

กรอบกฎหมายการคุ้มครองความลับทางการค้า: การศึกษาเปรียบเทียบกีย์กับความหมาย
การละเมิดลิขิตร แล้วข้อยกเว้นการละเมิด ในสหรัฐอเมริกา สหภาพยุโรป จีน และไทย*

**Legal Frameworks for Trade Secrets Protection: A Comparative Study of
Definition, Infringement, and Defense in the United States, European Union,
China, and Thailand**

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(Received: November 26, 2024; Revised: January 3, 2025; Accepted: January 3, 2025)

บทคัดย่อ

บทความนี้สำรวจกรอบกฎหมายการคุ้มครองความลับทางการค้าในสหรัฐอเมริกา สหภาพยุโรป จีน และไทย ในภาพรวม กฎหมายความลับทางการค้ามุ่งเน้นการรักษาความลับและการปกป้องข้อมูลที่มีมูลค่า ทางเศรษฐกิจจากการใช้หรือการเปิดเผยโดยไม่ได้รับอนุญาต อย่างไรก็ตี วิธีการในการบรรลุการคุ้มครองนี้ แตกต่างกันไปในแต่ละประเทศ สหรัฐอเมริกาใช้การคุ้มครองตามกฎหมายผ่าน Uniform Trade Secrets Act

* This article has been developed from research titled “Legal Frameworks for Trade Secrets Protection: A Comparison of the EU, US, China, and Thailand” conducted in the course L730 Seminar in Intellectual Property. I would like to extend my deepest gratitude to Zijin Yan (S.J.D. candidate at Maurer School of Law, Indiana University Bloomington, when the author was writing this article), who provided support and useful resources necessary to understand China’s Trade Secrets Law. I am also grateful to Asst. Prof. Dr. Junavit Chalidabhongse and Bhandhiraporn Donsakul, whose discussions at Thammasat University during preparation for the CIPITC Moot Court 2023, lightened my understanding of trade secrets law. The author affiliates with both programs as a part of a dual degree program between Thammasat University and Indiana University Bloomington.

(UTSA) และ Defend Trade Secrets Act (DTSA) สภาพยูโรพยายามปรับปรุงให้กฎหมายของประเทศไทยสามารถสอดคล้องกันผ่าน Trade Secrets Directive แต่ยังคงแข็งแกร่งกับความท้าทายด้านลักษณะที่สอดคล้องกันของกฎหมาย จึงพัฒนาการคุ้มครองความลับทางการค้าอย่างต่อเนื่องและถือว่าเป็นหนึ่งในประเทศไทยที่ให้ความคุ้มครองความลับทางการค้าที่เข้มแข็งที่สุดในระบบกฎหมายที่เลือกศึกษา ขณะที่พระราชบัญญัติความลับทางการค้าของไทยแสดงให้เห็นถึงความพยายามในการปรับใช้มาตรฐานสากล แต่ยังคงแข็งแกร่งกับความคลุ่มเครื่องในการตีความและเงื่อนไขที่เข้มงวดเกินไป บทความนี้พิจารณาพัฒนาการทางประวัติศาสตร์ของกฎหมาย ความหมายของความลับทางการค้า การกระทำที่เป็นการละเมิด และข้อยกเว้นการละเมิดที่มีอยู่ในแต่ละกรอบกฎหมายที่เลือกมา ผู้เขียนเลือกที่จะศึกษาระบบกฎหมายเหล่านี้เนื่องจากความระดับความคุ้มครองที่แข็งแกร่งและสภาพการพัฒนาการของกฎหมายที่สามารถเป็นแบบอย่างที่ดีสำหรับประเทศไทย การศึกษากฎหมายเปรียบเทียบนี้ยังเน้นถึงประเด็นสำคัญของการคุ้มครองความลับทางการค้าในแต่ละระบบที่ศึกษาเพื่อมีส่วนช่วยให้เกิดความเข้าใจเกี่ยวกับการคุ้มครองความลับทางการค้าในระดับสากลและเพื่อให้ข้อเสนอแนะสำหรับการปรับปรุงกฎหมายความลับทางการค้าของไทย

คำสำคัญ: ความลับทางการค้า, การละเมิด, ข้อยกเว้นการละเมิด

Abstract

This paper explores the legal frameworks for trade secrets protection in the United States, European Union, China, and Thailand. Overall, trade secrets law in all selected frameworks revolves around confidentiality and economically valuable information against unauthorized use or disclosure. However, the approaches to achieving this protection vary across jurisdictions. The United States employs statutory protections through the Uniform Trade Secrets Act (UTSA) and Defend Trade Secrets Act (DTSA). The European Union tries to harmonize its laws through the Trade Secrets Directive but faces uniformity challenges among member states. China has progressively developed trade secrets protection and is considered to offer one of the strongest protections among selected jurisdictions. Thailand's Trade Secrets Act demonstrates efforts to integrate global standards but struggles with ambiguities in interpretation and too strict requirements. This paper observes the historical development of the laws, the definition of trade secrets, infringement action, and available defenses or exceptions of each jurisdiction. These jurisdictions were chosen due to the strong and evolving nature of their legal framework as comparative models for Thailand. This comparative study also highlights key issues of trade secrets protection in each selected

system to contribute to the broader understanding of global trade secrets protection and offer insights for improving Thailand's trade secrets regime.

Keywords: Trade secrets, Infringement, Defense

I. Introduction

Trade secrets is a body of law that protects against unauthorized disclosure and acquisition of information by improper means. This body of law develops interestingly across various jurisdictions. In the United States, trade secrets gained a spotlight at the federal level, resulting in the Defend Trade Secret Act (DTSA) of 2016. In the European Union, Directive (E.U.) 2016/943 on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure (Trade Secrets Directive) was issued to harmonize the law protecting trade secrets among EU members. In China, trade secrets are mainly protected under the Anti-Unfair Competition Law of the People's Republic of China (AUCL). Still, the level of protection and the interpretation of the law are not clearly on the same line.

Thailand also enforced specific laws on trade secrets through the Trade Secrets Act B.E. 2545 (2002), based on the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs), Article 39, and relevant provisions. However, various common law terms were borrowed without explanation being provided, especially because trade secrets were derived from common law concepts. Also, only a limited number of cases relevant to trade secrets law were substantially litigated in Thailand, leading to an unclear image of its protection framework.

The author wrote this paper for two primary purposes: (1) to understand the legal framework of trade secrets protection by comparing trade secrets protection in the European Union, the United States, China, and Thailand and (2) to gain insightful information to shape how the unclear part of Thai law should be interpreted and developed by comparing these frameworks.

This paper will be constructed as follows. Firstly, the next section will explain the basic concept of trade secrets and the theories behind the law to lay the reader's foundation. Then, the historical development of trade secrets law in each jurisdiction will be

discussed. In the third section of the paper, the requirements for information to be classified as trade secrets in each selected jurisdiction will be discussed. In the fourth section of the paper, the author will explore the acts that constitute infringement or misappropriation claims in each selected jurisdiction. Finally, the author will observe available defenses or exceptions against the claim of trade secrets.

II. Overview and Theories of Trade Secrets Law

As we are discussing trade secrets law, the first questions one may have are what trade secrets are and why we protect trade secrets. At the very basic level, trade secrets are confidential information with economic value that is the subject of reasonable efforts to maintain its secrecy. But what is the nature of its ground when one asserts that another infringes his trade secrets? Is it about property trespassing, tortious liability, or contractual liability?

A. Property

The first justification begins with the view that trade secrets are considered property as it is inherently justifiable. The concept of trade secrets originated in the early 1800s where the court in the United Kingdom justified the protection with Locke's labor theory of property, noting that trade secrets is property.

If he invents or discovers, and keeps secret, a process of manufacture, whether a proper subject for a patent or not, he has not indeed an exclusive right to it as against the public, or against those who in good faith acquire knowledge of it; but *he has a property in it.*¹

Then, a similar idea was adopted by the Supreme Court of the United States in *Kewanee* that “[t]rade secret law promotes the sharing of knowledge, and the efficient operation of industry; *it permits the individual inventor to reap the rewards of his labor* by contracting with a company large enough to develop and exploit it.”² In 1984, the Supreme Court ruled in the same line that “[o]nce the data that constitute a trade secret are disclosed to others, or others are allowed to use those data, the holder of the trade secret has lost his

¹ *Peabody v. Norfolk*, 98 Mass. 452, 458 (1868). (Emphasis added).

² *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 493 (1974). (Emphasis added).

property interest in the data,” concluding that trade secrets are protected under property justification.³

B. Tort

While the decision in *Kewanee* highly relies on the view that trade secrets are property, there is a glimpse of tort theory as a breach of confidence or trust.

[A] court of chancery will protect against one who in violation of contract and *breach of confidence* undertakes to apply it to his own use, or to disclose it to third persons. The jurisdiction in equity to interfere by injunction to prevent *such a breach of trust*, when the injury would be irreparable and the remedy at law inadequate, is well established by authority.⁴

Apparently, the Supreme Court of the United States, in *E.I. duPont*, used to adopt the theory of tort while rejecting the property ground.

The word property as applied to trade-marks and trade secrets is an unanalyzed expression of certain secondary consequences of the primary fact that the law makes some rudimentary requirements of good faith. Whether the plaintiffs have any valuable secret or not the defendant knows the facts, whatever they are, through a special confidence that he accepted. *The property may be denied but the confidence cannot be.* Therefore, the starting point for the present matter is not property or due process of law, but that the defendant stood in confidential relations with the plaintiffs, or one of them.⁵

Contrary to the property justification, this approach focuses on confidence or trust between parties, labeling a breach of confidence or trust as a tort.

C. Contract

Scholars discussed that while trade secrets cases emerge from third parties’ action, trade secrets cases may arise out of contractual duty, which is not tort as parties may sign a

³ *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1011 (1984).

⁴ *Peabody*, 98 Mass. at 458.

⁵ *E. I. duPont deNemours Powder Co. v. Masland*, 244 U.S. 100, 102 (1917). (Emphasis added).

nondisclosure agreement. The theoretical question may arise when one starts a lawsuit about whether the ground is tort-based or contract-based. In such a case, scholars propose that the tort-based theory merges with breach of contract.⁶

D. Intellectual Property

Back to the point of the ongoing debate of whether trade secrets are property, the current mainstream opinion is that it is accepted as property, to be more concise, a type of intellectual property.⁷ Trade secrets can be assigned or licensed in the same way as other intellectual property. However, unlike traditional intellectual property rights, the rights of trade secrets owners are neither absolute nor exclusive; they cannot prevent those who lawfully obtained trade secrets from using or disclosing them.⁸ Still, intersections between copyright, trademark, patent, and trade secret are worth discussing.

1. Copyright

While copyright protection does not cover facts, trade secrets can protect factual information such as names, addresses, and phone numbers in the customer list. The scope of protections is substantially different; while copyright mainly prevents an act of copying, trade secrets prevent the acquisition of information by improper means.

2. Trademark

Both trade secrets and trademarks are relevant to economic value. In the trademark sense, it requires actual use, implying that trademarks have actual value. However, trade secrets need only potential value as a fruit of their secrecy.

3. Patent

Patent, perhaps, is closest to trade secrets among traditional intellectual property rights. However, trade secrets are not required to be new, unlike patents. Trade secrets need to be disclosed, but this does not mean that they are absolute secrets, while patents, once

⁶ Peter S. Menell, Mark A. Lemley, Robert P. Merges, and Shyamkrishna Balganesh, *Intellectual Property in the New Technological Age 2023 Vol. I Perspectives, Trade Secrets and Patents* (1st edn, Clause 8 Publishing 2023) 49.

⁷ Craig Allen Nard, Michael J. Madison and Mark P. McKenna, *The Law of Intellectual Property* (5th edn, Wolters Kluwer 2017) 1439. (While trade secret law is considered a form of intellectual property, creating a protectable interest in valuable information, it is also concerned with ethical duties and behavior among commercial entities.)

⁸ *Confold Pac., Inc. v. Polaris Indus.*, 433 F.3d 952, 958-9. (7th Cir. 2006).

they are registered, are fully in the public domain. The scope of protection between trade secrets and patents may be overlapping. Instead of filing for a patent, one who discovers a new product or process capable of patent registration may keep it undisclosed and protect it as a trade secret instead.

III. Historical Development of Trade Secrets Law

Although each jurisdiction has its way of protecting trade secrets, the core concepts are substantially similar. One of the reasons is trade secrets laws in each jurisdiction have a separate yet connected history of their legal development. This section will discuss the development of trade secrets law in each jurisdiction, starting from the United States.

A. United States

In the United States, as mentioned, the court in *E.I. duPont* had adopted tort theory. This resulted in the standing where trade secrets are protected based on the confidential relationships being adopted in the Restatement (First) of Torts.

1. Restatement (First) of Torts

The Restatement (First) of Torts stated the liability of a person who discloses or uses another's trade secret in § 757. This provision mentioned that a person is liable for his disclosure or use of trade secrets when he discovered the secret by improper means, such as theft, when the secret was shared with him in confidence when he learned of the secret from a third party with the awareness that such a person obtained it using improper mean, and when the secret was accidentally disclosed to him and he knows that it supposed to be confidential.⁹ The trade secret in this Restatement was defined as a process or device for continuous use in the operation of the business.¹⁰ Furthermore, § 758 of the Restatement addresses the liability of a person who learned of the secret from a third party without the awareness that such a person obtained it using improper means and who learned the secret by mistake without knowing of its secrecy and the mistake.¹¹

⁹ Restatement (First) of Torts § 757.

¹⁰ Restatement (First) of Torts § 757, cmt. b.

¹¹ Restatement (First) of Torts § 758.

Moreover, the liability of a person who obtains trade secrets by improper means about another's business to advance business interest against its rival in competition was specifically addressed in § 759.¹² However, the information in this provision is not of the trade secrets like the previous two provisions, but the provision applies to all business information, no matter if it constitutes a trade secret or not.¹³

2. Uniform Trade Secrets Act

There is an effort to uniform the law governing trade secrets from the American Bar Association (ABA) during the 1960s. The effort led to the existence of the Uniform Trade Secrets Act (UTSA) in 1979. The amendment later occurred in 1985. The details in the UTSA are partially similar to the framework provided in the Restatement of Torts and partially provide broader protection.

The UTSA cited the comment (f) of § 757 of the Restatement of Torts that a complete catalog of improper means is not possible, stating that §1(1) of the UTSA provides a partial listing, which includes but is not limited to theft, bribery, misrepresentation, breach or inducement of a breach of a duty to maintain secrecy, or espionage through electronic.¹⁴ The comment also clearly stated what the proper means could be.

One significant shift in the protection regime is that the UTSA the protection of trade secrets beyond the requirement in the Restatement of Torts. Here, to be qualified as a trade secret, the information is not required to be continuously used in one's business anymore. The UTSA extends the definition to protect information that one has not yet had an opportunity to use and information that negatively contains commercial value, such as information that a certain process will not work.¹⁵

3. Restatement (Third) of Unfair Competition

The Restatement of Unfair Competition contained the issue of trade secrets, and such a view where a trade secret is an issue in unfair competition persists until current days. The prefatory note of the Restatement mentioned, "Uniform Act codifies the basic principles

¹² Restatement (First) of Torts § 759.

¹³ Restatement (First) of Torts § 759, cmt. b.

¹⁴ Uniform Trade Secrets Act §1, cmt.

¹⁵ Id.

of common law trade secret protection,” implying that this Restatement serves a need to clarify common law principles.¹⁶ However, by that time, various states already adopted the UTSA as a model law, codifying its own state law. The Restatement, therefore, was not aimed at replacing the UTSA but rather serving as a tool for interpreting it.

Except as otherwise noted, the principles of trade secret law described in this Restatement are applicable to actions under the Uniform Trade Secrets Act as well as to actions at common law. The concept of a trade secret as defined in this Section is intended to be consistent with the definition of “trade secret” in § 1(4) of the Act.¹⁷

One remarkable point is that the Restatement of Unfair Competition does not expressly recognize trade secrets as property; still, it classifies trade secrets as intangible trade value, which gives some sense of property theory influence.¹⁸ Moreover, scholars point out that the Restatement of Unfair Competition is considered a compliance of the TRIPs Agreement.¹⁹

4. Economic Espionage Act

In 1996, the Economic Espionage Act (EEA) was enacted to address the issue arising from digital technology relevant to information-transferring systems, including the Internet. Under 18 U.S.C. § 1831(a), the crime of “economic espionage” is defined as follows.²⁰

Whoever, intending or knowing that the offense will benefit any foreign government, foreign instrumentality, or foreign agent, knowingly

(1) steals, or without authorization appropriates, takes, carries away, or conceals, or by fraud, artifice, or deception obtains a *trade secret*;

¹⁶ Restatement (Third) of Unfair Competition § 39, rep. note.

¹⁷ Id.

¹⁸ Restatement (Third) of Unfair Competition § 38; David W. Quinto and Stuart H. Singer, *Trade Secrets: Law and Practice* (1st edn, Oxford University Press 2009) 23-24.

¹⁹ Zijin Yan, ‘Protecting Undisclosed Enterprise Data as Trade Secrets in the United States and China’ (SJD dissertation, Indiana University Bloomington 2024) 83.

²⁰ 18 U.S.C. § 1831. (Emphasis added).

- (2) without authorization copies, duplicates, sketches, draws, photographs, downloads, uploads, alters, destroys, photocopies, replicates, transmits, delivers, sends, mails, communicates, or conveys a *trade secret*;
- (3) receives, buys, or possesses a *trade secret*, knowing the same to have been stolen or appropriated, obtained, or converted without authorization;
- (4) attempts to commit any offense described in any of paragraphs (1) through (3); or
- (5) conspires with one or more other persons to commit any offense described in any of paragraphs (1) through (3), and one or more of such persons do any act to effect the object of the conspiracy ...

The term “trade secret” in the EEA cover wide range of information such as financial, business, scientific, technical, economic, and engineering information with three conditions: (1) it must be genuinely secret and not easily accessible; (2) owner must have taken reasonable steps to maintain its secrecy; and (3) information must possess independent economic value due to its confidential nature.²¹

However, scholars argue that the EEA is ineffective in protecting American trade secrets, where its effectiveness intersects with broader international relations.²² Through this legislation, federal prosecution enjoys more of a role in the protection of trade secrets in criminal cases.

5. Defend Trade Secret Act

In 2016, the Defend Trade Secret Act (DTSA) established federal-level protection for trade secrets in civil claims. As the DTSA does not preempt state law, the owner of trade secrets enjoys protection at both federal and state levels, in which he can pick one or both. The main reason behind this enactment is that states adopted various variations of the UTSA and that the DTSA would provide a uniform standard for trade secret misappropriation.²³

The DTSA is largely based on the UTSA; thus, substantial details of these two laws are the same, including the notion of trade secrets, the liability standard, and the remedy

²¹ 18 U.S.C. § 1839(3); Model Crim. Jury Instr. 9th Cir. 23.16 (2024).

²² Zijin Yan, *Trade Secrets in the United States and China* (n 19) 85.

²³ H.R. Rep. No. 114-529, at 4-6 (2016).

provisions. However, the DTSA has few differences from the UTSA. For example, it provides immunity under 18 U.S.C. § 1833(b)(1), which are specific situations where an individual is exempted from civil and criminal liability relevant to trade secrets under state and federal laws.²⁴

B. European Union

The development of the protection of Intellectual Property started in the mid-1980s.²⁵ Before that time, the concept of trade secrets protection was quite blurry; still, such a concept continuously developed until nowadays, when the Trade Secrets Directive is in charge.

1. Before the 1980s

The very first recognition of trade secrets protection in the European Union could be said to start from a competition law perspective, but thorny. In that era, trade secrets had been harshly recognized. The first decision that mentioned trade secrets in the Union is hostile to the concept itself. In *Reuter/BASF*, the Commission determined that the restriction on using know-how hinders trade between Member States as when the buyer acquired know-how, his right is not exclusive; thus, the duration of the post-transfer restriction on the use of know-how needs to be time.²⁶ The commission also poses the question of whether the know-how in question can still be considered trade secrets considering the state-of-the-art at the time, asking whether or not the know-how still has sufficient economic value.

The commission later posed a more positive view on trade secrets where the unique recipe of wine and its production method could be the basis for valid exclusive licensing agreements without necessarily hindering competition in *Campari*.²⁷ Here, the Commission noted that the recipe was a trade secret kept confidential by the licensor, Campari. However, although the instruction on the production method for making the wine was shared with the

²⁴ 18 U.S.C. § 1833; John G. Sprankling and Thomas G. Sprankling, *Understanding Trade Secret Law* (1st edn, Carolina Academic Press 2020) 121-123.

²⁵ For further literature on the early historical development of trade secrets protection in the European Union, please see Katarzyna A. Czapracka, 'Antitrust and Trade Secrets: The U.S. and the EU Approach' (2012) 24 Santa Clara High Tech. L.J. 207, 249-256.

²⁶ Commission Decision 76/743/EEC, 1976 O.J. (L 254) 40.

²⁷ Commission Decision 78/253/EEC, 1978 O.J. (L 70) 69.

licensee, it was also qualified as know-how, in which the licensee is required to refrain from disclosing the manufacturing processes to third parties. The Commission's view clearly respected both the value of information that remains secret and what was shared under controlled usage.

2. The 1980s

In 1984, the Commission issued the regulation granting a group exemption for patent and mixed patent-and-know-how licenses, while the mixed license was permitted if the know-how allowed better exploitation.²⁸ However, the pure know-how was not mentioned, leading to a question on its status. The European Court of Justice (ECJ) then tackled this issue in 1986, ruling that restrictions that were necessary to protect know-how were enforceable.²⁹ Later on, the regulation on pure know-how was established in 1988, where it created a safe harbor by creating a list of permissible clauses on pure know-how and mixed patent-and-know-how licenses, which are deemed not to violate the Treaty establishing the European Community.³⁰ Still, the definition presented in the Regulation is quite narrow compared to today's framework of trade secrets protection.³¹

²⁸ Commission Regulation No 2349/84 on the Application of Article 85(3) of the Treaty to Certain Categories of Patent Licensing Agreements, 1985 O.J. (L 280) 32.

²⁹ Case 161/84, *Pronuptia de Paris GmbH v. Pronuptia de Paris Irmgard Schillgallis*, 1986 E.C.R. 353; The confirmation of validity was followed by Commission Decision 87/100/EEC, 1987 O.J. (L 41) 31; Commission Decision 88/143/EEC, 1988 O.J. (L 69) 21; Commission Decision 88/563/EEC, 1988 O.J. (L 309) 34; and Commission Decision 88/635/EEC, 1988 O.J. (L 351) 40.

³⁰ Commission Regulation 556/89/EEC on the Application of Article 85(3) of the Treaty to Certain Categories of Know-How Licensing Agreements, 1989 O.J. (L 61) 1.

³¹ Id. at Article 1(7). (For the purposes of the present Regulation the following terms shall have the following meanings: 1. 'know-how' means a body of technical information that is secret, substantial and identified in any appropriate form; 2. the term 'secret' means that the know-how package as a body or in the precise configuration and assembly of its components is not generally known or easily accessible, so that part of its value consists in the lead-time the licensee gains when it is communicated to him; it is not limited to the narrow sense that each individual component of the know-how should be totally unknown or unobtainable outside the licensor's business; 3. the term 'substantial' means that the know-how includes information which is of importance for the whole or a significant part of (i) a manufacturing process or (ii) a product or service, or (iii) for the development thereof and excludes information which is trivial. Such know-how must thus be useful, i.e. can reasonably be expected at the date of conclusion of the agreement to be capable of improving the competitive position of the licensee, for example by helping him to enter a new market or giving him an advantage in competition with other manufacturers or providers of services who do not have access to the licensed secret know-how or other comparable secret know-how; 4. the term 'identified' means

3. Article 39 of the TRIPs Agreement

The author would like to shift the reader's focus out of the European Union, redirecting the focal point to the TRIPs Agreement that was negotiated between 1989 and 1990 for a while as this is the intersection point between the development of the protection framework in the United States and the European Union.

The issue of trade secrets protection was pushed into the spotlight of the negotiation by the United States, where the United States advocated for the broad definition of the term.³² However, the inclusion of trade secrets into the TRIPs did not occur right away, but experienced a push back, turned late-acceptance from the developing countries.³³

As a result of the negotiation, the UTSA standard was adopted, but in a weird order, with Switzerland being the first country to adopt it, followed by the European Community and the United States itself.³⁴ However, although the reference to the UTSA definition of trade secrets was apparent, the TRIPs agreement contains some distinctions. The first notable difference is the usage of the term 'undisclosed information' to stress that the TRIPs are independent of the UTSA.³⁵ The next notable difference is the standard of 'commercial' value was used instead of economic value, which is arguably both that the term is a synonym and that the TRIPs strive for the more restrictive approach as it requires the information to be put in commercial use.³⁶ The last distinction is that there exists the third requirement, which is that the information has commercial value because it is secret, which does not exist in the UTSA.³⁷

that the know-how is described or recorded in such a manner as to make it possible to verify that it fulfils the criteria of secrecy and substantiality and to ensure that the licensee is not unduly restricted in his exploitation of his own technology. To be identified the know-how can either be set out in the licen[s]e agreement or in a separate document or recorded in any other appropriate form at the latest when the know-how is transferred or shortly thereafter, provided that the separate document or other record can be made available if the need arises...)

³² Suggestion by the United States for achieving the negotiating objective, 20.10.1987, MTN. GNG/NG11/W/14, 8.

³³ Luc Desaunettes-Barbero, *Trade Secrets Legal Protection: From a Comparative Analysis of US and EU Law to a New Model of Understanding* (1st edn, Springer 2023) 76-77.

³⁴ Id. at 77-78.

³⁵ Id. at 81-82.

³⁶ Id. at 82-83.

³⁷ Id. at 83-84.

4. Trade Secrets Directive

Within the European Union, despite having the TRIPs Agreement, the protection of trade secrets through national legislations are varied.³⁸ This diversity led to the decision of the European legislator to harmonize trade secrets law, adopting the TRIPs definition into the Trade Secrets Directive.³⁹ However, this option is challenging. By adopting the definition of TRIPs, the EU legislator faces the problem of legal ambiguity due to its flexibility.⁴⁰ While this flexibility means that the definition in Article 2(1) of the Trade Secrets Directive is likely to be accepted by most of its members, it also introduces a degree of uncertainty in the same way as the United States, where the UTSA language led to varying interpretations among states.

C. China

China also has a long history of trade secrets protection, where notable legislations were promulgated since the establishment of the People's Republic of China (PRC) in 1949. As an overview, before 1993, China had rendered its way of protecting trade secrets without external influence; thereby, the protection was so different from the current regime as trade secrets back then were protected based on contracts. Later, from 1993 onwards, it could be said that the United States had an influence on the development of China's trade secrets law.

1. 1949-1978

Since the People's Republic of China (PRC) was established in 1949, China has issued various sets of regulations containing the protection of business secrets, where the protected information includes scientific invention and technology, technical secrets, and traditional skills related to technology.⁴¹ Still, the term trade secret does not yet appear in any piece of legislation. The early-day legislations are as follows:

³⁸ See *Id.* at 86-103.

³⁹ Directive (EU) 2016/943, Article 2(1).

⁴⁰ Elizabeth A. Rowe and Sharon K. Sandeen, *Trade Secret Law: Cases and Materials* (2nd edn, West Academic Publishing 2016) 41. ([T]he trade secret laws of the EU have been a hodge-podge of laws and legal principles. Some common law countries relied upon ... case law while other countries relied upon written code, but most often not stand-alone statutes ...)

⁴¹ Shan Hailing, *The Protection of Trade Secrets in China* (2nd edn, Kluwer Law International 2012) 2.

- The Provisional Regulations for Maintaining State Secrets, promulgated by the Government Administrative Council (1951);
- The Regulations on the Issue of Science and Technology Secrets, issued by the Central Committee of the Communist Party of China (CPC) (1958);
- The Proposals for Science and Technology Exchange and Maintaining Confidentiality, jointly formulated by the China Security Committee, State Scientific Committee, the Engineering Office of National Defense, the Scientific Committee of National Defense, and the State Economic Committee as well as other authorities (1965).
- The Regulations for Maintaining Confidentiality of Science and Technology, formulated by the Security Committee of the CPC (1978).

During this period, trade secrets were protected under the status of state secrets by administrative measures.⁴²

2. 1978-1993

Between 1978 and 1990, the National People's Congress (NPC) established and amended laws, and trade secrets protection was one of the issues of concern. The understanding of trade secrets became broader in the 1980s. The first time that the term trade secret was mentioned was in 1991 when the Civil Procedure Law mentioned: “[e]vidence that involves state secrets, *trade secrets*, and personal privacy shall be kept confidential.”⁴³

In 1987, the law on technology contracts adopted the concept of unpatented technical achievements and unpatented technology transfer for the first time, such that

[t]he right to use unpatented technological know-how achieved through a contract commissioning development work or cooperative development, the right to transfer it, and the methods of distributing benefits from it shall be stipulated by the parties to the contract. In the absence of contractual stipulations, each all have the right to use and transfer the technical know-how, except undertaking research and development under a commission

⁴² Id.

⁴³ Civil Procedure Law of the People's Republic of China, Article 66. (Emphasis added)

development contract may not transfer the results of said research and development to a third party before delivering them to the commissioning party.⁴⁴

However, this law does not clearly direct to the terms technical or trade secrets directly, while the reference to the terms could be drawn.

In 1992, the Supreme People's Court of the PRC issued Several Issues Concerning the Application of the Civil Procedure Law of the PRC. This was the first time that the term trade secrets was defined.

Technological secrets and commercial intelligence and information. For example, industrial and trade secrets that interested parties are unwilling to make public such as production skills, formulas, business contracts or purchase and sales channels.⁴⁵

The scope of trade secrets in this era included both technical secrets and business information that one would love to keep confidential rather than reveal.

3. 1993-1998

The year 1993 is the benchmark of trade secrets protection in China, as the Anti-Unfair Competition Law (AUCL) became effective for the first time. The AUCL established several acts that are considered acts of unfair competition, clearly indicating trade secret infringement among them. Under the 1993 AUCL, trade secret is defined as “the applied

⁴⁴ Zhonghua Renmin Gongheguo Jishu Hetong Fa (中华人民共和国技术合同法) [the Technology Contract Law of the People's Republic of China] (Expired) (adopted by 21st meeting of the Standing Committee of the 6th NPC, June 23, 1987, effective date November 1, 1987), Article 32 (China).

⁴⁵ Zuigao Renmin Fayuan Guanyu Shiyong Zhonghua Renmin Gongheguo Minshi Susong Fa Ruogan Wenti de Yijian (最高人民法院关于适用《中华人民共和国民事诉讼法》若干问题的意见) [Provisions of the Supreme People's Court regarding Several Issues Concerning the Application of the Civil Procedure Law of the people's Republic of China] (promulgated by the Supreme People's Court, July 14, 1992, effective July 16, 1992), Article 154 (China) [hereinafter 1993 AUCL].

technology or business information unknown to the public and capable of bringing economic benefits to the right holder, for which the right holder has taken confidentiality measures.”⁴⁶

All the elements defined under the AUCL except practical application are substantially similar to what was set forth in Article 39 of the TRIPs, although, at the time that the AUCL came into existence, the TRIPs agreement was still under negotiation. At this point, it may be arguable that the United States’ framework indirectly influences Chinese trade secrets law.

4. 1998-2012

China initiated a legal program in 1998, amending many laws in order to comply with the WTO rules, successfully joined the WTO in 2001, and began to subsume obligations provided by the TRIPs, including the obligation to protect undisclosed information.⁴⁷ At this point, it is clear that the United States’ shadow started to cover China’s evolution in trade secrets protection as the undisclosed information provisions of the TRIPs were highly influenced by the UTSA.

During this period, the Judicial Interpretation was published in 2007 to address vagueness in the AUCL, providing the definition of commercial value,⁴⁸ reasonable measures,⁴⁹ practical applicability,⁵⁰ and unknown to the public.⁵¹

5. 2012-2017

Since 2012, the issue of trade secrets law in China has been addressed by the Special 301 Reports due to the United States’ awareness of the impact of trade secrets law. China

⁴⁶ Zhong Hua Ren Min Gong He Guo Fan Bu Zheng Dang Jing Zheng Fa (中华人民共和国反不正当竞争法) [Anti-Unfair Competition Law of the People’s Republic of China] (promulgated by the STANDING COMM. NAT’L PEOPLE’S CONG., September 2, 1993, effective December 1, 1993), Article 10 (China).

⁴⁷ Shan Hailing, *Trade Secrets in China* (n 41) 10.

⁴⁸ Zuigao Renmin Fayuan Guanyu Shenli Buzhengdang Jingzheng Minshi Anjian Yingyong Falv Ruogan Wenti de Jieshi (最高人民法院关于审理不正当竞争民事案件应用法律若干问题的解释) [Interpretation of the Supreme People’s Court on Some Issues Concerning the Application of Law in the Trial of Civil Cases Involving Unfair Competition] (promulgated by the Supreme People’s Court, January 12, 2007, effective date February 1, 2007) Articles 10, 11, 14, and 17 (China) [hereinafter Interpretation Involving Unfair Competition].

⁴⁹ Id. at Article 11.

⁵⁰ Id. at Article 10.

⁵¹ Id. at Article 9.

and the United States also established the U.S.-China Joint Commission on Commerce and Trade (JCCT). The Special 301 Reports addressed various concerns urging China to amend the 1993 AUCL in 2017. The first notable change is that the requirement of practical applicability was eliminated; thus, the definition of trade secrets in the first part of Article 10 of the 2017 AUCL changed from applied technology to technological information.⁵² This elimination of practical applicability requirement makes the Chinese trade secrets law closer to the TRIPs, meaning that the law is closer to the trade secrets law of the United States. There are further amendments relevant to the statutory damage and confidential duty of the government officials.⁵³ However, the amendment in Article 9, which emphasizes the phrase “an employee or a former employee,”⁵⁴ did not eliminate the criticism that the applicability of trade secrets infringement may be too narrow as it does not address the concern that the law only applies to business operators, not individuals.

6. Post 2017

The government of the United States still was not satisfied with the 2017 AUCL, as noted in the 2018 and 2019 Special 301 Reports, calling the law a “missed opportunity” and highlighting its limitations, such as a narrow scope of covered actions, lack of injunctive relief, and inadequate burden-shifting provisions.⁵⁵ Some concerns had been addressed by the Judicial interpretation in 2018.⁵⁶ In response, China amended the AUCL in 2019 to address

⁵² Fan Buzhengdang Jingzheng Fa (反不正当竞争法) [Anti-Unfair Competition Law], (promulgated by STANDING COMM. NAT'L PEOPLE'S CONG., September 2, 1993, effective December 1, 1993; revised by STANDING COMM. NAT'L PEOPLE'S CONG., November 4, 2017, effective January 1, 2018) (China) [hereinafter 2017 AUCL]. (“[T]rade secret” means the technological information or business information unknown to the public and capable of bringing economic benefits to the right holder, for which the right holder has taken confidentiality measures.)

⁵³ Id. at Articles 15 and 17.

⁵⁴ Id. at Article 9.

⁵⁵ U.S. Trade Representative, ‘2018 Special 301 Report 40’ (April 2018) <<https://ustr.gov/sites/default/files/files/Press/Reports/2018%20Special%20301.pdf>> accessed 21 November 2024; U.S. Trade Representative, ‘2019 Special 301 Report 41–42’ (April 2019) <https://ustr.gov/sites/default/files/2019_Special_301_Report.pdf> accessed 21 November 2024.

⁵⁶ Zuidao Renmin Fayuan Guanyu Shencha Zhishi Chanquan Jiufen Xingwei Baoquan Anjian Shiyong Falv Ruogan Wenti de Jieshi, Fashi [2018] Ershi Yi Hao (最高人民法院关于审理知识产权纠纷行为保全案件适用法律若干问题的解释, 法释[2018] 21号) [Provisions of the Supreme People's Court on Several Issues concerning the Application of Law in Cases Involving the Review of Act Preservation in Intellectual Property Disputes, Judicial

these concerns. The 2019 AUCL expanded Article 9 to cover individuals and non-commercial entities, broadening the law's application beyond business operators.⁵⁷ It also introduced protections against cyber theft of trade secrets, directly addressing the United States' concerns raised during trade negotiations.⁵⁸

D. Thailand

Thailand also has a long history of trade secrets protection before enacting the Trade Secrets Act B.E. 2545 (2002). The policy behind the enactment is that Thailand intends to uphold free trade, prevent the practice of unfair competition, and extend the scope of tortious liability to cover the trade secrets regime fully.⁵⁹

1. Prior to 2002

Prior to the existence of the Trade Secrets Act, the protection of trade secrets relied on narrow protection granted by certain provisions in the Thai Penal Code, contractual terms, and tort law in the Thai Civil and Commercial Code.

Section 323 of the Thai Penal Code provides protection of a private secret, which is wider than trade secrets, where it imposes criminal liability to medical practitioners, pharmacists, druggists, midwives, nursing attendants, priests, advocates, lawyers, or auditors who acquire a private secret of another person by reason of his functions, or a person who acquires a private secret of another person by reason of being an assistant in the said professions and discloses such a private secret.⁶⁰ At the same time, section 324 provides for a secret relevant to industry, discovery, or scientific invention, which is narrower than trade secrets, imposing criminal liability against a person who has the duty, professing to call the

Interpretation No. 21 [2018]], (promulgated by the Supreme People's Court, December 12, 2018, effective January 1, 2019) (China).

⁵⁷ Zhong Hua Ren Min Gong He Guo Fan Bu Zheng Dang Jing Zheng Fa (中华人民共和国反不正当竞争法) [Anti-Unfair Competition Law of the people's Republic of China] (promulgated by the STANDING COMM. NAT'L PEOPLE'S CONG., date issued April 23, 2019, effective date April 23, 2019) Article 9 (China) [hereinafter 2019 AUCL]. (A business entity shall not commit any of the following acts which infringe trade secrets of another.)

⁵⁸ Id. (Obtaining a trade secret from its lawful holder by theft, bribery, fraud, coercion, hacking into the electronic information system or any other illicit means.)

⁵⁹ Supit Praneetpolkrang, *The Law of Trade Secrets* (1st edn, Inter Book 2003) 13.

⁶⁰ Thai Penal Code, Section 323.

trust, such as an employee, having known or acquired the secret, and disclosing or using such secret for the benefit of oneself or another person.⁶¹

There also exists a practice of relying on trade secrets protection using confidential agreements or non-disclosure agreements imposing obligations not to use or disclose trade secrets.⁶² The parties to the contract are bound, and if a party uses or discloses in breach of contractual terms, they may sue a breaching party for the breach of contract, claiming compensation for any damages caused thereby.⁶³ However, due to the principle of privity of contract, the obligation arising out of the agreement does not bind a third party who is not part of the agreement. The non-disclosure agreement, therefore, could not provide redress against a third party who acquires, uses, or discloses the trade secrets of the owner.

To seek redress against a third party who acquires, uses, or discloses the trade secrets of the owner, one may claim compensation on the ground of tort under section 420 of the Thai Civil and Commercial Code. The provision is written such that

[a] person who, willfully or negligently, unlawfully injures the life, body, health, liberty, property or *any right of another person*, is said to commit a wrongful act and is bound to make compensation therefore.⁶⁴

However, the application of tort law is problematic. Some scholars argue that this provision covers only property rights and that trade secrets are not considered property at all.⁶⁵ Also, the interpretation of section 420 is that in order to claim compensation for injuries against right, such a right must be the one recognized by law.⁶⁶ This led to ambiguity about whether the right to trade secrets can be covered by this provision. It could not be said that a right to trade secrets is recognized by law as no specific law covers it. Still, as some

⁶¹ Thai Penal Code, Section 324.

⁶² Surapon Traiware, *Commentaries on Trade Secrets Act B.E. 2545* (1st edn, Winyuchon 2003) 28-29.

⁶³ Thai Civil and Commercial Code, Section 215.

⁶⁴ Thai Civil and Commercial Code, Section 420. (Emphasis added)

⁶⁵ Surapon Traiware, *Commentaries on Trade Secrets Act B.E. 2545* (n 62) 29-30.

⁶⁶ Thai Supreme Court Decisions 837/2507 and 386/2509.

provisions in the Thai Penal Code protect a certain extent of trade secrets, it is not possible to fully say that there is no legal recognition as well.⁶⁷

2. Post 2002

As Thailand is among the parties to the TRIPs agreement, it subsumes the obligation to protect undisclosed information. The enactment of the Trade Secrets Act gives the protection of trade secrets to be specific law (*sui generis*) and is the compliance of obligation from the TRIPs agreement. The definition of trade secrets and other provisions in the act highly rely on Article 39 of the TRIPs and other relevant provisions.

Like other intellectual property rights, including copyright, trademark, and patent, the trade secrets are under the jurisdiction of the Central Intellectual Property and International Trade Court (CIPITC).⁶⁸

As the Trade Secrets Act follows a certain extent of an obligation under the TRIPs agreement, it could also be inferred that the United States trade secrets law also had a certain influence on Thai law.

In the following sections, the author will present and compare substantial law and its interpretation to observe the overall level of protection, similarities, and differences among selected jurisdictions.

IV. What can be Trade Secrets?

Although the historical framework discussed suggests that the protection of trade secrets in each jurisdiction is linked, the scope of protection and the interpretation of the

⁶⁷ Criminal law could not protect the disclosure of trade secrets by third parties except as clearly stated by law; See Thai Supreme Court Decision 830/2475. (The defendant who revealed the secret of the plaintiff's business, a department store, is not guilty because the defendant obtained the secret while working as an employee.)

⁶⁸ Trade Secrets Act B.E. 2545 (2002), Section 14. (In addition to the provisions of this Act, the enforcement of rights through court for protection of trade secrets and the procedure for trade secret litigation shall be governed by the legislation establishing the intellectual property and international trade court and its procedure.); Act for the Establishment of and Procedure for Intellectual Property and International Trade Court B.E. 2539 (1996), Section 7. (The intellectual property and international trade courts shall have jurisdiction over the following matters: ... (9) civil or criminal cases regarding disputes over layout – designs of integrated – circuits, scientific discoveries, trade names, geographical indications, *trade secrets* and plant varieties protection.)

law are not actually the same. This section will discuss, at first glance, what can constitute trade secrets in each jurisdiction.

A. United States

In the United States, two leading definitions of trade secrets are from the UTSA and DTSA. The former, by text, gave broader protection compared to the latter. The definition of UTSA is provided as follows.

“Trade secret” means information, including a formula, pattern, compilation, program, device, method, technique, or process, that:

- (i) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and
- (ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.⁶⁹

The definition provided in the DTSA is as follows:

“[T]rade secret” means all forms and types of financial, business, scientific, technical, economic, or engineering information, including patterns, plans, compilations, program devices, formulas, designs, prototypes, methods, techniques, processes, procedures, programs, or codes, whether tangible or intangible, and whether or how stored, compiled, or memorialized physically, electronically, graphically, photographically, or in writing if

- (A) the owner thereof has taken reasonable measures to keep such information secret; and
- (B) the information derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable through proper means by, another person who can obtain economic value from the disclosure or use of the information.⁷⁰

⁶⁹ Uniform Trade Secrets Act §1(4).

⁷⁰ 18 U.S.C. § 1839(3).

The UTSA's definition covers all types of information, while the DTSA's is narrower by text as it covers only six specific types of information. Still, the following elements are the main concerns in addressing whether the information is qualified as a trade secret.

1. Information

In light of the UTSA's definition, the information covers any information, including the concept of know-how, into the span of "method" and "technique."⁷¹ When I say all types of information, it really means anything. In *Religious Technology Center*, the court ruled that religious writing is protectable as a trade secret.

There is 'no category of information [that] is excluded from protection as a trade secret because of its inherent qualities ... Nor is there any authority to support Erlich's argument that the Church's religious texts cannot be trade secrets ...'⁷²

However, if the DTSA's definition is applied, the said information may not constitute trade secrets protection as in the UTSA. The DTSA's definition may somewhat be viewed as the business information that constitutes trade secrets.

A trade secret is also viewed as intangible. In *Del Monte*, the court mentioned that the pineapple is not a trade secret, but the genetic information could be protected.⁷³ However, to be more precise, I would say it is not that trade secrets must be intangible, but rather it is not required to be embodied in a tangible medium.⁷⁴ The DTSA then provided a consistent framework establishing clearly that both "tangible" and "intangible" forms of information enjoy protection.⁷⁵

One issue that may be confusing is the issue of novelty. In *Kewanee*, the court's statement is misleading that novelty is required as the same as a patent. The court stated that "some novelty will be required if merely because that which does not possess novelty is usually known; secrecy, in the context of trade secrets, thus implies at least minimal

⁷¹ Uniform Trade Secrets Act §1, cmt.

⁷² *Religious Tech. Ctr. v. Netcom On-Line Commun. Servs.*, 923 F. Supp. 1231, 1251-52 (N.D. Cal. 1995).

⁷³ *Del Monte Fresh Produce Co. v. Dole Food Co.*, 136 F. Supp. 2d 1271, 1291-93 (S.D. Fla. 2001).

⁷⁴ *Bridgestone/Firestone, Inc. v. Lockhart*, 5 F. Supp. 2d 667, 680-81 (S.D. Ind. 1998); *Ed Nowogroski Insurance v. Rucker*, 971 P.2d 936, 948 (Wash. 1999); *Sperry Rand Corp. v. Rothlein*, 241 F. Supp. 549, 563 (D. Conn. 1964).

⁷⁵ 18 U.S.C. § 1839(3).

novelty.”⁷⁶ However, novelty, in the patent law sense, is not required for a trade secret.⁷⁷ What the court really means is that the information must provide a slight advance over existing knowledge.⁷⁸ Such information can be non-novel information that is not generally known.

2. Independent Economic Value

In order to be qualified for protection, the information must derive actual or potential independent economic value. The term independent means that it must have separate values for not only the owner of the trade secrets, i.e., the information has value not only for the owner but also for his competitors.⁷⁹ The term value means that it is useful to a competitor and requires cost, time, and effort to duplicate.⁸⁰ In the alternative, it would be clear that information is valuable if it provides a competitive advantage.⁸¹

In determining independent economic value, value of the information to the plaintiff, investment in developing the information, measures used to protect the information, ease or difficulty of lawful acquisition or duplication, and public accessibility of the information.⁸²

3. Not Generally Known and Not Readily Ascertainable by Proper Means

The meaning of that information not being generally known refers to the actual knowledge of another person. The UTSA provides the following explanation.

The language “not being generally known to and not being readily ascertainable by proper means by other persons” does not require that information be generally known to the public for trade secret rights to be lost. *If the principal persons who can obtain economic benefit from information are aware of it, there is no trade secret.* A method of casting metal, for

⁷⁶ *Kewanee*, 416 U.S. 470 at 476.

⁷⁷ *W.R. Grace Co. v. Hargadine*, 392 F.2d 9, 14. (6th Cir. 1968).

⁷⁸ *Anaconda Co. v. Metric Tool & Die Co.*, 485 F. Supp. 410, 422 (E.D. Pa. 1980).

⁷⁹ John G. Sparkling and Thomas G. Sparkling, *Understanding Trade Secret Law* (n 24) 33.

⁸⁰ *US West Communications, Inc. v. Office of Consumer Advocate*, 498 N.W.2d 711, 714 (Iowa 1993).

⁸¹ *Electro-Craft Corp. v. Controlled Motion, Inc.*, 332 N.W.2d 890, 900 (Minn. 1983).

⁸² *Bernier v. Merrill Air Eng’rs, Inc.*, 770 A.2d 97, 106 n.6 (Me. 2001); *See United States v. Hanjuan Jin*, 833 F. Supp. 2d 977, 1009 (N.D. Ill. 2012). (The court addressed value of the information to the plaintiff and investment in developing the information as helpful criteria.)

example, may be unknown to the general public but readily known within the foundry industry.⁸³

This means actual knowledge of other persons within a relevant industry could negate the status of trade secrets, rendering the information not protectable while remaining unknown to the public at large. Now, the issue arises as to how close the information known to the relevant industry must be in order to consider that the information is generally known. In this matter, the court ruled that if there is no substantial difference between the information claimed to be trade secret, and the generally known information, the claimed information is not protectable.⁸⁴

On the other side, the meaning of readily ascertainable is not so well-defined. The UTSA provides some examples that the “[i]nformation is readily ascertainable if it is available in trade journals, reference books, or published materials. Often, the nature of a product lends itself to being readily copied as soon as it is available on the market.”⁸⁵ The information is readily ascertainable if it is obvious.⁸⁶ The same result can also be reached if the information requires very little effort to be discovered.⁸⁷ One factor that the court used to analyze whether the information is readily ascertainable or not is that if the acquisition of the information required a substantial amount of time, effort, energy, or expense, then the information is not readily ascertainable, endorsing sweat-of-the-brow doctrine.⁸⁸

4. Reasonable Efforts to Maintain Secrecy

There is no clear line rule on what constitutes reasonable effort when taking precautions. Rather, the court will analyze whether or not the measures taken take into account the size and nature of the business, the cost of additional measures, and the degree to which disclosure risk can be mitigated.⁸⁹ This means whether or not the measure is

⁸³ Uniform Trade Secrets Act §1, cmt. (Emphasis added)

⁸⁴ *Microbix Biosystems v. BioWhittaker, Inc.*, 172 F. Supp. 2d 665, 674 (D. Md. 2000).

⁸⁵ Uniform Trade Secrets Act §1, cmt.

⁸⁶ *Computer Care v. Serv. Sys. Enters.*, 982 F.2d 1063, 1073-74 (7th Cir. 1992).

⁸⁷ *Buffets, Inc. v. Klinke*, 73 F.3d 965, 973 (9th Cir. 1996).

⁸⁸ *AvidAir Helicopter Supply, Inc. v. Rolls-Royce Corp.*, 663 F.3d 966, 973 (8th Cir. 2011); *Fireworks Spectacular, Inc. v. Premier Pyrotechnics, Inc.*, 147 F. Supp. 2d 1057, 1066 (D. Kan. 2001); *Amoco Prod. Co. v. Laird*, 622 N.E.2d 912, 919 (Ind. 1993).

⁸⁹ *Learning Curve Toys, Inc. v. PlayWood Toys, Inc.*, 342 F.3d 714, 724 (7th Cir. 2003).

reasonable depends on a case-by-case basis; one measure may be considered reasonable in one context while it may be viewed as unreasonable in other contexts.⁹⁰

The measure can be either standard or non-standard. Standard measure refers to physical methods such as secret vaults, technical methods such as encryption of information, or legal methods such as non-disclosure agreements.⁹¹ Another type of precaution are non-standard one. These methods may be fragmented of information, such as having each high-level employee know partly about the information, which is usable only if all pieces are combined, or keeping information inside the family circle only.⁹² However, measures taken do not need to be perfect; heroic measures are not required to take place.⁹³

Once all the aforementioned conditions are met, the information is qualified and is protectable as a trade secret.

B. European Union

The Trade Secrets Directive provides the definition of trade secret in Article 2 as follows.

‘[T]rade secret’ means information which meets all of the following requirements:

- (a) it 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;

⁹⁰ *In re Innovative Constr. Sys.*, 793 F.2d 875, 884 (7th Cir. 1986).

⁹¹ See *Rockwell Graphic Systems, Inc. v. DEV Industries, Inc.*, 925 F.2d 174, 180 (7th Cir. 1991). (Rockwell took some precautions, both physical (the vault security, the security guards -- one of whom apprehended Peloso in flagrante delicto) and contractual, to maintain the confidentiality of its piece part drawings.)

⁹² *Magistro v. J. Lou, Inc.*, 703 N.W.2d 887, 890 (Neb. 2005). (Magistro testified that the dough recipe used in Don Carmelo’s Pizzerias was a recipe that his family created in Sicily before the family moved to the United States. When his father opened a pizza restaurant in New Jersey, only family members were privy to the recipes. Magistro moved to Omaha in 1980 and opened his first pizzeria. Magistro said he protected the family recipes by putting the ingredients into packets that were sealed and refrigerated until needed. An employee would then add water to make the sauce and the dough.)

⁹³ *E. I. duPont deNemours & Co. v. Christopher*, 431 F.2d 1012, 1017 (5th Cir. 1970); *USM Corp. v. Marson Fastener Corp.*, 393 N.E.2d 895, 902 (Mass. 1979).

- (b) it has commercial value because it is secret;
- (c) it has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.⁹⁴

As the Trade Secrets Directive is legislation adopted by the European Union to harmonize the laws of all EU member states, the term is vague, and there is no clear explanation for each term. Still, as to the knowledge that the Trade Secrets Directive derived indirectly from the UTSA, the interpretation is, therefore, comparable. The following subsections will discuss similarities and differences from the UTSA and give further explanations based on the recitals.

1. Information Not Generally Known or Readily Accessible

The requirement in the Trade Secrets Directive is slightly different from that of the UTSA. In the UTSA (and the DTSA), one of the elements of a trade secret is that the information is not generally known to, and not readily ascertainable through proper means by, another person who *can obtain economic value from the disclosure or use of the information*.⁹⁵ However, the Trade Secrets Directive refers to *persons within the circles that normally deal with the kind of information in question* instead. Practically, this does not provide much difference in interpretation as those who can derive economic benefit from the information are those who normally deal with the kind of information, i.e., in the same business area. Moreover, although the UTSA and DTSA are mentioned as readily ascertainable through proper means, this extended part of proper means is not explicitly provided in Article 2(1) of the Directive. Nonetheless, the Directive separately defined the list of lawful acquisition, use, and disclosure in Article 3, which is comparable to the term proper means.⁹⁶

The interpretations of what constitutes generally known and readily ascertainable are probably similar to what was mentioned in the UTSA's interpretation. This is supported by Recital 23, which states that legitimate trade secret holders are expected to exercise a "duty of care" to preserve the confidentiality of valuable information.⁹⁷ Although the recital does not expressly mention what the information is generally known, it implies that trade secrets

⁹⁴ Directive (EU) 2016/943, Article 2(1).

⁹⁵ Uniform Trade Secrets Act §1(4). (Emphasis added).

⁹⁶ Directive (EU) 2016/943, Article 3.

⁹⁷ Directive (EU) 2016/943, Recital 23.

inherently involve unique information that is not common knowledge within an industry. Recital 24 as well, although it does not specifically address the problem of the term readily ascertainable, highlights the importance of appropriate safeguards; it suggests that in order for the information to not be readily ascertainable, it must remain restricted from general access.⁹⁸

Some scholars suggest that the title of the Directive appears to give broader protection as it mentioned “the protection of *undisclosed know-how and business information (trade secrets)*,” whereas the term information becomes centric.⁹⁹ This leads to the comments that the know-how mentioned in the protection extends the protection to include human and mental capital, which may or may not be separated from its owner. However, the drafter shifted such a focus at the end of Recital 1 such that “[s]uch valuable know-how and business information, that is undisclosed and intended to remain confidential, is referred to as a trade secret,” referring to trade secret as an object.

2. Commercial Value Because It Is Secret

The UTSA and DTSA provide that trade secrets derive independent economic value, actual or potential, from not being generally known and not being readily ascertainable. However, the Trade Secrets Directive employed more restrictive terms, providing that it has commercial value because it is secret. Although the overall look is quite the same, it seems that the Directive suggests that the causal link between the commercial value and the secrecy is required. Also, as discussed above, the Directive employs the standard of commercial value instead of economic value, suggesting that, following the TRIPs, the information may constitute a trade secret under this Directive only if it has been put in use. However, this idea has been opposed by the Recital 14 that a commercial value can be actual or potential, listing criteria to consider whether the information has commercial value to include scientific potential, business interests, and strategic position.¹⁰⁰ Still, it provides none of the clear definition of what the term accurately means, and once clear observation is that nothing in the said criteria is about sweat-of-the-brow doctrine, but rather on

⁹⁸ Directive (EU) 2016/943, Recital 24.

⁹⁹ Luc Desaunettes-Barbero, *Trade Secrets Legal Protection: From a Comparative Analysis of US and EU Law to a New Model of Understanding* (n 33) 108.

¹⁰⁰ Directive (EU) 2016/943, Recital 14.

competitive advantages from the perspective of the trade secret owner, without considering infringer's gain.¹⁰¹

All of these means, the Trade Secrets Directive, when precisely pointing out that information has commercial value because it is secret, creates uncertainty about their independence. This led to various interpretation approaches among EU members, especially on the test that some countries have the same requirements for secrecy and economic value, and some have analyzed them separately.¹⁰²

3. Reasonable Steps Under the Circumstances to Keep It Secret

The last requirement in the Trade Secrets Directive requires that trade secret holders take reasonable steps to maintain confidentiality. No clear difference between this requirement from the UTSA could be identified. In fact, it is clearer and is in alignment with the UTSA's interpretation discussed as it emphasizes the phrase reasonable steps under the circumstances. It is also clear that absolute protection or perfect measure is not required as Recital 21 mentions that judicial authorities should weigh the value of a trade secret and the circumstances of its protection, taking into account factors like the significance of any security measures taken.¹⁰³ The recital also suggests that holders must not only actively secure trade secrets but also regularly monitor them for unauthorized use.¹⁰⁴ This means the protection levels may vary, and any reasonable security measures such as access restrictions or confidentiality agreements must be maintained to qualify information as a trade secret.

C. China

Before starting, from the observation, I would like to take down a small note to the reader that the terms technical information, technological information, and technology (技术信息 - Jishù Xìnxì) are being used interchangeably in the context of the element of a trade secret. The terms trade secret, business secret, and commercial secret (商业秘密 - Shāngyè Mìmì) are also being used interchangeably. The 2019 AUCL defines a trade secret as follows.

¹⁰¹ Luc Desaunettes-Barbero, *Trade Secrets Legal Protection: From a Comparative Analysis of US and EU Law to a New Model of Understanding* (n 33) 111.

¹⁰² Id. at 109.

¹⁰³ Directive (EU) 2016/943, Recital 21.

¹⁰⁴ Directive (EU) 2016/943, Recital 23.

“[T]rade secret” means any commercial information unknown to the public, including but not limited to technological or business information, with commercial value and for which its lawful holder has taken proper confidentiality measures.¹⁰⁵

The following sub-section will provide a brief analysis and explanation of each element.

1. Technical and Business Information

In China, the scope of trade secret protection has been broadened over time. In the 1993 AUCL, the trade secrets were limited to applied technology or business information, which meant practical application was required. In the 2017 AUCL, the scope of protection has been broadened by eliminating such a requirement. Then, in the 2019 AUCL, the scope has been widely broadened, where trade secrets include but are not limited to technological or business information. The meaning of technical information and business information are being specified for the first time in 1995 as follows.

Technical information and business information include designs, programs, formulas of products, processes, managerial skills, lists of customers, information regarding suppliers of goods, production and marketing strategies, base amount of a tender in public bidding, content of bid documents and other information.¹⁰⁶

And the several opinions promulgated in 1997 suggests as follows.

Technical information can consist of original engineering plans for industrial products, technology, and materials with specific integrated technical content,

¹⁰⁵ 2019 AUCL, Article 9.

¹⁰⁶ Guojia Gongshang Xingzheng Guanli Ju Guanyu Jinzhi Qinfan Shangye Mimi Xingwei de Ruogan Guiding (国家工商行政管理局关于禁止侵犯商业秘密行为的若干规定) [Several Provisions on Prohibiting Infringements upon Trade Secrets], (promulgated by State Admin. Indus. Com., November 23, 1995, effective November 23, 1995) Article 2 (China); Shan Hailing, *Trade Secrets in China* (n 41) 62.

as well as of the revisions of said engineering plans and technical elements of a particular product or technological material.¹⁰⁷

The development of the scope of trade secrets protection in China has grown immensely over the years, and it offers an expansive interpretation of the information to be qualified as trade secrets. According to judicial interpretation in 2020, the technical information now includes:

[c]reativity, management, sale, finance, plans, samples, bidding materials, clients' information and data and others relating to business activities.¹⁰⁸

The business information now includes:

[s]tructure, raw materials, components, formulas, materials, samples, styles, propagation materials of new plant varieties, processes, methods or their steps, algorithms, data, computer programs and their relevant documents, and other information relating to technology.¹⁰⁹

The information claimed to be a trade secret may be tangible or intangible, as the court in *Hebei Huasui* ruled as follows.

Different from plant materials found in nature, *the intermediate materials for breeding and inbred parental seeds formed in the process of crop breeding are intellectual achievements made by breeders through creative labor, with the characteristics of both technical information and physical carriers and the two cannot be separated*. The breeding materials with commercial value obtained through breeding innovation activities can be protected by law as

¹⁰⁷ Guanyu Jiaqiang Keji Renyuan Liudong Zhong Jishu Mimi Guanli De Ruogan Yijian (关于加强科技人员流动中技术秘密管理的若干意见) [Several Opinions on Strengthening the Management of Technical Secrets in the Flow of Scientific and Technological Personnel], (promulgated by National Science and Technology Commission, July 2, 1997, effective July 2, 1997) Article 2 (China); Shan Hailing, *Trade Secrets in China* (n 41) 62.

¹⁰⁸ Zuijiao Renmin Fayuan Guanyu Shenli Qinfan Shangye Mimi Shiyong Ruogan Wenti de Guiding (最高人民法院关于审理侵犯商业秘密民事案件适用法律若干问题的规定) [Provisions of the Supreme People's Court on Several Issues Concerning the Application of Law in the Trial of Civil Cases Involving Infringements upon Trade Secrets] (promulgated by the Supreme People's Court, date of issued September 10, 2020, effective September 12, 2020) Article 1 (China); Zijin Yan, *Trade Secrets in the United States and China* (n 19) 168.

¹⁰⁹ Id.

commercial secrets, if they are not known to the public and the corresponding confidentiality measures are taken.¹¹⁰

2. Not Known to Public

China's practice in the element of secrecy is determined by two aspects: subjective standard and objective standard.¹¹¹ For subjective standards, the owner of trade secrets must be aware that the information is not publicly available and that he applies the measures to protect it. Then, the information also needs to not actually be available in public or in the public domain. Otherwise, it would fail the objective test. The judicial interpretation is that not known to the public means that the information as a whole, or certain technical content of the information, is not generally known or is difficult to obtain by people in the relevant fields.¹¹² In *Anmei Weike*, the Supreme People's Court ruled that customer information that is a compilation of hotel names is not a trade secret due to a lack of non-public details.¹¹³ It is perceivable that although the owner applies measures to protect trade secrets, claiming that they are not known to the public by the subjective standard, they may not be qualified as trade secrets if they are objectively public information. On the contrary, even the customer list where their names, addresses, or phone numbers are considered information known to the public, specific customer information acquired through business conduct, such as requirements, preferences, or customer needs, could be protected.¹¹⁴

¹¹⁰ Hebei Huasui Zhongye Youxian Gongsi Yu Wuwei Shi Bosheng Zhongye Youxian Zeren Gongsi Qinhai Jishu Mimi Jiufen An (河北华穗种业有限公司与武威市搏盛种业有限责任公司侵害技术秘密纠纷案) [Hebei Huasui Seed Industry Co., Ltd. v. Wuwei City Bosheng Seed Industry Co., Ltd.], Supreme People's Court (最高人民法院) November 2, 2022, (2022) Zuigaofa Zhi Min Zhong No. 147 [(2022) 最高法知民终147号] (China) [hereinafter Hebei Huasui]. (Emphasis added)

¹¹¹ Shan Hailing, *The Protection of Trade Secrets in China* (n 41) 55.

¹¹² Id.

¹¹³ Anmei Weike (Beijing) Hulianwang Keji Youxian Gongsi yu Lingbo Keji (Beijing) Youxian Gongsi, Zhengguanghui, Wujianming, Shihongliang, Xufeng Qinhai Jisuanji Ruanjian Zhuzuoquan ji Qinhai Shangye Mimi Jiufen Shangsuan (安美微客(北京)互联网科技有限公司与岭博科技(北京)有限公司、郑广辉、吴键铭、史洪亮、徐烽侵害计算机软件著作权及侵害商业秘密纠纷上诉案) [Anmei Weike (Beijing) Network Technology Co. Ltd. v. Lingbo (Beijing) Technology Co. Ltd.], Supreme People's Court (最高人民法院) March 29, 2021, (2020) Zuiagaofa Zhi Min Zhong No. 1099 [(2020) 最高法知民终1099号] (China).

¹¹⁴ Shan Hailing, *The Protection of Trade Secrets in China* (n 41) 51.

In one case, the Haidian District People's Court ruled that:

[a]n enterprise develops the IC card series management system for sale, expecting that the utility function of this technology can bring about economic benefits; in the aspect of function, IC card technology systems are generally similar and, to a certain extent, popular to the public, but *from the perspective of technology, there are great differences in software source program supporting this system, schematic diagram of operation and other aspects, and the way to function also significantly differs. For these reasons, this key technology shall be identified as unknown to the public*; and the enterprise has taken confidentiality measures for this key technology. Therefore, the key technology in respect to the IC card series management system developed by the enterprise is a trade secret as it possesses all characteristics of a trade secret.¹¹⁵

This means the information that possesses great differences from what is available to the public is considered unknown to the public, and if all the other conditions are met, it can be qualified as a trade secret.

3. Commercial Value

Chinese scholars consider that the commercial value of trade secrets refers to the actual economic benefit that is brought by actual use or future use.¹¹⁶ In short, this is an adoption of the actual or potential values approached. In China, factors that can be used to analyze commercial value are real and potential value, positive and negative value, and duration of usefulness.¹¹⁷ Real value refers to the value from information that can be directly used, while potential value refers to value from information that is still being researched, developed, or is in trial. A positive value means the value drawn from the direct use in

¹¹⁵ Beijing Siweige - Taide Dianzi Gongcheng Gongsi Su Beijing Shi Yinlan Keji Gongsi ji Liu Yongchun dengren Buzhengdang Jingzheng Jiufen An (北京斯威格—泰德电子工程公司诉北京市银兰科技公司及刘永春等人不正当竞争纠纷案) [Beijing Sweger-Tide Electronic Engineering Co., Ltd. v. Beijing Yinlan Technology Co., Ltd., Liu Yongchun, ET AL.], Haidian District People's Court of Beijing Municipality (北京市海淀区人民法院) December 1, 1997, SPC Gazette, Issue 3, 1998 [最高人民法院公报, 1998 年第 3 期] (China). (Emphasis added)

¹¹⁶ Shan Hailing, *The Protection of Trade Secrets in China* (n 41) 49.

¹¹⁷ Id. at 51.

productions, sales, research, developments, or application of the information in business activities, while a negative value means the value derived from the information that is useful in cost saving. No matter whether the information is sustainably useful or its usefulness stays only for a short period, it could satisfy the element of commercial values.

4. Confidential Measure

The confidential measure is the same as discussed; it is the measure or precaution used to protect trade secrets. The Supreme People's Court emphasizes the importance of confidential measures such that

[t]he know-how is one of business secrets. Where there is no evidence to prove that the know-how involved is known to the public, on the contrary, in order to protect the secrets, the right holder makes strict confidential measures, and the secrets can be used for production and have actual benefits, the know-how shall be determined to comply with the protection conditions mentioned in the Unfair Competition Law and the General Principles of Civil Law and shall be protected by laws.¹¹⁸

However, foolproof measures are not required. Instead, it is not required that the measure be perfect but reasonable according to the circumstances and the nature of the protected information. The court in *Hebei Huasui* ruled:

[t]he cultivation of breeding materials depends on soil, water, air, and sunlight, and requires field management. Therefore, *there is no foolproof measure for right holders to maintain the confidentiality of crop materials. The reasonability of confidentiality measures should be determined according to the characteristics of the breeding materials*, and those that can be used to prevent the disclosure of confidential information under normal circumstances are deemed reasonable.¹¹⁹

¹¹⁸ Luoding Shi Linchan Huagongchang, Liu Xianchi yu Zhuzhou Xuankuang Yaoji Chang Jishu Mimi Qinquan Jiufen Shangsu An (罗定市林产化工厂、刘显驰与株洲选矿药剂厂技术秘密侵权纠纷上诉案) [Luoding City Linchan Chemical Plant and Liu Xianchi v. Zhuzhou Flotation Reagents Factory], Supreme People's Court (最高人民法院) May 9, 2000, Legal Publication (2000) No. 1 [法公布 (2000) 1 号] (China).

¹¹⁹ Hebei Huasui. (Emphasis added)

The court also provided examples of measures, such as confidentiality agreements and coded information, which can be considered reasonable measures in specific circumstances.

Under specific circumstances, right holders may establish a confidentiality system, execute a confidentiality agreement, prohibit information disclosure, and use a code to refer to the breeding materials, which are determined as reasonable confidentiality measures.¹²⁰

The High People's Court of Guangdong Province also provides further examples, such as frequent confidentiality education or employee booklet indicating trade secrets as confidential measures.

Fushibao Company took corresponding confidentiality measures for the above business information, such as the frequent confidentiality education of salespersons knowing the Company's sales network, clarification of their confidentiality obligations, and making of employees' booklets which indicated that "all business secrets, technical documents and working conference minutes of the Company shall be deemed as trade secrets, and shall not be divulged; any violator shall be severely punished."¹²¹

Although there is no direct term referring to reasonable confidential measure, the court consistently determines that no perfect measure but reasonable measure pursuant to specific circumstance is needed, which is similar to reasonable effort in the UTSA.

D. Thailand

The Trade Secrets Act provides definition of the term trade secrets under Thai law as follows.

"Trade Secrets" means trade information not yet publicly known or not yet accessible by persons who are normally connected with the information. The

¹²⁰ Id.

¹²¹ Fushibao Jiayong Dianqi Youxian Gongsi Su Jialesheng Dianqi Youxian Gongsi (富士宝家用电器有限公司诉家乐仕电器有限公司) [Fushibao Household Electric Appliances Co., Ltd. v. Gales Electric Appliance Co., Ltd.], High People's Court of Guangdong Province (广东省高级人民法院经审理) December 30, 1998, SPC Gazette, Issue 2, 1999 [最高人民法院公报, 1999 年第 2 期] (China).

commercial values of which derive from its secrecy and that the controller of the trade secrets has taken appropriate measures to maintain the secrecy.¹²²

The elements to be assessed in this section are as follows.

1. Trade Information

The Trade Secrets Act defines the term trade information as “*any medium* that conveys the meaning of a statement, facts, or other information irrespective of its method and forms. It shall also include formulas, patterns, compilations or assembled works, programs, methods, techniques, or processes.”¹²³ By emphasizing that trade information is any medium, the Trade Secrets Act shifted focus from the abstract content itself to protecting the medium where the abstract content is embodied. However, such a medium could be tangible or intangible, e.g., the trade information may be in physical paper format or computer file.

Some scholars classified trade information into two categories: business information and technical information.¹²⁴ The former used for or in business operations, in any form, such as pricing, marketing strategies, advertising strategies, agreements with suppliers, contracts with wholesalers or retailers, employee training, and trade agreements. The latter relates to production techniques, such as product formulas (e.g., drink mixes, fragrances, floor cleaner formulas, food recipes), manufacturing processes, production secrets, industrial designs, and source codes.

There is also a question of the legality of the information on whether the trade information involves illegal action, such as false accounting or documents used to evade taxes, techniques for producing illegal drugs, creating false news to manipulate stock prices, or assassination plots, constitute trade secrets? The consensus is that trade secrets protect only information that is legal. Otherwise, the disclosure of information relevant to illegal action to officials will constitute trade secrets infringement.¹²⁵

¹²² Trade Secrets Act B.E. 2545 (2002), Section 3.

¹²³ Trade Secrets Act B.E. 2545 (2002), Section 3. (Emphasis added); See Supreme Court Decision 11078/2558.

¹²⁴ Suchart Thammapitakkul, ‘Trade Secret’ in Thai Bar Association under the Royal Patronage (ed), *Intellectual Property Law* (Thai Bar Association 2011) 169-170.

¹²⁵ Id. at 170.

2. Not Yet Publicly Known or Not Yet Accessible

The law requires that the information must not yet be publicly known or not yet accessible by persons who are normally connected with the information. The term not yet publicly known should be similarly construed as not being generally known in the UTSA. Simultaneously, the term not yet accessible should be similarly interpreted as not being readily ascertainable.

In one case, the Supreme Court held that

the defendant's use of customer lists and related information was not considered trade secrets. The court found that while the information may have commercial value, it was not unique or confidential enough to qualify as a trade secret. Testimony suggested *the customer lists could have been sourced from public media or websites*, thus lacking the distinctive qualities necessary for protection under trade secret laws.¹²⁶

This is consistent with the UTSA's interpretation that if the information could be found from public sources, it is disqualified.

The phrase persons who are normally connected with the information can be broadly interpreted to be persons in a relevant field spanning from producer to consumer.¹²⁷

3. Commercial Values of which Derive from Its Secrecy

Trade information qualified for protection must have commercial value, which is derived from its secrecy, which means that there exists a causal link between the owner's competitive advantages and the fact that trade information is protected. The commercial value is not clear whether or not it could be actual or potential value. Still, scholars suggest that both values are being covered.¹²⁸ Actual values are when information is ready for use in

¹²⁶ Thai Supreme Court Decision 15697/2557.

¹²⁷ Thai Supreme Court Decision 18121/2557 (The plaintiff, in academic robes business, claimed the price offer as a trade secret. The court held that there exists a person who has no duty related to ordering or renting the academic robes and who learns the price offered by the plaintiff shows that the plaintiff did not have a method to limit access to this trade information by the general public, who were not yet aware of it.); Supit Praneetpolkrang, *The Law of Trade Secrets* (n 59) 22.

¹²⁸ Suchart Thammapitakul, *Trade Secret* (n 124) 167.

manufacturing or business. However, potential values refer to information that can be applied to industry or commerce and that the owner intends to apply soon.¹²⁹

4. Appropriate Measure to Maintain the Secrecy

The law also required that for the trade information to be protected, appropriate measures must be taken to maintain the secrecy. Under Thai law, measures can be imposed not only by the owner but by anyone who is qualified as a controller of trade secrets. The Trade Secrets Act defines the controller of trade secrets to also include the possessor, controller, or caretaker of the trade secrets, in addition to the owner.¹³⁰ This means not only the owner but also those who are authorized to control the trade information.

The measure is not necessary to create absolute secrecy,¹³¹ comparable to heroic measures in the United States and foolproof measures in China. What the law really requires is a reasonable measure subject to specific circumstances.¹³² In one case, the Supreme Court ruled as follows.

One requirement for trade information to qualify as a trade secret is that the owner or controller must have taken reasonable measures to keep it confidential. In this case, the plaintiff's trade information was stored in sales and accounting departments, kept in files, and on computers without restrictions preventing unauthorized individuals from accessing these documents. The access to computer-stored data was also not controlled or secured. Thus, there were no sufficient measures to prevent data leaks, meaning it did not meet the criteria of confidentiality. The plaintiff's argument that there is an agreement requiring employees to keep confidential information from being disclosed to outsiders, based on terms within the employment contracts between the plaintiffs and their employees, is not

¹²⁹ Thai Supreme Court Decision 15697/2557. (Trade information that has commercial value due to its secrecy must be information that is crucial for the survival of the current or future business or whose existence depends significantly on such information. The owner of the trade secret has spent considerable time, effort, and expense to acquire it. Competitors who wrongfully acquire this information gain an unfair advantage by saving time and labor in obtaining it, putting the trade secret owner at a commercial disadvantage.)

¹³⁰ Trade Secrets Act B.E. 2545 (2002), Section 3.

¹³¹ Supit Praneetpolkrang, *The Law of Trade Secrets* (n 59) 23.

¹³² *Id.* at 24.

sufficient. Mere terms in an employment contract are not sufficient to be considered a reasonable measure for maintaining the secrecy of the information.¹³³

The case suggests that in some circumstances, the requirement in contractual terms protecting confidential information is not sufficient, but it does not intend to mislead that a non-disclosure agreement is not an appropriate measure. If looking at the facts closely, the plaintiff provided neither physical measures, such as a secret vault, nor technical measures, such as setting a password to access the computer where the alleged trade secrets were being stored. The court, therefore, viewed that the plaintiff's act does not protect such trade information to the extent that the plaintiff can do so, leading to the conclusion that the measure is not appropriate.

At this point, the author would like to sum up the key similarities and differences between each jurisdiction's definition of trade secrets as follows. The United States offers the broadest scope of protection, where the UTSA and DTSA cover all forms and types of information, regardless of whether the information is tangible or not. Although the requirement for trade secrets requires no novelty like a patent, the court sometimes implies minimal novelty in rulings. The European Union focuses on the "commercial value" derived from secrecy, emphasizing the importance of the causal link between secrecy and competitive advantage. The definition, therefore, is viewed as stricter compared to the United States. China offers a comparable scope of protection to the United States, where the protection includes, but is not limited to, "technological or business information" under the 2019 AUCL. China also applies a dual standard test to determine secrecy, where information must be secret in both subjective and objective standards. Lastly, the Thai Trade Secrets Act broadly defines "trade information" but focuses on the medium rather than abstract content, which may result in narrower protection than other jurisdictions as it implies that information must be embodied in the medium.

¹³³ Thai Supreme Court Decision 10217/2553; See Thai Supreme Court Decision 1323/2560.

V. Infringement and Misappropriation of Trade Secrets

Now that we know briefly about what could be protected, it is decent time to move on and take a quick look at what the law deems to be infringement or misappropriation.

A. United States

The UTSA provides the scenario considered to be misappropriation as follows.

“Misappropriation” means:

- (i) acquisition of a trade secret of another by a person who knows or has reason to know that the trade secret was acquired by *improper means*; or
- (ii) disclosure or use of a trade secret of another without express or implied consent by a person who
 - (A) used improper means to acquire knowledge of the trade secret; or
 - (B) at the time of disclosure or use, knew or had reason to know that his knowledge of the trade secret was
 - (I) derived from or through a person who had utilized improper means to acquire it;
 - (II) acquired under circumstances giving rise to a *duty to maintain its secrecy* or limit its use; or
 - (III) derived from or through a person who owed a duty to the person seeking relief to maintain its secrecy or limit its use; or
 - (C) before a material change of his [or her] position, knew or had reason to know that it was a trade secret and that *knowledge of it had been acquired by accident or mistake*.¹³⁴

The analysis will be on the following key issues.

1. Misappropriation by Improper Means

The law provides that a person can be liable in various circumstances when the trade secret was acquired by improper means. A person who acquired it using improper means is liable and also is liable when he uses or discloses after acquiring it. Simultaneously, indirect

¹³⁴ Uniform Trade Secrets Act §1(2). (Emphasis added)

liability can also be imposed on those who use or disclose the trade secret with the knowledge that it was acquired using improper means. Still, the comprehensive definition of “improper means” does not exist. In the past, the court set the standard that factors used to decide whether or not the mode of acquisition is improper means include commercial morality, cost-benefit analysis, and reasonableness under totality of the circumstances.¹³⁵ But now, the policy behind this kind of liability is to uphold the standard of commercial ethics, another undefined term.¹³⁶

One way to define improper means is to look at the DTSA that the term improper means includes theft, bribery, misrepresentation, breach or inducement of a breach of a duty to maintain secrecy, or espionage through electronic or other means, which are all criminal actions.¹³⁷ However, it is not always required that the act constituting improper means must be a crime, it can be a mere tort, which the threshold is that if the action constitutes acts of unfair competition under common law, the act is considered improper means.¹³⁸

2. Misappropriation by Breach of a Duty of Confidentiality

The term duty of confidentiality is not referred to in the UTSA and DTSA but is comparable to the duty to maintain secrecy. However, when the court addresses this issue, various judgments emphasize the term duty of confidentiality instead. The duty of confidentiality may occur as an express duty or implied duty. If the trade secrets owner would like to impose an express duty, the written contract, such as a non-disclosure agreement and confidentiality clause embodied in the employment contract, is preferred.¹³⁹ If there is no written agreement, the owner must display implied duty, which may be implied in fact¹⁴⁰ when looking at surrounding circumstances; the parties’ intention could be inferred or implied-at-law¹⁴¹ where there is no contract but the obligation arises subject to equitable

¹³⁵ *E. I. duPont*, 431 F.2d at 1013 and 1016-17; John G. Sprankling and Thomas G. Sprankling, *Understanding Trade Secret Law* (n 24) 77-8.

¹³⁶ Uniform Trade Secrets Act, cmt.

¹³⁷ 18 U.S.C. § 1839(6).

¹³⁸ *Penrose Computer Marketgroup, Inc. v. Camin*, 682 F. Supp. 2d 202, 241-16 (N.D.N.Y. 2010).

¹³⁹ *Goodrich v. Wohlgemuth*, 192 N.E.2d 99, 105 (1963).

¹⁴⁰ *Martens v. Metzgar*, 524 P.2d 666, 672 (Alaska 1974).

¹⁴¹ *Demodulation, Inc. v. United States*, 103 Fed. Cl. 764, 807 (Fed. Cl. 2012).

considerations, such as fiduciary duty of the director to company and attorney-client relationship.

3. Acquisition by Accident or Mistake

The classic examples of acquisition by accident or mistake are the disclosure of trade secrets during discovery and trade secrets being released accidentally by government officials.¹⁴² However, the liability is quite limited as the policy is if someone unknowingly induces a breach and then substantially changes their position based on this ignorance, they may have a limited exemption from liability; however, once they learn of the breach, they must cease use, though their immunity during the period of ignorance should be respected.¹⁴³ The key is knowledge of the alleged infringer.

B. European Union

The Trade Secrets Directive defines, in Article 4, the unlawful acquisition, use and disclosure of trade secrets as follows.

2. The acquisition of a trade secret without the consent of the trade secret holder shall be considered unlawful, whenever carried out by:
 - (a) unauthorized access to, appropriation of, or copying of any documents, objects, materials, substances or electronic files, lawfully under the control of the trade secret holder, containing the trade secret or from which the trade secret can be deduced;
 - (b) any other conduct which, under the circumstances, is considered contrary to honest commercial practices.
3. The use or disclosure of a trade secret shall be considered unlawful whenever carried out, without the consent of the trade secret holder, by a person who is found to meet any of the following conditions:
 - (a) having acquired the trade secret unlawfully;
 - (b) being in breach of a confidentiality agreement or any other duty not to disclose the trade secret;

¹⁴² *Myers v. Williams*, 819 F. Supp. 919 (D. Or. 1993).

¹⁴³ *Conmar Prods. Corp. v. Universal Slide Fastener Co.*, 172 F.2d 150 (2d Cir. 1949).

(c) being in breach of a contractual or any other duty to limit the use of the trade secret.¹⁴⁴

The following key terms will be analyzed.

1. Unlawful Acquisition

Article 4(2)(a) of the Directive provides clear examples of the red list of actions that constitute the element of unlawful acquisition where the list of specific acts is provided. Recitals suggest that such a list of actions is important to trade secrets protection and that it was designed to address concerns about industrial espionage or hacking activities.¹⁴⁵ At the same time, Article 4(2)(b) opens up more acts that are considered contrary to honest commercial practice, which was clarified by Recital as a breach of contract, breach of confidence, and other dishonest means.¹⁴⁶ The author made an observation that it is comparable to the tortious act constituting unfair competition under common law, as mentioned in *Penrose*.

2. Unlawful Use or Disclosure

Article 4(3)(a) of the Directive prohibits the use or disclosure of the trade secret against those who unlawfully acquired it to safeguard against situations where individuals or entities might exploit misappropriated information.¹⁴⁷ Article 4(3)(b) emphasizes the significance of confidentiality agreements in protecting trade secrets by preventing the use or disclosure of trade secrets acquired through such means.¹⁴⁸ Then, Article 4(3)(c) provides clarification to the case where the trade secret has been used in breach of contract or beyond contractual terms, emphasizing that unauthorized use in these circumstances damages fair competition.¹⁴⁹

¹⁴⁴ Directive (EU) 2016/943, Article 4(2)-(3). (Article 4(4)-(5) are omitted from the discussion.)

¹⁴⁵ Directive (EU) 2016/943, Recitals 16 and 17.

¹⁴⁶ Directive (EU) 2016/943, Recital 18.

¹⁴⁷ Directive (EU) 2016/943, Recital 19.

¹⁴⁸ Directive (EU) 2016/943, Recital 20.

¹⁴⁹ Directive (EU) 2016/943, Recital 21.

The Trade Secrets Directive categorized the unlawful acquisition by two layers: actions that are already prohibited due to public harm similar to the DTSA¹⁵⁰ and the things that go beyond the statute, such as the action under Article 4(2)(a) that in itself is not a crime.¹⁵¹ Still, the scope of these provisions needs to be carefully analyzed as the text itself could be interpreted as prohibiting any access to any medium potentially containing a trade secret, which may render the coverage unreasonably wide.¹⁵²

C. China

The 2019 AUCL mentioned about trade secret infringement as follows.

A business entity shall not commit any of the following acts which infringe trade secrets of another:

- (1) Obtaining a trade secret from its lawful holder by theft, bribery, fraud, coercion, hacking into the electronic information system or any other illicit means;
- (2) Disclosing, using, or permitting another to use the trade secret obtained from its lawful holder by means as specified in the preceding paragraph;
- (3) Disclosing, using, or permitting another to use any trade secret under its control in violation of a legal obligation, or the requirements of its lawful holder, for protecting the confidentiality of trade secrets;
- (4) Aiding and abetting, or luring one to obtain, disclose, use or permit another to use any trade secret of its lawful holder by violating one's legal obligation, or the requirements of lawful holder, for protecting the confidentiality of trade secrets.

¹⁵⁰ Directive (EU) 2016/943, Recital 4. (Innovative businesses are increasingly exposed to *dishonest practices aimed at misappropriating trade secrets*, such as theft, unauthorized copying, economic espionage or the breach of confidentiality requirements, whether from within or from outside of the Union.)

¹⁵¹ Luc Desaunettes-Barbero, *Trade Secrets Legal Protection: From a Comparative Analysis of US and EU Law to a New Model of Understanding* (n 33) 121.

¹⁵² *Id.*

Any natural person, legal person or unincorporated organization shall be deemed to infringe the trade secret if they commit any unlawful acts set forth in the preceding paragraphs.¹⁵³

1. Acquisition by Improper Means

A trade secret holder may claim infringement if the defendant acquires the trade secret through illegal acts listed in Article 9(1). The term other illicit means covers any additional illicit methods of obtaining the information, as it is not feasible to list all forms of improper acquisition, e.g., method that constitute a crime under criminal law. In *XJ Electric*, the court ruled that one may acquire trade secret by improper means by act of luring such that

*Aite Company lured Zheng with the offering of shares for the technology he grasped without lawful transfer to manufacture and sell products based on this technology. It obtained the trade secret of others by means of unfair competition, which injured the lawful rights and interests of others, and should bear the civil liabilities of desisting from the infringement and compensating the losses of the aggrieved party.*¹⁵⁴

2. Disclosing, Using or Allowing another Person to Use a Trade Secret Acquired by Improper Means

After acquiring a trade secret improperly, infringement also occurs again if the infringer discloses, uses, or allows others to use the trade secret obtained through such means. “Use” refers to applying the trade secret in production, operations, or scientific research, and “allowing others to use” includes permitting use of the trade secret for payment or without charge. For example, one may use the trade secret by manufacture the product.

Under general circumstances, the manufacture of infringing products involves the use of trade secrets. The infringement of trade secrets occurs simultaneously when the infringing

¹⁵³ 2019 AUCL, Article 9.

¹⁵⁴ Xu Ji Dianqi Gufen Youxian Gongsi Su Zheng Xuesheng, Luohe Shi Ai Te (许继电气股份有限公司诉郑学生、漯河市爱特) [XJ Electric Co., Ltd. v. Zheng Xuesheng and Luohe Aite Electrical Equipment Co., Ltd.], High People's Court of Henan Province (河南省高级人民法院) March 27, 1998, SPC Gazette, Issue 2, 1999 [最高人民法院公报, 1999 年第 2 期] [Hereinafter XJ Electric] (China).

products are manufactured. Therefore, the place where the tortious acts are committed and the place where the damage occurs are usually identical.¹⁵⁵

Disclosure includes revealing the secret to specific individuals or the public. For example, in *XJ Electric*, by providing grasped technology to a competing company, one discloses the trade secret constituting infringement.

Zheng participated in the formation of Aite Company when still serving in XJ Company ... contributed the service technological achievement he grasped for shares in Aite Company, and *provided XJ Company's PLC manufacturing technology to Aite Company* for the manufacture of the SSB-2000 PLC. His *disclosure* and use of XJ Company's trade secret injured XJ Company's lawful rights and interests, and he thus should bear the civil liabilities of desisting from the infringement ...¹⁵⁶

3. Violation of Confidentiality Duty

Similar to the United States, express confidential duty could be established by written agreement, but in certain cases, the implied confidential duty can be upheld. Scholars explain such that

[t]he existence of implied confidentiality duty imposes an obligation upon the 'knower' of the trade secret not to disclose or improperly use any trade secret of the other party even if there is not a confidentiality clause expressly concluded in a contract.¹⁵⁷

¹⁵⁵ Siwei Shiye (Shenzhen) Youxian Gongsi, Siwei Qiye Gufen Youxian Gongsi yu Aili Dannisen Gongsi, Aili (Guangzhou) Youxian Gongsi, Aili (Kunshan) Youxian Gongsi, Aili (Zhongguo) Youxian Gongsi, Nanhai Shi Lishui Yili Yinshua Chang, Foshan Shi Huanshi Zhen Dongsheng Fenjiang Yinshua Chang Jingying Bu Qinfan Shangye Mimi Jiufen Guanxia Quan Yiyi An (**四维实业(深圳)有限公司、四维企业股份有限公司与艾利丹尼森公司、艾利(广州)有限公司、艾利(昆山)有限公司、艾利(中国)有限公司、南海市里水意利印刷厂、佛山市环市镇东升汾江印刷厂经营部侵犯商业秘密纠纷管辖权异议案**) [Four Pillars Industry (Shenzhen) Co., Ltd. and Four Pillars Enterprise Co., Ltd. v. Avery Dennison Corporation, Avery Dennison (Guangzhou) Co., Ltd., Avery Dennison (Kunshan) Co., Ltd., Avery Dennison (China) Co., Ltd., Hainan Lishui Yili Printing Factory, Bussiness Department of Dongsheng Fenjiang Printing Factory of Huanshi Town, Foshan City], Supreme People's Court (**最高人民法院**) January 15, 2009, SPC Gazette, Issue 8, 2009 [**最高人民法院公报**, 2009 年第 8 期] (China).

¹⁵⁶ *XJ Electric.* (Emphasis added)

¹⁵⁷ Ma Lin and Zheng Junjie, 'Legal Protection for Trade Secrets in China' (2010) 4 ZChinR 327, 331.

One way to establish confidential duty is through employment agreement as the court mentioned:

Zheng participated in the formation of Aite Company when still serving in XJ Company, and then breached the confidentiality agreement with XJ Company, contributed the service technological achievement he grasped for shares in Aite Company ...¹⁵⁸

4. Third Party Liability

The law provides third party liability as follows.

Where a third party knows or should have known that an employee or a former employee of the lawful holder of a trade secret or any other unit or individual has committed an illegal act as specified in the first paragraph of this Article, but still obtains, discloses, uses, or permits another to use the trade secret in question, the third party shall be deemed to infringe the trade secret.¹⁵⁹

The explanation is simple: if the third party is aware that the trade secrets were obtained unlawfully, such a third party acts in bad faith, but they are immune as long as they are unaware. Once the trade secret owner notifies the third party of the infringement, if the third party still commits prescribed actions, his act turns from good faith to bad faith, thereby constituting infringement.

D. Thailand

The Trade Secrets Act provided that

[t]he infringement of trade secret rights under this Act are the act of disclosure, deprivation or usage of trade secrets without the consent of the owner in a manner contrary to honest trade practices. In so doing, the infringer must be aware of or has reasonable cause to be aware that such act is contrary to honest trade practices.

¹⁵⁸ XJ Electric. (Emphasis added)

¹⁵⁹ 2019 AUCL, Article 9.

Acts contrary to honest trade practices under paragraph one shall include breach of contract, infringement or inducement to infringe confidentiality, bribery, coercion, fraud, theft, receiving of stolen property or espionage through electronics or other means.¹⁶⁰

One of the requirements clearly stated by law is that the infringer needs to be aware of his conduct or has reason to know that his conduct is contrary to honest trade practice. Although it may look difficult to prove such knowledge, the author views that this may not be a problem at all in extreme cases where the knowledge can almost automatically be inferred once the alleged infringer committed an act listed in paragraph 2. But the problem will surely come into play when the act is not listed but alleged to be part of the term other means. However, due to this element, suppose there is no non-disclosure agreement, scholars mentioned that salutation is when the employee is simply hired from a competitor because they are highly experienced, and it turns out that the employee uses knowledge and experience, including know-how obtained from their previous employer, in their new job, may not be considered as knowing or having reason to know.¹⁶¹

1. Disclosure, Deprivation or Usage

The terms disclosure and usage are clear.¹⁶² The problem of trade secret infringement in Thai law revolves around the term deprivation, which may be compared to the term acquisition, but their definitions are not fully compatible. At the same time, it is not theft. This ambiguity arises due to the Thai concept of property law, where the crime of theft applies only to corporeal objects. Thus, one could not commit a crime of theft against information if it is embodied in an intangible form.¹⁶³ Deprivation involves an action that may

¹⁶⁰ Trade Secrets Act B.E. 2545 (2002), Section 6.

¹⁶¹ Suchart Thammapitakul, *Trade Secret* (n 124) 180.

¹⁶² See Thai Supreme Court Decision 11078/2558. (Defendant 5 acquired technology through attending meetings and training sessions at Company M and was involved in installing a jet caster machine at the plaintiff's factory from March 2006 to November 2006. The evidences show that trade secrets of both plaintiffs were found in Defendant 14's factory, and on Defendant 5's computer. It is therefore concluded that Defendant 5 *obtained, used, and disclosed the plaintiffs' trade secrets without consent*, violating the confidentiality agreement with both plaintiffs.)

¹⁶³ Thai Supreme Court Decision 5161/2547. (Data does not count as corporeal objects. The letters, pictures, diagrams, and instruments are just symbols that convey the meaning of the information from the memory card using a computer. The information on the memory card is, therefore, not considered a thing under section 137 of the TCCC. The defendant copying information from the plaintiff's memory card is not an offense of theft.); For concept of Thai

look similar to theft but is broader. One could not commit the crime of theft by copying data, but that could constitute an act of deprivation.

For the author, deprivation is more restrictive than the term acquisition. Imagine the hypothetical situation where A and an employee of B stole a trade secret embodied in physical paper. Then, C purchased such a physical paper from A, knowing that the document was stolen. If this situation occurred in the United States, it could be said that C misappropriated B's trade secret following the UTSA §1(2)(i). The result in China would also be that C infringed B's trade secret under Article 9 of the 2019 AUCL. If C is under the jurisdiction of the EU members, C is likely to be liable for unlawful acquisition.¹⁶⁴ However, if this occurs in Thailand, it is interpretable that C did not yet infringe on B's trade secret as C is not the one who deprived it of B; but C will infringe B's trade secret once C uses it or passes the information to someone else hand, i.e., discloses it.

2. Contrary to Honest Trade Practices

The problematic term among the listed practice, perhaps, is infringement or inducement to infringe confidentiality, as the provision, if read in Thai, is much more circular. However, this element, infringement of confidentiality, is comparable to a breach of confidentiality duty as reflected by the Supreme Court Decision such that:

Defendant 2 persuaded Defendant 5 to work with Defendant 1 after Defendant 1 found the plaintiffs' trade secrets on Defendant 5's computer, which included information about the plaintiffs' jet caster machine. Additionally, Defendant 1's factory contained a melt spinning machine, designed and built by Defendant 2, for producing magnetic powder similar to that of the plaintiffs. Defendants 1-3 and 5 did not provide evidence to dispute the machines' similarity, suggesting that Defendant 1's melt spinning machine was designed using trade secret information disclosed by Defendant 5 to Defendants 1-3.

Property Law, I refer the reader to see Norravich Limpanukorn, 'Redefining Ownership Under Thai Law: Is It a Right or Title?' (2024) 4 Thai Legal Studies 1, 1-13.

¹⁶⁴ Directive (EU) 2016/943, Article 4(4). (The acquisition, use or disclosure of a trade secret shall also be considered unlawful whenever a person, at the time of the acquisition, use or disclosure, knew or ought, under the circumstances, to have known that the trade secret had been obtained directly or indirectly from another person who was using or disclosing the trade secret unlawfully within the meaning of paragraph 3.)

Thus, it is concluded that Defendants 2 and 3, both personally and as authorized representatives of Defendant 1, induced Defendant 5 to infringe confidentiality agreement and disclose the plaintiffs' trade secrets.

From the author's observation, the prohibited act mainly covers an act of acquisition, disclosure, and use of trade secrets involving a variant of improper means, which the listed act may or may not be labeled as a crime. It could be said that for the issue of infringement or misappropriation, all the laws revolve around non-authorized use and disclosure and provide quite a similar list of prevented actions. Thai law uses the term "deprivation" instead of "acquisition," which is narrower and more serious and potentially renders some infringement actions in other jurisdictions a non-infringement action in Thailand. Thai law also explicitly requires a higher standard of knowledge where the infringer must be aware, or have reasonable cause to be aware, that their actions are contrary to honest trade practice (improper) in addition to general intent. This makes infringement in Thailand much narrower than in other selected jurisdictions.

VI. Trade Secrets Defenses and Exceptions

As we already discussed the object of the protection, the action of infringement, it is now an appropriate time to complete the cycle by jumping to the last point of this paper, the defenses and exceptions.

A. United States

The alleged infringer could assert a wide spectrum of defenses in trade secrets misappropriation claims; in this part, the independent development, reverse engineering, and newly added whistleblower immunity will be discussed.

1. Independent Development

As the body of trade secrets law protects against misappropriation, the right is not exclusive, i.e., if a person acquires trade secrets without using improper means to acquire them from someone, it is not considered an infringement. This is because trade secrets are not exclusive; the law cannot exclude one who discovers them by fair and honest means,

and one among such means is independent development.¹⁶⁵ This is also recognized by the UTSA and DTSA.¹⁶⁶ The interpretation of this term is that the defense works if only the alleged infringer learns of the trade secrets fully and independently. If one could fully learn of trade secrets through his own research but did not do so in acquiring them, rather he utilized the owner's information to get to the achieving point instead; such a fact does not fall into this realm. For example, the court rejected the independent defense in *Affiliated Hospital Products* as the defendant's employee was familiar with the plaintiff's trade secret, knowing what pitfall to avoid and utilizing such knowledge to avoid pitfall in his own research.¹⁶⁷

2. Reverse Engineering

In *Kewanee*, apart from independent development, the court also mentioned another honest means, which is reverse engineering.¹⁶⁸ This defense is also being recognized by the UTSA and excluded from the improper means of the DTSA. The definition of the term are defined "starting with the known product and working backward to find the method by which it was developed."¹⁶⁹

Slight differences occur between the UTSA and DTSA. The former mentioned a requirement that an underlying product that is subject to reverse engineering must be acquired by fair and honest means, i.e., lawfully acquired, such as purchase of the item on the open market.¹⁷⁰

[T]he term "reverse engineering" is not a talisman that may immunize the theft of trade secrets. The relevant inquiry remains whether the means used to obtain the alleged trade secret, including reverse engineering, were proper. It appears that these means were not likely proper in the instant case. The court therefore finds that plaintiff's have demonstrated a likelihood of

¹⁶⁵ *Kewanee*, 416 U.S. 470 at 476.

¹⁶⁶ Uniform Trade Secrets Act §1, cmt; 18 U.S.C. § 1839(6)(B).

¹⁶⁷ *Affiliated Hospital Products v. Baldwin*, 373 N.E.2d 1000, 1006 (Ill. App. Ct. 1978). (Even accepting their denial of any literal copying of MPL drawings, these drawings aided defendants in the design of Hypomed machinery, if only to demonstrate what pitfalls to avoid.)

¹⁶⁸ *Kewanee*, 416 U.S. 470 at 476.

¹⁶⁹ Uniform Trade Secrets Act §1, cmt.

¹⁷⁰ *Id.*

establishing that the STP is a trade secret that was misappropriated by the defendants.¹⁷¹

However, the latter is silent on this requirement.¹⁷² Thus, commentators observe that one may steal a prototype from another, reverse engineer it, and hold a complete defense at the federal level.¹⁷³

3. Whistleblower Immunity¹⁷⁴

The DTSA added a list of new defenses to trade secrets protection, where immunity applies at both the state and federal levels.¹⁷⁵ The defense is known as whistleblower immunity. The structure of the provision relevant to the application of this immunity as follows.

Firstly, the statute set forth that immunity applies when the disclosure of trade secrets is made in confidence to government officials¹⁷⁶ and for the sole purpose of reporting or investigating a suspected violation of law.¹⁷⁷ Also, immunity applies when a trade secret is disclosed in a complaint or other document filed in a lawsuit under seal.¹⁷⁸ Then, the statute provides immunity to the use of trade secrets in an anti-retaliation lawsuit by disclosing it to his attorney for use in court proceedings, provided that the secret is under seal and the trade secret is not disclosed without a court order.¹⁷⁹

B. European Union

The idea is that almost all access to information without the consent of trade secret holders is being restricted, leading to the need to explicitly identify lawful actions. Since trade secrets do not grant exclusive rights over the information, the general principle should

¹⁷¹ *Telerate Sys., Inc. v. Caro*, 689 F. Supp. 221, 233 (S.D.N.Y. 1988)

¹⁷² 18 U.S.C. § 1839(6)(B).

¹⁷³ John G. Sprankling and Thomas G. Sprankling, *Understanding Trade Secret Law* (n 24) 119.

¹⁷⁴ For an overall understanding of the 18 U.S.C. § 1833(b), including the part that is not of immunity, I would refer the reader to see Sharon K. Sandeen and Elizabeth A. Rowe, *Law in a Nutshell: Trade Secret Law including the Defend Trade Secrets Act of 2016* (2nd edn, West Academic Publishing 2017) 229-230.

¹⁷⁵ 18 U.S.C. § 1833(b)(1).

¹⁷⁶ 18 U.S.C. § 1833(b)(1)(A)(i).

¹⁷⁷ 18 U.S.C. § 1833(b)(1)(A)(ii).

¹⁷⁸ 18 U.S.C. § 1833(b)(1)(B).

¹⁷⁹ 18 U.S.C. § 1833(b)(2).

be that trade secret appropriation is unlawful unless specifically permitted.¹⁸⁰ Thus, any method of acquiring a trade secret that is not explicitly prohibited should be assumed lawful by default. Therefore, the legislatures' recognition of certain actions as lawful is essentially a declaratory act, merely clarifying what is already implied, which is provided as follows:

The acquisition of a trade secret shall be considered lawful when the trade secret is obtained by any of the following means:

- (a) independent discovery or creation;
- (b) observation, study, disassembly or testing of a product or object that has been made available to the public or that is lawfully in the possession of the acquirer of the information who is free from any legally valid duty to limit the acquisition of the trade secret;
- (c) exercise of the right of workers or workers' representatives to information and consultation in accordance with Union law and national laws and practices;
- (d) any other practice which, under the circumstances, is in conformity with honest commercial practices.¹⁸¹

The following means of acquisition are being considered.

1. Independent Discovery or Creation

The concept of independent discovery exists in the Trade Secrets Directive under Article 3(1)(a), which reinforces the idea that the law only protects information acquired from others who have taken steps to protect it as a secret; thus, a person who independently achieve that same trade secret without touching any medium that the trade secret embodied without consent of the holder is not acquiring it by unlawful means.

2. Observation, Study, Disassembly or Testing of a Product or Object that has been Made Available to the Public or that is Lawfully in the Possession

The action under Article 3(1)(b) is somewhere between independent discovery and reverse engineering. The action itself is distinct from independent discovery as the one who

¹⁸⁰ Luc Desaunettes-Barbero, *Trade Secrets Legal Protection: From a Comparative Analysis of US and EU Law to a New Model of Understanding* (n 33) 123.

¹⁸¹ Directive (EU) 2016/943, Article 3(1).

acquires the information touches the holder's medium that embodies the trade secret, while the law may be read to prohibit such things. At the same time, it is not reverse engineering as it does not start from the end product being tracked back to the information. Therefore, the law elaborates that if a product is available publicly, one could make an assessment of such a product without the holder's consent and lawfully acquire the trade secret.

3. Practice in Conformity with Honest Commercial Practices

This criterion does not exist in the UTSA, but the concept resembles the idea in the DTSA, stating that the term improper means does not include any other lawful means of acquisition.¹⁸² This clause, while offering flexibility, has been criticized for the lack of clarity and coherence in trade secrets law, as it relies on the vagueness of the term "honest commercial practices," a term that is open to interpretation.¹⁸³

Although the Trade Secrets Directive provides no room in Article 3 for the term reverse engineering, it mentioned in the Recital 16 that "[r]everse engineering of a lawfully acquired product should be considered as a lawful means of acquiring information, except when otherwise contractually agreed."¹⁸⁴ This vague provision, altogether with the mentioned recital, in the author's view, conveys that reverse engineering, if not prohibited by contract, is considered practice in conformity with honest commercial practices; thus, it is a lawful means of acquisition.

C. China

In China, the defense is not being provided in the 2019 AUCL itself but could be found in the Interpretation Involving Unfair Competition as follows.

1. Independent Development and Research

The Interpretation Involving Unfair Competition states

¹⁸² 18 U.S.C. § 1839(6)(B).

¹⁸³ Luc Desaunettes-Barbero, *Trade Secrets Legal Protection: From a Comparative Analysis of US and EU Law to a New Model of Understanding* (n 33) 126.

¹⁸⁴ Directive (EU) 2016/943, Recital 16.

[a]s regards obtaining business secrets through development and research by itself ... shall not be ascertained as an infringement upon business secrets as stipulated in ... the Anti-unfair Competition Law.¹⁸⁵

This means two business entities in competition independently develop and research the same product and obtain trade secrets separately; although the obtained information is exactly the same or substantially similar, one can use it without fear of the usage being considered an infringement under the AUCL.

2. Reverse Engineering

The Interpretation Involving Unfair Competition also recognizes the existence of reverse engineering as a defense to trade secrets infringement claims.¹⁸⁶ The definition of the term reads

[r]everse engineering referred to in the preceding paragraph means to obtain the related technical information on the products in technical methods by way of disassembling, mapping or analyzing *the products gotten from public channels*. Any party concerned that knows the business secrets of someone else by unjustifiable methods and then claims its acquisition as lawful in excuse of reverse engineering shall not be supported.¹⁸⁷

Still, what has been mentioned so far is that the products as a subject of reverse engineering have to be obtained through public channels. Although it does not clearly mention whether the product must be lawfully obtained, the author views that by emphasizing public channels, it already eliminates the case where the product was obtained through unlawful means such as theft.

One observation would be that reverse engineering, under Chinese interpretation, is the defense that cut the causal link between the existence of trade secret and the alleged act of infringement, as the court in *XJ Electric* holds

[i]t was because of XJ Company's technical secret that Aite Company could manufacture the SSB-2000 PLCs within a short period of time when there

¹⁸⁵ Interpretation Involving Unfair Competition, Article 12.

¹⁸⁶ Id.

¹⁸⁷ Id. (Emphasis added)

were no other researchers but Zheng working on the PLC and no “reverse engineering” research was made on XJ Company’s product. Therefore, the defense ground that “neither Zheng’s shares for the technology nor Aite Company’s product had any causality with XJ Company’s technical secret” was unfounded.¹⁸⁸

3. Voluntary Transaction

The last defense addressed in the Interpretation Involving Unfair Competition is voluntary transactions dedicated to customer lists. Firstly, the distinction between customer lists under this interpretation and public information is provided as follows.

The name list of clients among business secrets generally refers to the special client information that is different from related public information, including the name, address, contact information, business habits, intent, and contents of the clients and comprise the name roll of clients that collects lots of customers as well as the specific customers that have kept a long-term and stable transaction relationship.¹⁸⁹

Then, the Interpretation Involving Unfair Competition provides

[i]n case a client develops market transactions with the entity due to relying on an employee thereof, after this employee leaves his post, if it can be proved that this client voluntarily chooses to perform market transactions with the said employee or the new entity he works for, it shall be ascertained that no unfair methods has been adopted, except it is otherwise stipulated between this employee and the former entity.¹⁹⁰

This means that it is possible to not be considered trade secrets infringement, specifically, breach of confidentiality, when an employee resigns to take a similar position with a new employer and continues to transact with the customers under three conditions: the customer has relied on the employee while transacting with the former employer before his resignation, the customer voluntarily chooses to continue transacting with the employee

¹⁸⁸ XJ Electric. (Emphasis added)

¹⁸⁹ Interpretation Involving Unfair Competition, Article 13.

¹⁹⁰ Id.

or the new employer after his resignation, and there is no preclusion from an agreement between the employee and his former employer.

D. Thailand

Thailand also provides a number of exceptions to the trade secrets infringement claim, whereas the Trade Secrets Act provides the following exceptions in section 7.

1. Disclosure or Use without Knowing or has Reasonable cause to Know of the Infringement by the other Party to the Transaction

Section 7(1) provides that the alleged infringer who transacted the trade secret from the infringer in good faith without knowledge or reason to know that the trade secret was infringed. However, this exception applies only to the case where the party obtains trade secrets by juristic act, e.g., the party purchases the information and, in exchange, pays monetary consideration. Otherwise, if the party obtains trade secrets by another means, such as the first infringer who acquires trade secrets through means of theft telling the alleged infringer about the information he acquired, although the alleged infringer who heard of it has no knowledge or reason to know of the infringement and use such information, this defense should not be applied; still, it does not mean that the receiver of the information is automatically in guilt as he may have no knowledge or reason to know that his usage is contrary to honest trade practice.

This defense is somewhat a reverse of third-party liability that exists among the United States, European Union, and China, but narrower as the application limits to only the case where a trade secret is a subject of the transaction.

2. Disclosure or Use by State Agency

Section 7(2) provides a specific defense when the state agency discloses or uses trade secrets. In order for this provision to apply, the trade secret must be relevant to the case where the law requires the owner of the trade secret, who is the applicant for a permit to manufacture, import, export, or sell drugs or agricultural chemical products with a new chemical substance to file information, which wholly or partly is trade secret, supporting the permit and has requested the state agencies to maintain the trade secrets, such as

registration of traditional medicine.¹⁹¹ Once the request has been filed, the state agency becomes the state agency responsible for the maintenance of trade secrets whose act of disclosure or use is exempted under the following situations.

The first case is when it is necessary for the protection of public health or safety, such as the Department of Disease Control or the Ministry of Public Health may disclose the formula or provide the drug to a particular agency for testing if it is suspected that a particular drug may not be effective.¹⁹² The second case is when it is necessary for the benefit of other public interests with no commercial purpose.¹⁹³ In both cases, in order to be exempted from liability, the law provides that reasonable steps must be taken to protect trade secrets from being used in unfair trading activities.

3. Independent Discovery

Section 7(3) provides that independent discovery, where an individual discovers trade secrets of others through his own knowledge, expertise, or experience, is not considered an infringement. Thus, further disclosure or usage of such trade secrets is not considered an infringement as well. This emphasizes that trade secrets law does not give an owner exclusive rights and that one can use the trade secrets of his competitors as long as he does not acquire them by unlawful means.

4. Reverse Engineering

Section 7(4) lists reverse engineering as one of the defenses in an infringement claim. Thai scholars explain that reverse engineering refers to the process of discovering another person's trade secrets by lawfully obtaining a product available in the market, i.e., obtaining a product by virtue of sale or gift from the previous owner, and then studying, researching, or analyzing it to find the methods or techniques used in production or development.¹⁹⁴ However, the law is more stringent where the definition of reverse engineering is defined as “discovery of a trade secret belonging to others by means of evaluation and analysis of a *widely-known product* with the intention to discover the method by which such product is invented, manufactured or developed, provided that the product was obtained in good faith

¹⁹¹ Trade Secrets Act B.E. 2545 (2002), Section 15; Suchart Thammapitakul, *Trade Secret* (n 124) 171.

¹⁹² Trade Secrets Act B.E. 2545 (2002), Section 7(2)(a); Suchart Thammapitakul, *Trade Secret* (n 124) 181.

¹⁹³ Trade Secrets Act B.E. 2545 (2002), Section 7(2)(b).

¹⁹⁴ Suchart Thammapitakul, *Trade Secret* (n 124) 182.

by the person who conducted the evaluation and analysis.”¹⁹⁵ This may raise the question of whether, if one reverse-engineered a product that is not yet widely known and obtained trade secrets, it would be an infringement. Considering the policy behind this exception to eliminate obstacles to the development of science or technology, this requirement that the product must be widely-known may hamper its true purpose. Ultimately, this exception can be precluded if there is an express agreement stating otherwise between a person who conducted reverse engineering and the owner of trade secrets or seller of the product.¹⁹⁶

From the author’s observation, the defense against trade secrets infringement is not genuine. What the author means is that in applying the defense, the act must fulfill the element of infringement or misappropriation, but most of the listed acts are those that do not fulfill the act of infringement or misappropriation from the beginning. All the selected jurisdictions recognized independent discovery (or development/research/creation) as a defense against trade secrets infringement or misappropriation. A similar recognition applies to reverse engineers with slightly different conditions in their jurisdiction. However, some outstanding defenses have been observed, as follows. The United States explicitly recognized whistleblower immunity to a person disclosing trade secrets to government authorities or attorneys of legal violation if the report has been done confidentially and under seal. Surprisingly, this issue could also be addressed in Thailand, not as a defense, but as addressed that the unlawful information has been considered by scholars to not be trade secrets from the beginning; thus, reporting such information cannot constitute an infringement disregarding the confidential nature of the report. The European Union specifically provides that an act of observation, study, disassembly, or testing of a product or object that has been made available to the public or that is lawfully in possession is not considered an infringement. In China, the Interpretation of Involving Unfair Competition addresses voluntary transactions dedicated to customer lists as a defense. All the said acts are non-genuine defenses to the author. However, there is an issue with reverse engineering under Thai law. Unlike other jurisdictions, reverse engineering can be raised as a defense under Thai law only if the product is widely known. This leads to ambiguity if the product is

¹⁹⁵ Trade Secrets Act B.E. 2545 (2002), Section 7(4).

¹⁹⁶ Trade Secrets Act B.E. 2545 (2002), Section 7(4). (The act under (4) cannot be raised as a justification if the person who conducted reverse engineering expressly agreed otherwise with the owner of trade secrets or seller of the product.)

not widely known. Will the act of reverse engineering be considered an infringement, or is it still a non-infringement action as it is not contrary to honest trade practice? From the guidelines of all selected jurisdictions, the author views that if the product was reverse-engineered, such an action should not be considered an infringement from the beginning, disregarding whether it is a widely-known product or not.

VII. Conclusion

In summarizing the comparative study of trade secrets protection across the United States, European Union, China, and Thailand, it is clear that while the core principles of protecting confidential, economically valuable information are shared, the legal frameworks and approaches are slightly differences. The strongest protection of trade secrets is granted in the United States, while China also offers comparable level of protection through progressive development. The European Union, although there exist the Trade Secrets Directive, which is a symbol of the harmonization, the vagueness and unclear terms cause consistency problems by leaving too much room for member states to adopt, leading to challenges in interpretation, which may not be harmonized at all. In summarizing the comparative study of trade secrets protection across the United States, European Union, China, and Thailand, it is clear that while the core principles of protecting confidential, economically valuable information are shared, the legal frameworks and approaches are slightly differences. The strongest protection of trade secrets is granted in the United States, while China also offers a comparable level of protection through progressive development. In the European Union's Trade Secrets Directive, which is a symbol of harmonization, the vagueness and unclear terms cause consistency problems by leaving too much room for member states to adopt, leading to challenges in interpretation, which may not be harmonized at all. However, Thailand offers the weakest protection among the selected frameworks from the following factors: stricter requirements of trade secrets by focusing on a medium that the trade secret embodies rather than the information itself, the usage of the term deprivation for infringement, the requirement of knowledge that the act is contrary to honest trade practice separately from intent, and the requirement that product be widely-known to the application of reverse engineering exception.

VIII. Suggestions

The author would like to make the following suggestions to amend the Trade Secrets Act B.E. 2545 (2002) in order to enhance the level of protection to be on par with the selected jurisdiction as follows.

Section	Trade Secrets Act B.E. 2545 (2002)	Suggested Amendment
Section 3	“Trade information” means any medium that conveys the meaning of a statement, facts, or other information irrespective of its method and forms. It shall also include formulas, patterns, compilations or assembled works, programs, methods, techniques, or processes.	“Trade information” means any information, including a statement, facts, or other information, irrespective of its tangibility . It shall also include formulas, patterns, compilations or assembled works, programs, methods, techniques, or processes.
Section 6	The infringement of trade secret rights under this Act are the act of disclosure, deprivation or usage of trade secrets without the consent of the owner in a manner contrary to honest trade practices. In so doing, the infringer must be aware of or has reasonable cause to be aware that such act is contrary to honest trade practices.	The infringement of trade secret rights under this Act are the act of disclosure, acquisition or usage of trade secrets without the consent of the owner in a manner contrary to honest trade practices. In so doing, the infringer must be aware of or has reasonable cause to be aware that such act is contrary to honest trade practices.
Section 7(4)	Reverse engineering, i.e., discovery of a trade secret belonging to others by means of evaluation and analysis of a widely-known product with the intention to discover the method by which such product is invented, manufactured or developed, provided that the	Reverse engineering, i.e., discovery of a trade secret belonging to others by means of evaluation and analysis of a widely-known product with the intention to discover the method by which such product is invented, manufactured or developed, provided that the product was obtained in good

	product was obtained in good faith by the person who conducted the evaluation and analysis.	faith by the person who conducted the evaluation and analysis.
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