Scores can range from 0 to 10. Based on objective indicators and expert assessments, it takes into account judicial independence, impartiality of courts, protection of property rights, military interference in the rule of law and politics, integrity of the legal system, legal enforcement of contracts, regulatory restrictions on the sale of real property, reliability of the police and business costs of crime. For details see Annex 1 of the present report and <http://www.freetheworld.com/reports.html>.

Chart 2. Trade Secrets Protection Index Coverage, Sample, 1995-2010

Trade Partner Countries	OECD Countries
Argentina	Australia
Brazil	Canada
Bulgaria	France
China	Germany
Colombia	Ireland
Ghana	Israel
India	Italy
Indonesia	Japan
Latvia	Korea
Lithuania	Mexico
Malaysia	Netherlands
Peru	New Zealand
Russia	Spain
Singapore	Sweden
South Africa	Turkey
Thailand	United Kingdom
	United States

Table 1. The Composition and Evolution of Trade Secrets Protection, 1995 – 2010

		Average Score			
Components and scoring	Normalised range	1995	2000	2005	2010
1. Definition and coverage	0-1	0.60	0.70	0.72	0.72
2. Duties and misappropriation	0-1	0.83	0.88	0.88	0.88
3. Remedies and restrictions on liability	0-1	0.64	0.68	0.72	0.72
4. Enforcement, investigation and discovery; data exclusivity	0-1	0.52	0.52	0.62	0.64
5. System functioning and related regulation	0-1	0.64	0.66	0.66	0.66
Totals	0-5	3.24	3.44	3.60	3.62
		Minimum Score			
Components and scoring	Normalised range	1995	2000	2005	2010
1. Definition and coverage	0-1	0.35	0.42	0.46	0.46
2. Duties and misappropriation	0-1	0.40	0.50	0.50	0.50
3. Remedies and restrictions on liability	0-1	0.18	0.32	0.36	0.36
4. Enforcement, investigation and discovery; data exclusivity	0-1	0.00	0.00	0.08	0.08
5. System functioning and related regulation	0-1	0.09	0.09	0.11	0.11
Totals	0-5	1.19	1.63	2.47	2.47
		Maximum Score			
Components and scoring	Normalised range	1995	2000	2005	2010
1. Definition and coverage	0-1	0.85	0.92	0.92	0.92
2. Duties and misappropriation	0-1	1.00	1.00	1.00	1.00
3. Remedies and restrictions on liability	0-1	0.91	1.00	1.00	1.00
4. Enforcement, investigation and discovery; data exclusivity	0-1	0.94	0.94	0.94	1.00
5. System functioning and related regulation	0-1	0.98	0.98	0.97	0.97
Totals	0-5	4.43	4.54	4.50	4.49
		Standard Deviation			
Components and scoring	Normalised range	1995	2000	2005	2010
1. Definition and coverage	0-1	0.16	0.13	0.12	0.12
2. Duties and misappropriation	0-1	0.19	0.15	0.15	0.15
3. Remedies and restrictions on liability	0-1	0.16	0.15	0.13	0.13
4. Enforcement, investigation and discovery; data exclusivity	0-1	0.27	0.27	0.25	0.26
5. System functioning and related regulation	0-1	0.29	0.29	0.27	0.27
Totals	0-5	0.81	0.68	0.58	0.57
		Coefficient of Variation			
Components and scoring	Normalised range	1995	2000	2005	2010
1. Definition and coverage	0-1	0.26	0.19	0.17	0.17
2. Duties and misappropriation	0-1	0.22	0.18	0.17	0.17
3. Remedies and restrictions on liability	0-1	0.25	0.22	0.18	0.18
4. Enforcement, investigation and discovery; data exclusivity	0-1	0.51	0.51	0.40	0.40
5. System functioning and related regulation	0-1	0.46	0.43	0.41	0.40
Totals	0-5	0.25	0.20	0.16	0.16

Source: Lippoldt and Schultz, 2014.

Table 2. Trade Secrets Protection Index, Country and Component Scores, 2010

Components and scoring	Normalised range	Argentina	Australia	Brazil	Bulgaria	Canada	China	Colombia	France	Germany	Ghana	India	Indonesia	Ireland	Israel	Italy	Japan	Korea
1. Definition and coverage	0-1	0.81	0.65	0.77	0.46	0.69	0.62	0.85	0.77	0.85	0.62	0.50	0.69	0.62	0.65	0.69	0.85	0.77
2. Duties and misappropriation	0-1	1.00	1.00	0.80	0.60	1.00	0.60	0.90	0.90	0.90	1.00	0.90	1.00	1.00	1.00	0.90	1.00	1.00
3. Remedies and restrictions on liability	0-1	0.64	0.64	0.86	0.36	0.82	0.55	0.55	0.64	0.73	0.55	0.73	0.64	0.73	0.64	0.77	0.82	0.82
4. Enforcement, investigation and discovery; data exclusivity	0-1	0.08	0.86	0.75	0.92	1.00	0.55	0.39	0.75	0.58	0.50	0.64	0.08	0.83	0.86	0.83	0.67	0.44
5. System functioning and related regulation	0-1	0.60	0.84	0.13	0.62	0.97	0.40	0.47	0.70	0.71	0.77	0.16	0.11	0.97	0.93	0.65	0.94	0.78
Totals	0-5	3.12	3.99	3.31	2.96	4.48	2.71	3.15	3.76	3.76	3.43	2.92	2.52	4.15	4.08	3.85	4.27	3.81

Components and scoring	Normalised range	Latvia	Lithuania	Malaysia	Mexico	Netherlands	New Zealand	Peru	Russia	Singapore	South Africa	Spain	Sweden	Thailand	Turkey	United Kingdom	United States	Average
1. Definition and coverage	0-1	0.85	0.92	0.50	0.77	0.85	0.62	0.77	0.54	0.69	0.62	0.85	0.69	0.85	0.85	0.62	0.85	0.72
2. Duties and misappropriation	0-1	0.70	1.00	0.80	0.70	0.70	1.00	0.80	0.50	1.00	1.00	1.00	0.70	0.70	1.00	1.00	0.90	0.88
3. Remedies and restrictions on liability	0-1	0.73	0.82	0.68	0.73	0.91	0.77	0.64	0.82	0.68	0.73	0.82	0.73	0.95	0.73	0.59	1.00	0.72
4. Enforcement, investigation and discovery; data exclusivity	0-1	0.58	0.92	0.69	0.39	0.92	0.80	0.61	0.50	0.80	0.50	0.83	0.58	0.17	0.22	0.92	0.94	0.64
5. System functioning and related regulation	0-1	0.79	0.78	0.80	0.74	0.85	0.85	0.25	0.11	0.83	0.30	0.92	0.86	0.75	0.62	0.84	0.80	0.66
Totals	0-5	3.64	4.44	3.48	3.32	4.22	4.04	3.06	2.47	4.00	3.14	4.42	3.56	3.42	3.41	3.97	4.49	3.62

Table 3. Discovery procedures and the security of confidential information in trade secret litigation, 2010

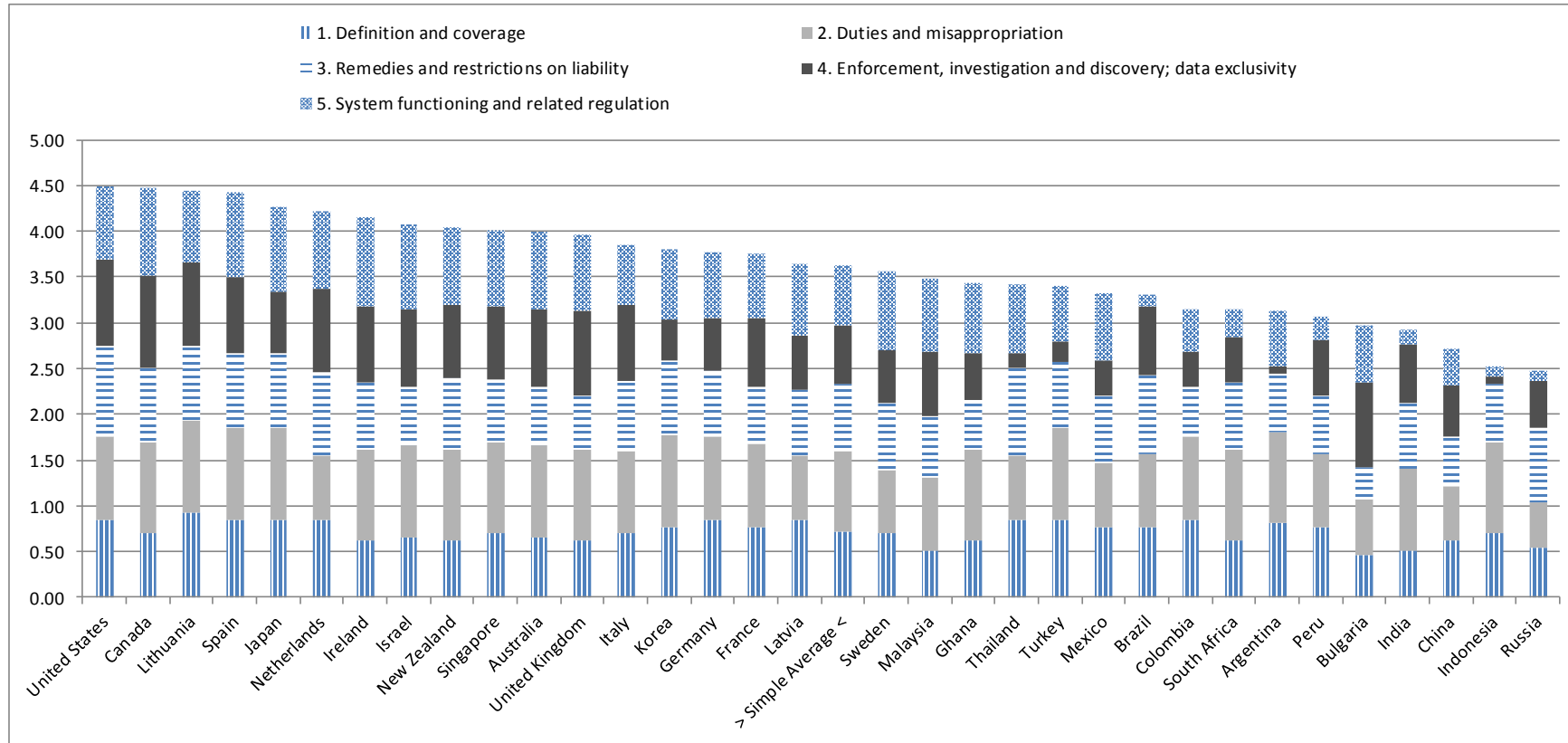
	Emergency search to preserve and obtain proof (unavailable=0; available but with significant restrictions= ½ (e.g., conducted solely by an official or 3rd party expert); readily available=1)	Ex parte emergency search availability (unavailable=0, available but with significant restrictions=½, readily available=1)	Pre-trial discovery (unavailable=0, documentary only or strict limitations = ½, ready availability of documentary and interrogatories = 1)	Protection of confidentiality of trade secrets in litigation (none=0, partial= ½, fully available=1)
Argentina	0	0	0	0.5
Australia	1	1	0.5	1
Brazil	1	1	0.5	1
Bulgaria	1	1	0.5	1
Canada	1	1	1	1
China	0.5	1	0	0.5
Colombia	0	0	1	0
France	0.5	1	0.5	0.5
Germany	0.5	0	0	1
Ghana	1	1	0.5	0.5
India	0.5	1	1	1
Indonesia	0	0	0	0.5
Ireland	0.5	1	0.5	1
Israel	0.5	1	1	1
Italy	1	1	0.5	0.5
Japan	0.5	0	0.5	1
Korea	0	0	0.5	0.5
Latvia	1	0	0	0.5
Lithuania	1	1	0.5	1
Malaysia	1	1	0.5	1
Mexico	0	0	0	1
Netherlands	1	1	0.5	1
New Zealand	1	1	0.5	1
Peru	0	0	1	1
Russia	1	1	0	1
Singapore	1	1	0.5	1
South Africa	1	1	0.5	0.5
Spain	1	1	0.5	0.5
Sweden	0.5	0	0.5	0.5
Thailand	0	0	0.5	0.5
Turkey	0	0	0	0
United Kingdom	1	1	0.5	1
United States	1	1	1	1

Table 4. Remedies, 2010

	Preliminary injunction (if available = 1, if only for certain types of cases=1/2, if not = 0)	Ex parte action (if available under preliminary injunction (if available = 1, if not = 0)	Permanent injunction (if available = 1, if only for certain types of cases=1/2, if not = 0)	Injunction to eliminate wrongful head start (if available = 1, if not = 0)	Delivery or destruction of infringing materials (if available = 1, if not = 0)	Compensatory damages (direct or out of pocket damages or consideration of profits or other damages= 1)	Yielding of defendant's profits (if available = 1, if not = 0)	Availability of punitive or statutory damages (if available = 1, if not = 0)
Argentina	1	1	1	0	0	1	0	0
Australia	1	0	1	1	1	1	1	0
Brazil	1	1	1	0	1	1	1	1
Bulgaria	1	0	1	0	0	1	0	0
Canada	1	1	1	1	1	1	1	1
China	0	0	1	0	1	1	1	0
Colombia	1	0	1	0	0	1	0	0
France	1	0	1	0	1	1	0	0
Germany	1	0	1	0	1	1	1	0
Ghana	1	1	1	0	0	1	1	0
India	1	1	1	1	1	1	1	0
Indonesia	1	0	1	0	1	1	0	0
Ireland	1	1	1	1	0	1	1	1
Israel	1	0	1	1	1	1	1	0
Italy	1	0	1	1	1	1	1	0
Japan	1	0	1	1	1	1	1	0
Korea	1	0	1	1	1	1	1	0
Latvia	1	1	1	0	1	1	0	0
Lithuania	1	1	1	0	1	1	1	0
Malaysia	1	1	1	1	1	1	1	0
Mexico	1	1	1	0	1	1	0	0
Netherlands	1	1	1	1	1	1	1	0
New Zealand	1	0	1	1	1	1	1	1
Peru	1	0	1	0	1	1	0	0
Russia	1	0	1	1	1	1	1	1
Singapore	1	1	1	1	1	1	1	0
South Africa	1	1	1	1	1	1	1	0
Spain	1	1	1	0	1	1	1	0
Sweden	1	0	1	1	1	1	1	0
Thailand	1	1	1	1	1	1	1	1
Turkey	1	1	1	0	0	1	1	0
United	1	0	1	1	1	1	1	0

Kingdom								
United States	1	1	1	1	1	1	1	1

Figure 1. Trade Secrets Protection Index, By Country and Component, 2010



ANNEX 1

Summary of United States Federal Criminal Trade Secret Prosecutions for 2012 – 2014

A. 2012

1. United States v. Kaplan

Status: Convicted

Jurisdiction: District of Nevada (Las Vegas)

Summary:¹⁰⁹ This case, which is related to the 2013 case of United States v. Baxa discussed below, charged Katherine Kaplan with stealing business leads from her former employer Selling Source, LLC, a “payday loan” company. She was accused with conspiring with other former and current employees, who planned to set up their own competing business. She was found guilty and sentenced to 21 months imprisonment; 2 years supervised release; and USD 3.2 million of restitution.

2. United States v. Lu

Status: Pending

Jurisdiction: Central District of California (Southern Division – Santa Ana)

Summary:¹¹⁰ Wenfeng Lu, a Ph.D. research engineer at Edwards Lifesciences Corporation, was charged with misappropriating secrets from his employer. The secrets concerned the design, development, and testing of transcatheter heart valve systems. Lu was accused of transferring technology to and taking money from a company or companies in China to establish a competing business.

The affidavit in the case¹¹¹ in support of a search warrant is particularly revealing regarding the specialized resources devoted to criminal trade secret investigations and the effective use of government capabilities. The Special Agent in charge detailed significant experience and training in counterintelligence operations against Chinese interests. A large part of probable cause was based on Lu’s employer’s monitoring of his email usage at work and access to his work laptop. However, the government was able to use its powers to complete the evidence based on surveillance and records of travel to China. The affidavit supports an application for a physical search of Lu’s house to seize physical evidence of his activities, including possession of Edwards’ trade secrets.

The government planned to arrest Lu at the airport on his way to China and immediately commence a search of his home thereafter. This timing was chosen both in hopes of catching Lu with trade secrets in his possession and thus to avoid potentially warning his wife or others of the need to destroy or conceal evidence.

3. United States v. Walden

Status: Convicted

Jurisdiction: Southern District of Ohio (Dayton)

¹⁰⁹ Information from indictment.

¹¹⁰ Information from indictment.

¹¹¹ Obtained from Bloomberg Law’s “docket requests” database from USA v. Lu, 8:12-cr-00277, pleading #1.

Summary:¹¹² Jeffrey Walden was charged with misappropriating a database containing client lists and other confidential business information from a OnStage Publications, a theatrical program printer to provide to a competitor, Ovation Publications LLC.

4. United States v. Groves

Status: Acquitted

Jurisdiction: Western District of Kentucky (Paducah)

Summary:¹¹³ Three Christian County, Kentucky men – Phillip Lee Groves, Gregory Lee Wampler, and Eric Dale Tinderholt – were charged in a seven-count indictment with conspiring to convert trade secrets for their economic benefit under 18 U.S.C. § 1832. The defendants allegedly stole trade secret information (thousands of computer files containing confidential information) owned by White Drive Products, Inc. Groves and Wampler allegedly stole the trade secret information while employed by the manufacturing company and made a business proposal to a competitor detailing the benefits the competitor could realize by employing the defendants as a commission sales force working on behalf of the competitor company. Defendants Groves and Wampler later resigned their jobs with White Drive Products Inc. and began employment with the competitor. Defendant Tinderholt is charged with receiving and possessing trade secret information owned by White Drive Products, Inc. and knowing that the information had been stolen, appropriated, obtained, and converted without authorization and with transmitting, delivering, and communicating the trade secret information without authorization.

5. United States v. Huang

Status: Pending

Jurisdiction: Western District of Missouri (Kansas City)

Summary:¹¹⁴ Two Chinese nationals – Ji Li Huang and Xiao Guang Qi – were charged in a federal criminal complaint alleging that Huang and Qi attempted to illegally purchase trade secrets related for the purpose of opening a plant in China to compete with the trade secret owner. The defendants allegedly stole trade secret information owned by Pittsburgh Corning Corporation related to the manufacture of FOAMGLAS® insulation. Huang and an unnamed co-conspirator were allegedly found trespassing Pittsburgh Corning’s manufacturing plant recording video or photos on a cell phone and asking employees specific questions about the proprietary product. Huang and Qi allegedly were later caught attempting to buy additional proprietary and confidential information from a confidential source working with the FBI after placing an advertisement in the local newspaper that solicited “technical talent” with experience at Corning Pittsburgh to lead a project to build a foam glass factory in the Asian market.

6. United States v. Kolon Industries, Inc. et. al

Status: Pending

Jurisdiction: Eastern District of Virginia (Richmond)

Summary:¹¹⁵ Five executives and employees of South Korea based Kolon Industries, Inc. – Jong-Hyun Choi, In-Sik Han, Kyeong-Hwan Rho, Young-Soo Seo, and Ju-Wan Kim – were charged in a federal criminal complaint alleging that stole trade secrets concerning DuPont’s Kevlar para-aramid fiber and

¹¹² Information from indictment.

¹¹³ FBI Press Release, <http://www.fbi.gov/louisville/press-releases/2012/christian-county-men-charged-with-attempting-to-steal-trade-secrets-from-their-former-employer>.

¹¹⁴ US Attorney Press Release, <http://www.justice.gov/usao/mow/news2012/huang.com.html>.

¹¹⁵ Kolon Industries Executives Stole DuPont’s Kevlar Trade Secrets, <http://patent.laws.com/patent-news/kolon-industries-executives-stole-duponts-kevlar-trade-secrets-34560.html>; Suzanne Van Arsdale, Kolon Industries Executives Indicted for Stealing DuPont’s Trade Secrets, <http://jolt.law.harvard.edu/digest/jurisdiction/district-courts/kolon-industry-executives-indicted-for-stealing-dupont-trade-secrets>.

Teijin Limited's Twaron para-aramind fiber. Kolon Industries is a manufacturer of a product called Hercron – a recent product in the para-aramind fibers. The indictment alleged that Kolon desired to improve their products by targeting both current and former employees for DuPont and Teijin. The indictment alleged that Kolon received information (information about the manufacturing process, blueprints, prices, and emerging technology) from five employees that formerly worked for DuPont.

The theft of trade secrets carries a maximum penalty of 10 years in prison and fine up to USD 250 000 or twice the gain for each defendant as well as USD 5 million fine or twice the gross gain or loss for the corporation. Since the company tried to conceal the theft, the defendants are also facing up to 20 years in prison for obstruction of justice and multiple fines. Moreover, the indictment seeks forfeiture of at least USD 225 million, which represents the approximate gross proceeds of the sale of Heracron from January 2006 through June 2012.

7. United States v. Stancil

Status: Convicted (Plea of Guilty)

Jurisdiction: Southern District of Texas (Houston)

Summary:¹¹⁶ On November 8, 2012, Steven Thomas Stancil plead guilty for attempted theft of trade secrets under 18 U.S.C. § 1832. Stancil was employed by Mogas Industries Inc. as a cost analyst. Mogas is a manufacturer of specialty valves for the oil and gas industry. While employed, Stancil started downloading proprietary company information onto his company computer and later transferred this information without authorization onto his personal computer at his home. Stancil later sent emails to approximately eight of Mogas competitors offering to sell proprietary Mogas information, including the “entire Mogas database” which would include all drawings and designs, customer contacts, vendors, pricing and more. Later, Stancil offered to sell Mogas’s “customers, costing, engineering, marketing, drawings, and so on” to a competitor for USD 50 000 to USD 100 000. He stated the information would provide the Mogas competitor to expand their business and “potentially bring in extremely large amounts of income...” Stancil also cautioned the Mogas competitor that the negotiations had to be handled carefully because Stancil had “a lot to lose if this comes out in any way.”

Stancil was sentenced to 10-months imprisonment (5 months to be served in federal prison and the remaining to be served on house arrest). He will be required to serve a term of three years of supervised release following completion of the prison term and to complete 200 hours of community service.

8. United States v. Pu

Status: Convicted (appeal pending)

Jurisdiction: Northern District of Illinois (Chicago)

Summary:¹¹⁷ Two former employees of Citadel, a large hedge fund manager – Yihao “Ben” Pu and Sahil “Sonny” Uppal were charged with theft of trade secrets of their employer. According to the indictment, Pu and Uppal, two Citadel technology employees, attempted to infiltrate the company’s elaborate security system to steal proprietary computer code (“alphas”) related to the company’s trading activity. Pu and Uppal plotted to “surreptitiously download and transmit Citadel’s confidential business information” via email accounts, their own computer and external drives. Both defendants also allegedly dumped some of the computer equipment into a sanitary canal when the scheme was first exposed.

9. United States v. Wang

¹¹⁶ USDOJ Press Release, <http://www.justice.gov/usao/txs/1News/Releases/2013%20February/130208%20-%20Stancil.html>

¹¹⁷ Chuck Goudie, The case of the stolen secret codes (April 12, 2013) <http://abclocal.go.com/wls/story?id=9063291>.

Status: Cleared of charges

Jurisdiction: Northern District of Ohio (Akron)

Summary:¹¹⁸ A former research scientist – Xiaorong Wang -- at the Bridgestone Americas Center for Research and Technology in Akron, Ohio has been cleared of EEA charges. Wang was accused of stealing trade secrets from Bridgestone’s research facility and giving them to a Chinese polymer maker. He was alleged to use his insider status at Bridgestone to make off with confidential information such as the formulas and compounds properties for race tires. Prosecutors presented their case to a US District Judge over two days. The judge ruled there wasn’t sufficient evidence to show that Wang was going to economically benefit from taking Bridgestone information or that he knew any theft would hurt the company.

Wang had been fired by Bridgestone over a dispute with managers unrelated to the trade secret theft claims. Wang allegedly downloaded files from Bridgestone computer onto six CDs on the day he was terminated, taking over 400 documents, many of which contained trade secrets. Wang maintained the much of the material belonged to him – research papers, presentation to scientific societies, a book in progress, family photos – and that any company property he planned to “sort out” and return. The indictment alleged that Wang intended to provide the information to an organization named the “42nd Institute” as well as a company called the “Shanghai Frontier Elastometer.” The FBI had raided Wang’s house a few days after he left Bridgestone, seizing his laptop, documents in Mandarin, and papers from the company.

10. United States v. Capener et. al.

Status: Pending

Jurisdiction: District of Utah (Northern)

Summary:¹¹⁹ Two individuals and two companies were charged with theft of trade secrets, wire fraud, and conspiracy to commit wire fraud in connection with the alleged theft of trade secrets from Orbit Irrigation Products, Inc., a sprinkler and irrigation company. Charged in the indictment are Janice Kuang Capaner and Luo Jun, two Chinese nationals, Sunhills International LLC, a California company established by Capaner, and Zhejiang Hongchen Irrigation Equipment Co. LTD, a Chinese manufacturer of irrigation equipment that had a contractual relationship with Orbit to manufacture some of its products. Capaner is a former employee of Orbit; Jun was the chief executive officer and owner of Zhejiang Hongchen Irrigation Equipment Co. LTD.

The indictment charges Capaner with five counts of taking information related to customers and the pricing and sales of sprinkler and irrigation products without authorization from secure Orbit databases and used that information for herself and others to the economic detriment of Orbit. Capaner, Luo Jjun, Sunhills International and Zhejiang Hongchen Irrigation Equipment are also charged with conspiracy to commit wire fraud. The indictment alleges the four defendants to have devised a scheme to begin undermining Orbit’s position in the marketplace using illegally obtaining proprietary pricing information. The defendants allegedly used Sunhills International to market and distribute products. Luo Jun’s company, Hongchen, would “float” or provide upfront free irrigation and sprinkler products to Sunhills to market to US retailers. Hongchen also increased the manufacturing costs for the products it was manufacturing for Orbit, despite their agreements to the contrary. The indictment also alleges the defendants used manufacturing, cost, customer, and pricing information in contravention of confidentiality agreements with Orbit to begin pricing Orbit out of the market.

¹¹⁸ Allison Grant, Ex-Bridgestone scientist cleared of trade secret theft charges, Cleveland.com, 11 October 2012, http://www.cleveland.com/business/index.ssf/2012/10/former_bridgestone_scientist_c.html.

¹¹⁹ FBI Press Release, <http://www.fbi.gov/saltlakecity/press-releases/2012/federal-charges-filed-in-case-involving-alleged-theft-of-trade-secrets-from-utah-company>.

Each charge of theft of trade secrets carries a maximum sentence of 10 years and a fine of USD 250 000. The conspiracy to commit wire fraud count and each count of wire fraud carry maximum sentences of 30 years and fines of USD 1 million.

11. United States v. Li

Status: Convicted (Plead guilty)

Jurisdiction: District of New Jersey (Trenton)

Summary:¹²⁰ Yuan Li, a former research chemist with global pharmaceutical company Sanofi-Aventis (“Sanofi”) plead guilty to an Information charging her with one count of theft of trade secrets for stealing Sanofi’s trade secrets and making them available for sale through Abby Pharmatech, Inc. (“Abby”), the US subsidiary of a Chinese chemicals company. Li admitted that between January 2010 and June 2011, she accessed an internal Sanofi database and downloaded information related to a number of Sanofi compounds, including their chemical structures, onto her Sanofi-issued laptop computer. She also admitted she then transferred the information to her personal home computer by sending it to her personal e-mail address or via a USB thumb drive. Li admitted that she made the stolen compounds available for sale on Abby’s website.

Defendant Yuan Li was sentenced to 18 months in prison, two years of supervised release following the sentence, and was ordered to pay USD 131 000 in restitution.

B. 2013

1. United States v. Zhang

Status: Pending

Jurisdiction: District of Kansas (Kansas City)

Summary:¹²¹ Two agricultural scientists and Chinese nationals – Weiqiang Zhang and Wengui Yan -- have been charged with attempted theft of trade secrets from “Company A,” an undisclosed biopharmaceutical company. The victim company had invested approximately USD 75 million in patented technology used to create a variety of seeds containing recombinant proteins. The company has an extensive IP portfolio of more than 100 issued and pending patents and exclusive licenses to issued patents.

Zhang worked as an agricultural seed breeder for Company A since 2008. Yan worked for the US Department of Agriculture as a rice geneticist. Zhang and Yan arranged for a Chinese delegation to visit the United States in 2013. Previously, the two had travelled to China at the same time in 2012 to visit a Crops Research Institute where they met several members of the Chinese delegation. Stolen Company A seeds were delivered to members of the Chinese delegation during their 2013 visit to the United States, and US Customs and Border Protection recovered those seeds in the luggage of the delegation as they prepared to board a plane to return home. Seeds similar to those found on the delegation were found in Zhang’s residence later in the year. Yan picked up the Chinese delegation during their visit from a motel in Stuttgart Arkansas and took them to the Dale Bumpers National Rice Research Center where he worked.

If convicted, Zhang and Yan face a maximum penalty of 10 years in federal prison and a fine up to USD 250 000.

¹²⁰ USDOJ Press Release, http://www.justice.gov/usao/nj/Press/files/Li_Yuan_Sentencing_News_Release.html.

¹²¹ FBI Press Release, <http://www.fbi.gov/littlerock/press-releases/2013/two-agricultural-scientists-from-china-charged-with-stealing-trade-secrets>.

2. United States v. Shaoming

Status: Pending

Jurisdiction: Southern District of Iowa (Central)

Summary:¹²² Five defendants – Li, Shaoming; Lin, Yong; Wang, Hongwei; Wang, Lei; and Ye, Jian – allegedly conspired to steal the intellectual property of several US based seed manufacturing companies and transport the intellectual property to the People’s Republic of China for the benefit of their China-based seed company. Shaoming is the President of Beijing Kings Nower Seed S&T Co., Ltd., and agricultural company located in Beijing, China. The 5 individuals are alleged to have conspired to steal “inbred” corn-based seed from Dupont Pioneer, Monsanto, and LG Seeds. This “inbred” or “parent” line of seed constitutes valuable intellectual property of a seed producer. The estimated loss on an “inbred” line of seed is approximately 5 to 8 years of research and a minimum of 30-40 millions dollars.

3. United States v. Liu

Status: Pending

Jurisdiction: Western District of New York (Buffalo)

Summary:¹²³ Former employee – Yi Liu -- of Sprung-brett RDI, a technology firm located in the University of Buffalo’s Technology Incubator on Sweet Home Road in Amherst, was charged in a federal criminal indictment with seven counts of stealing trade secrets from his former employer, unlawfully accessing a Sprung-brett computer, interstate transportation of the stolen trade secrets, and wire fraud for attempting to obtain from Sprung-brett to which he was not entitled. Liu, a Ph.D. in mechanical engineering from the University of Waterloo, left Sprung-brett’s employ in February 2011. For seven months following his departure, Liu retained his company issued laptop computer. During this time, Liu allegedly downloaded electronic files onto an external hard drive that comprised Sprung-brett trade secrets about “electric actuation system technology,” technology that the company was developing for possible use in nuclear submarines and on US Air Force Fighters. Liu is alleged to have disclosed those trade secrets.

The charges carry a maximum penalty of 60 years in prison, a USD 3 500 000 fine, or both.

4. United States v. Cao

Status: Pending

Jurisdiction: Southern District of Indiana

Summary:¹²⁴ Two former employees – Guoqing Cao and Shuyu Li – of Eli Lilly, a leading pharmaceutical company, were charged in an indictment for a multi-year plot to steal Eli Lilly trade secrets and transfer those secrets to Jiangsu Hengrui Medicing Co, Ltd., located in Shanghai, China. Cao and Li are accused – along with an unnamed former Lilly scientist and current Hengrui official – with stealing nine separate trade secrets relating to Lilly’s work on cardiovascular disease prevention, diabetes treatment, and cancer treatment, starting in 2010 and continuing until 2013. According to the indictment, Cao submitted his resume to the Hengrui official in 2010 and expressed his dissatisfaction working at Eli Lilly. Over the course of the next year, Cao extracted documents from his Eli Lilly work computer onto external media devices or e-mailed Lilly authored papers to his personal email account. At time, Cao forwarded the information to the Hengrui official. On August 18, 2011, Cao accepted a job with Hengrui.

¹²² FBI Press Release, <http://www.fbi.gov/wanted/alert/li-shaoming>.

¹²³ FBI Press Release, <http://www.fbi.gov/buffalo/press-releases/2013/former-employee-of-amherst-technology-firm-indicted-for-stealing-trade-secrets>.

¹²⁴ Justin Bayer, Two former Eli Lilly scientists accused of stealing \$55 million in trade secrets on behalf of Chinese pharmaceutical company in Southern District of Indiana indictment, Lexology, 28 October 2013, <http://www.lexology.com/library/detail.aspx?g=8bb4cf35-153c-47e2-bf9e-8185aafcae42>.

Cao did not resign from Lilly until January 11, 2012. After Cao resigned, Cao and Li allegedly conspired for Li, another Eli Lilly employee, to send Cao Lilly's trade secrets. Over the course of the next year, Li sent emails to Cao divulging Lilly trade secrets related to Lilly's research into metabolic disorders and testing, a list of five research areas Cao was interested in, and Lilly trade secrets pertaining to its oncology research.

Lilly utilized common, industry accepted measures to protect its trade secrets and confidential information. Lilly limited access through security cards, required employee confidentiality agreements, restricted access to Lilly confidential information on a need-to-know basis, limited access to computer networks, and utilized data security banners and policies. Above industry standards, Lilly also monitored entrance points, recorded campus entry access, required recurrent training and instruction on safeguarding Lilly confidential and trade secret information, and had restrictive guidelines and required specific authorization to publish or discuss Lilly confidential material outside the company.

5. United States v. Agodoa

Status: Convicted (Plead Guilty)

Jurisdiction: Eastern District of Michigan (Detroit)

Summary:¹²⁵ A former engineer and native of Ghana – Michael Kodzo Agodoa – pleaded guilty to stealing his former employer's (Wacker Chemical Corp.) trade secrets (Wacker's formulas for the production of silicone-based rubber materials) and disclosing them to his new employer, South Korea firm KCC Silicones.

Agodoa was sentenced to 24 months in prison and a USD 7 500 fine, plus an extra USD 100 in assessments.

6. United States v. Sinovel Wind Group Co., Ltd.

Status: Pending

Jurisdiction:¹²⁶ Western District of Wisconsin (Madison)

Summary: A manufacturer and exporter of wind turbines based in the People's Republic of China, two employees of that manufacturer – Su Liying and Zhao Haichun -- , and a former employee -- Dejan Karabasevic -- of a subsidiary of AMSC, a US based company formerly known as American Superconductor Inc., were charged today with stealing trade secrets from AMSC causing an alleged loss of more than \$800 million to the company. Su and Zhao are Chinese nationals living in China and Karabasevic is a Serbian national who lived in Austria, but now lives in Serbia.

According to the indictment, AMSC developed and sold software and equipment to regulate the flow of electricity from wind turbines to electrical grids, and it considered the software and equipment to be trade secrets and proprietary information. The indictment alleges that the four defendants conspired to obtain AMSC's copyrighted information and trade secrets in order to produce wind turbines and to retrofit existing wind turbines with technology developed by AMSC. The four defendants were charged with stealing source code from AMSC and transmitting that source code from an AMSC computer in Wisconsin to a computer in Klagenfurt.

¹²⁵ Miles Moore, Ex-Wacker engineer pleads guilty to stealing trade secrets, RubberNews.com, 20 January 2014, <http://www.rubbernews.com/article/20140120/NEWS/140129987/ex-wacker-engineer-pleads-guilty-to-stealing-trade-secrets>.

¹²⁶ USDOJ Press Release, <http://www.justice.gov/opa/pr/2013/June/13-crm-730.html>.

If convicted, Sinovel faces a maximum penalty on each count of five years of probation and a fine of twice the gross gain or loss, meaning Sinovel would face a fine for each count charged of up to twice the alleged loss of more than USD 800 million. If convicted, Su, Zhao, and Karabasevic each face a maximum penalty of five years in prison on the conspiracy charge, 10 years in prison for theft of a trade secret, and 20 years in prison for wire fraud.

7. United States v. Baxa

Status: Pending

Jurisdiction: District of Nevada (Las Vegas)

Summary:¹²⁷ This case, which is related to the 2012 case of United States v. Kaplan discussed below, charged Katherine Baxa with stealing business leads from her then-current employer Selling Source, LLC, a “payday loan” company. She was accused with conspiring with other former and current employees, who planned to set up their own competing business.

8. United States v. Zhao

Status: Convicted (Plead Guilty to a Lesser Charge)

Jurisdiction:¹²⁸ Eastern District of Wisconsin (Milwaukee)

Summary: Hua Jun Zhao, a Medical College of Wisconsin, researcher was charged with economic espionage for stealing a patented cancer-research compound to give to a Zhejiang University, a university in China. Zhao had been conducting pharmacology research at the university as an assistant to Dr. Marshall Anderson. On Feb. 22, Anderson reported to university security that three bottles of a powdery compound identified only as C-25, for which he held the patent, had disappeared from his office. The vials are worth about USD 8 000. A review of security video showed Zhao was the only person to enter of leave Anderson’s office around the time the bottles disappeared. On March 28, federal agents found a receipt for a package sent to Zhao’s wife in China a month earlier as well as plane tickets for a flight to China scheduled to leave that day.

Initially, Zhao was charged with both economic espionage pursuant to 18 USC 1831, as well as and various Computer Fraud and Abuse Act violations. However, the initial criminal complaint for the charges pursuant to 18 USC 1831 was dismissed. Zhao was later sentenced to time served after pleading guilty to a lesser charge of computer tampering. Zhao apologised for the events and at the time of sentencing, told the judge he was “totally guilty of entering the lab and making a copy of the data.” He said that for the entire time he had been in the U., he had focused exclusively on his research. US Attorney Stephen Ingraham described Zhao as an exceptional scientist who was attempting in a misguided way to protect his work. The three vials are still missing.

C. 2014

1. United States v. Newman

Status: Pending

Jurisdiction: Northern District of Illinois-Eastern Division

Summary:¹²⁹ Defendant David Newman was employed by a trading firm (trading firm unnamed in indictment and Department of Justice Press Release)¹³⁰ located in Chicago, Illinois and is alleged to have

¹²⁷ Information from indictment.

¹²⁸ Andrew Harris and Marie Rohde, Ex-Espionage Suspect Gets Time-Served for Computer Crime, BusinessWeek 6 August 2013, <http://www.businessweek.com/news/2013-08-06/ex-espionage-suspect-gets-time-served-for-computer-crime-1>.

¹²⁹ Information from indictment.

copied secrets belonging to the firm onto a thumb drive from firm's computers. The files copied onto thumb drive allegedly consisted of algorithms, strategies, and analysis. According to the indictment, the trading firm's trade secrets included custom-made software for pricing financial products, communicating and executing trades on public exchanges, and analysing trading risk. Newman allegedly established NTF LLC. (NTF) of which he is believed to be the sole owner. Afterward, NTF allegedly entered into an agreement with CME Group allowing NTF to establish its own trading platform interface with CME online trading platforms. A day after Newman resigned from his employer (the alleged victim). Newman established an account for the purpose of trading speculatively in the futures market. These files were protected by company policy, and notice of the policy was given upon every log in. The computers were also equipped with monitoring systems about which the employee was notified upon every log in.

2. United States v. Xie

Status: Convicted by Plea Agreement (Still Pending Approval)

Jurisdiction: Eastern District of Wisconsin

Summary:¹³¹ According to a complaint filed by FBI Special Agent Gerald Shinneman on September 3rd, 2014, Xie, a citizen of China, was employed by GE Healthcare (GEHC), a subsidiary of General Electric, as a "Pulse Sequence Diagram Applications Engineer." GEHC alleged that during his employment, Xie downloaded and copied 2.4 million electronic files without authorization and sent the files in four separate storage devices to family members in China. In March of 2014, Xie submitted his resume to a competitor of GEHC located in China. A short time later Xie was offered a position with the Chinese Company with a start date of July 25th, 2014. GEHC filed a civil complaint (Case Number: 14-CV-809) as well that describes the types of information related to Magnetic Resonance Imaging technology allegedly misappropriated by XIE.¹³² On October 29th, 2014 a plea agreement was filed in U.S. District Court indicating that prosecution under indictment was waived and defendant pleads guilty to charges in violation of 18 U.S.C. 1832(a)(2).¹³³

3. United States v. Bin

Status: Pending

Jurisdiction: Central District of California

Summary:¹³⁴ Bin was indicted for conspiracy to commit trade secret theft in violation of 18 U.S.C. 1832(a)(5), as well as crimes violating 18 U.S.C. 1030. According to an Affidavit submitted by Noel Neeman, a special agent with the Federal Bureau of Investigations, Bin and two unindicted co-conspirators gained unauthorized access to computer systems maintained by Boeing and other companies in the United States and obtained information regarding military projects. They used remote access from China obtaining information from cleared defence contractors. The defendant and the co-conspirators have no connection with any U.S. companies.

4. United States v. Tezock

Status: Pending

Jurisdiction: Northern District of Texas

Summary: During his employment with Voltaix, LLC., a multinational chemical company, from 2005 through 2011, Tezock allegedly stole recipe and manufacturing secrets for high purity Germane gas.

¹³⁰ Reference: http://www.justice.gov/usao/iln/pr/chicago/2014/pr1205_02.html, last visited on 04/18/15.

¹³¹ Information from indictment.

¹³² Information from Complaint and Attached Affidavit.

¹³³ According to Plea Agreement

¹³⁴ Information from indictment.

During the end of his tenure he allegedly was authorized to work from home where he copied many of company's secret files. The Government obtained a warrant and searched his computer files. Diagnostics of his computer apparently revealed other software that he had not disclosed. He then submitted that information and its contents were searched. The search allegedly revealed trade secrets of Voltaix, LLC. Also, allegedly in violation of his employee non-compete and in violation of trade secret laws, Tezock began a new company for the purpose of producing high purity Germane gas.

5. United States v. Maniar

Status: Convicted

Jurisdiction: District of New Jersey

Summary: Maniar, an employee of Becton, Dickinson, and Company (BD), downloaded without authorization product information concerning a disposable pen injector marketed for pharmaceuticals and healthcare applications. Defendant, a national of India, was arrested shortly before relocating to India and had on his computer a resume and cover letters directed to competing companies in India.

6. United States v. Dong et. al.

Status: Pending

Jurisdiction: Western District of Pennsylvania

Summary:¹³⁵ Five Chinese Military hackers allegedly stole trade secrets relating to U.S. nuclear secrets and metals and solar products. The indictment is sealed apparently for national security reasons. The names of private companies listed as victims are: Westinghouse Electric Co. (Westinghouse), U.S. subsidiaries of SolarWorld AG (SolarWorld), United States Steel Corp. (U.S. Steel), Allegheny Technologies Inc. (ATI), the United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial and Service Workers International Union (USW) and Alcoa Inc. The indictment alleges that the secrets are to be used to benefit both Chinese companies and the Chinese Government.

7. United States v. Xiang

Status: Pending (Pending - Plea Deal Reported)

Jurisdiction: North Carolina Middle District

Summary: Jimmy Xiang and Xiaohang Du worked for RF Micro Devices, which manufactured and distributed hands free devices and other cellular products. Both the defendants worked for the company and during their employment sent information about upcoming sensitive information related to manufacturing of new products and their tentative dates of release to competitors through email. The emails were sent via third party email providers in an attempt to avoid prosecution. There were 3 other unnamed and unindicted co-conspirators. According to local news company, Xiang has agreed to a plea deal.¹³⁶ The group of conspirators set up companies in an attempt to compete with their employer. There are civil cases pending in the U.S. and China over these same allegations.¹³⁷

8. United States v. Sing

Status: Pending

Jurisdiction: Central District of California

¹³⁵ According to Department of Justice Website, here: <http://www.justice.gov/opa/pr/us-charges-five-chinese-military-hackers-cyber-espionage-against-us-corporations-and-labor>, last visited on April 18, 2015

¹³⁶ Reference: http://www.news-record.com/business/man-agrees-to-plea-deal-in-rf-micro-trade-secrets/article_00e64dc2-ceae-11e4-a863-fb23637f8d16.html.

¹³⁷ Reference: <http://www.law360.com/articles/476895/former-rfmd-employees-can-t-shake-trade-secrets-case>> Last visited on April 29, 2015

Summary: Sing was employed by Rogerson Kratos, which designs, manufactures, and supplies aerospace products, including display units for various aircraft. During his employment, Sing allegedly sent, by both electronic and physical means, diagrams and other technical secrets to several other engineering firms. Based on review of the docket thus far, much of which is under seal, Sing's alleged motivations, as well as the involvement of the recipients (if any) are unclear. Sing is a Chinese national.

9. United States v. Kibkalo

Status: Pending

Jurisdiction: Western District of Washington

Summary: Kibkalo, an employee of Microsoft, is entering a plea deal for allegedly disclosing trade secret information to a blogger in France. Kibkalo is a Russian national and former employee of Microsoft in Lebanon. He allegedly uploaded secret pre-release information related to "hot fixes" to Windows 8RT and ARM devices to a Skydrive account. He was said to be disgruntled because of a poor performance review.¹³⁸

10. United States v. Lewis

Status: Pending

Jurisdiction: Eastern District of Kentucky

Summary: David Lewis of Kentucky pled guilty to selling his former employer's trade secrets related to brake pads to a Canadian competitor for thousands of dollars, according to the Department of Justice Website.¹³⁹ The case is still pending for sentencing.

¹³⁸ According to: <http://www.zdnet.com/article/former-microsoft-employee-arrested-for-allegedly-stealing-windows-8-trade-secrets/>, last visited on April 18, 2015

¹³⁹ Reference: <http://www.fbi.gov/louisville/press-releases/2014/former-winchester-brake-pad-engineer-pleads-guilty-to-theft-of-trade-secrets-charge>, last visited on April 18th, 2015.