CHINA’S NEW ELECTRONIC SIGNATURE LAW AND CERTIFICATION AUTHORITY REGULATIONS: A CATALYST FOR DRAMATIC FUTURE GROWTH OF E-COMMERCE

Stephen E. Blythe*

China’s E-Commerce: Getting Ready for a Boom

Estimates put China’s population at approximately 1.3 billion people. Yet only 1.03 million of them—less than eight percent of the population—have access to the internet. This will soon change. The dizzying annual growth rate of the economy has begun to create a new middle class in China. Recent reports indicate an 8.6 percent rise in real disposable income among urban households. That middle class is expected to grow to 170 million households by 2010. By the end of this decade, the number of people wired to the internet in China will exceed that of the United States, and China will become the world’s largest online market.

In 2005, China’s electronic commerce (“e-commerce”) business is expected to approach $620 billion. In the 2006-2007 year, eBay expects online sales to China to grow at an astounding rate of sixty-one percent per year. It is going to be a boom. The market is huge, and

* Professor of Law and Accounting, School of Management, New York Institute of Technology, CERT Technology Park, P.O. Box 5464, Abu Dhabi, United Arab Emirates. Ph.D. Candidate (Law), The University of Hong Kong; Ph.D. (Business Administration), University of Arkansas, 1979; J.D. cum laude, Texas Southern University, 1986; LL.M. (Int’l Bus. Law) University of Houston, 1992; LL.M. (Info. Tech. Law) with distinction, University of Strathclyde (Scotland), 2005. Attorney at Law, Texas and Oklahoma; C.P.A., Texas.

3 103,000,000 / 1,306,313,812 = 7.88%.
5 Id.
6 Id.
7 Id.
10 Miller, supra note 2, at 1. The Chairwoman of the China E-Commerce Association, Ms. Song Ling, was only slightly less sanguine in her forecast. Speaking in April at the 8th Annual E-Commerce Conference in Beijing, she
the potential return on investment is high. The *modus operandi* of American firms’ entrance into e-commerce in China seems to be proven U.S. internet firms buying local Chinese internet firms that already have an understanding of the market and a firm foothold in it; ordinarily, U.S. firms do not undertake e-commerce activity in China on their own.\textsuperscript{11} Three cases in point will illustrate this phenomenon: (1) Yahoo paid $1 billion to enter into a venture with Alibaba.com, a Hong Kong-based firm, and they plan to develop a Chinese-language search engine which will compete with Google;\textsuperscript{12} and last spring, Yahoo formed another venture with Sina.com, China’s largest internet website, to get a piece of the action in the online auction business; (2) eBay purchased a Chinese auction website firm (Eachnet) in 2002 and has recently integrated it with its global network, investing $150 million more in the venture; and (3) Amazon, settling for a smaller share of the auction pie, purchased Joyo.com for $72 million in August.\textsuperscript{13} Yet, the potential market is so huge that there may be room for all of them to succeed. However, eBay’s CEO, Meg Whitman, is keen on becoming the undisputed winner in China.\textsuperscript{14} The stakes are high; Ms. Whitman says, “[w]hoever wins China, will win the world.”\textsuperscript{15}

Despite the tremendous boom now forecast, a number of factors have burdened the development of e-commerce in China up to now. Most Chinese people like cash and are unaccustomed to using “plastic money.”\textsuperscript{16} Only thirty-eight percent of online buyers pay with credit or debit cards.\textsuperscript{17} As a result, bicycle-borne couriers often deliver cash payment to the vendor,\textsuperscript{18} buyers may use a bank or the post office to wire the money,\textsuperscript{19} or purchases may be made C.O.D.\textsuperscript{20} Credit rating systems are underdeveloped and unreliable.\textsuperscript{21} All too often, postal service is slow and unpredictable.\textsuperscript{22}

However, there has been a more pervasive, more fundamental reason for China’s often insecure and unreliable payment systems. Before 2005, no national e-commerce law existed in China to either mandate or promote the utilization of relatively more secure payment systems. Fortunately, that omission has been recently rectified. On April 1, 2005, the first comprehensive e-commerce law went into effect in China. It includes an Electronic Signature Law (“ESL”)\textsuperscript{23} as


11 Miller, *supra* note 2.


13 *Id.*

14 *Id.*


16 *Id.*

17 Miller, *supra* note 2, at 1.

18 *Id.*


20 Richardson, *supra* note 8, at 2. Two-thirds of E-commerce transactions are paid for C.O.D. or by post office wire transfers.

21 Miller, *supra* note 2, at 1.

22 *Id.*

23 Order (No. 18) of the President of the People’s Republic of China, LAW OF THE PEOPLE’S REPUBLIC OF CHINA ON ELECTRONIC SIGNATURE (hereinafter “Electronic Signature Law,” or “ESL”), Adopted at the 11th
well as Certification Authority Regulations. In enacting this landmark statutory and administrative law, China has positioned its e-commerce market for a launch into an arguably inevitable ride to the heights. Because of the new law, e-commerce customers now have access to more secure and trusted payment systems. This should act as a catalyst to the internet marketplace and propel it to an even more dazzling degree of success than it would otherwise have achieved.

Objectives of the Article

The objectives of this article are to (1) give the reader an appreciation for the burgeoning potential of e-commerce in China; (2) concisely describe the basic aspects of public key infrastructure technology and digital signatures and explain their impact on e-commerce transactions; (3) cover China’s new electronic signature (“e-signature”) law and compare it to e-signature laws of other jurisdictions; (4) cover China’s new regulations pertaining to Certification Authorities (“CAs”) and compare them with their counterparts in other jurisdictions; and (5) make recommendations for improving China’s e-signature law and CA regulations.

I. Electronic Signature Laws

Three generations of e-signature laws have appeared since 1995. The first mandated the utilization of only the digital signature, and no other form of e-signature. The second reversed the first and took an open-minded attitude toward allowance of any type of e-signature. The third adopted a moderate position between the two extremes of the first and second, recognizing many forms of e-signatures but granting preferred status to the digital signature.

A. The First Wave: Technological Exclusivity

An e-signature is “any letters, characters, or symbols manifested by electronic or similar means and executed or adopted by a party with the intent to authenticate a writing.” There are many forms of e-signatures; examples include “a name typed at the end of an e-mail message, a digitized fingerprint, a digitized image of a handwritten signature attached to an electronic
message, a retinal scan, a PIN number, or a digital signature.” Perhaps the most sophisticated type of e-signature is the “digital signature.”

In 1995, the U.S. State of Utah became the first jurisdiction in the world to enact an ESL. The Utah statute gave digital signatures legal recognition, but did not do the same for other types of e-signatures. The authors of the Utah statute believed, with some justification, that digital signatures provide the greatest degree of security for electronic transactions. Utah was not alone in this attitude; other jurisdictions that grant exclusive recognition to the digital signature include India, Germany, Italy, Malaysia and Russia.

Unfortunately, these jurisdictions’ choice of “technological-exclusivity” is burdensome and overly-restrictive. Forcing users to employ digital signatures gives them more security, but this benefit may be outweighed by the digital signature’s disadvantages—more expense, less convenience, more complication and less adaptability to technologies used in other nations, or even by other persons within the same country.

B. The Second Wave: Technological Neutrality

Jurisdictions in the second wave of ESLs overcompensated. They completely reversed the first wave and did not include any technological restrictions whatsoever in their statutes. They did not insist upon utilizing digital signatures or any other form of technology to the exclusion of other types of e-signatures. These nations have been called “permissive” because they take a completely open-minded, liberal perspective on e-signatures and do not contend that any one of them is necessarily better than the others. In other words, they are technologically-neutral. Examples of permissive jurisdictions include the United States, the United Kingdom, Australia and New Zealand. Permissive jurisdictions legally recognize many types of e-signatures and do not grant a monopoly to any specific one.

26 Chinese law defines a “data message” as “the information created, sent, received, or stored by such means as electron, optics, magnetism or the similar means.” ESL, supra note 23, art. 2. The ESL is rather technologically-neutral and recognizes that messages may be transmitted with a variety of technologies.
27 Zaremba, supra note 22.
29 Id.
32 Id.
35 Fischer, supra note 31.
The disadvantage of the permissive perspective is that it does not take into account that, in fact, some types of e-signatures are better than others. A PIN number and a person’s name typed at the end of an e-mail message are both forms of e-signatures, but neither even approaches the degree of security that the digital signature provides.

C. The Third Wave: Moderate Degree of Technological Neutrality

Singapore was in the vanguard of the third wave. This country adopted a compromise, middle-of-the-road position with respect to the various types of e-signatures. The UNCITRAL Model Law on Electronic Commerce influenced Singapore’s lawmakers. In terms of relative degree of technological neutrality, Singapore adopted a “hybrid” model. This model prefers the digital signature because of its legal presumption of reliability and security, but not to the exclusion of other forms of e-signatures. Singapore did not want to become “hamstrung” by tying itself to one form of technology. The Singapore legislators realized that technology is continually evolving and that it would be unwise to require one form of technology to the exclusion of others. In other words, the Singapore statute gives the digital signature more respect, but does not grant it a monopoly, as does the Utah statute. Singapore allows use of other types of e-signatures. This technological open-mindedness is commensurate with a global perspective and allows parties to consummate electronic transactions with parties from other nations with greater ease.

D. China Joined the Third Wave

The drafters of the Chinese statute weighed all of these factors and chose the Singapore-style, moderate position. This hybrid approach is also the one taken by the European Union’s E-Signatures Directive, Iran, Pakistan, Japan, Vanuatu, Taiwan, Lithuania, South Korea, Barbados, Hong Kong, Bermuda, Dubai, Tunisia, Azerbaijan, and Bermuda.


37 Id.

38 Id.

39 Id.


E. Attributes of a Digital Signature System

Under its new statute, China grants a degree of privileged-status to the digital signature. Hence, it is appropriate at this point to consider some of the characteristics of a digital signature system. If the parties to an e-commerce transaction decide to use a digital signature, there is a need for two underlying technologies and a third party: (1) asymmetric cryptology; (2) public key infrastructure (“PKI”); and (3) a Certification Authority (“CA”).

F. Asymmetric Cryptology

Under the Utah Model, digital signatures receive legal protection “only if asymmetric key cryptology produced the digital signature.” Such a system employs double keys—the sender uses one key to encrypt the message, and the recipient uses a different, albeit mathematically related, key to decrypt the message. Senders have a private key, known only to them used to generate the digital signature, and the recipient uses the public key, often available online, to

50 Before amending its original digital signature law, Hong Kong only recognized digital signatures and was therefore a member of the First Wave. After amendments were made, Hong Kong joined the Third Wave. See Stephen E. Blythe, Electronic Signature Law and Certification Authority Regulations of Hong Kong: Promoting E-Commerce in the World’s “Most Wired” City, 7 N.C. J. L. & TECH. 1 (2005).
51 Fischer, supra note 28, at 234-37.
55 Fischer, supra note 28, at 234-37.
59 By contrast, “symmetric” cryptology employs one key. The same key is used for both encryption and decryption. Thus, the sender and recipient are using the same key. There are two disadvantages: (1) two stranger-parties using a public network have no way to securely transmit symmetrical keys to be used in subsequent transmissions; and (2) the transfer of a key in such a situation could possibly be intercepted or modified by a third party. See Robin C. Capehart & Mark A. Starcher, Wired, Wonderful West Virginia: Electronic Signatures in the Mountain State, 104 W. VA. L. REV. 303, 311-312 (2002).
verify that the proper party created the message and that it has not been altered during transmission. This is a very good system for e-commerce, since two stranger-parties, perhaps living far apart, can confirm each other’s identity and thereby reduce the likelihood of fraud in the transaction.

G. Public Key Infrastructure

Before a party can digitally “sign” anything, he or she must first be in possession of a pair of keys—the private key and a related public key. The party must apply to a CA to confirm his or her identity. After the CA confirms the applicant’s identity, the CA will issue the pair of keys, and a certificate as verification of the subscriber’s identity. The CA places the certificate in a public repository, most often the CA’s website. Whenever the subscriber digitally signs a message, the CA confirms the signature of the sender, the CA then informs the recipient of the encrypted message which public key is necessary to decode the message. At that point, the recipient is able to access the public key, the decryption code which the recipient uses to read the sender’s encrypted message.

The Utah model prescribes an open PKI system. In an open system, all parties with whom the subscriber wants to transact use the same certificate. Accordingly, it is relatively easier...
to enter into a transaction because it is easier to sign a document digitally. However, if the subscriber’s private key is lost or compromised, the consequences are potentially much more egregious because there is a greater likelihood that the subscriber may be defrauded.

H. Certification Authorities

China uses a compulsory system to regulate CAs. No firm may engage in CA activities unless the government of China has issued it a license. The Ministry of Information Industry ("MII") is the national governmental agency designated to license and to regulate CAs. For CAs to be effective, subscribers, relying third parties, and the general public needs to trust and be willing to place reliance in the CA. In China, the ESL helps effectuate the CA by specifying stringent requirements for the issuance of the CA license. In order to qualify, the CA must convince the MII that it uses a trustworthy system of issuing and withdrawing certificates, and of displaying them in a public repository. The MII has issued CA regulations that contain the general policies, procedures and rules that CAs must employ to implement the ESL. The CA regulations must be understood and followed by the CA. Furthermore, every CA is required to write and submit a report (called a Certification Practice Statement, hereinafter “CPS”) to the MII clearly outlining the specific procedures and rules that have been implemented in issuing certificates and in carrying out its other tasks. The MII has a number of enforcement powers that it may exercise against CAs. For example, the MII may revoke a CA’s license if they do not maintain a trustworthy system, or abide by the provisions of the ESL, the Certification Authority Regulations ("CAR"), or their own CPS.

rights and responsibilities toward each other; in an open PKI system, public law defines the rights and responsibilities of the parties. On the other hand, the disadvantage of the closed PKI system is that it is relatively more difficult than the open system to digitally sign a document and to enter into a transaction. Id. at 8-9.

69 Id. at 8, citing D.J. Greenwood, Risk and Trust Management Techniques For an “Open but Bounded” Public Key Infrastructure, 38 JURIMETRICS J. 277 (1998).

70 Benjamin Wright has argued forcefully that PKI does not result in the elimination or even the reduction of risk; it simply transfers it to the private key. In a PKI system, it is critical for the private key holder to keep it secret and to maintain security over it. Although a sophisticated party involved with “high-end financial deals” may appreciate the advantages of the PKI system, the unsophisticated person may be uncomfortable in being responsible for the all-powerful private key. See Symposium: Cyber Rights, Protection, and Markets, Eggs in Baskets: Distributing the Risks of Electronic Signatures, 32 U. WEST. L.A. L. REV. 215, 219-220 (2001).

71 Other jurisdictions (e.g., Hong Kong) use a “voluntary” regulatory program for its CA’s. In voluntary systems, it is possible for a firm to engage in CA work without a license. However, there are disadvantages in doing so, particularly the inability to limit the liability of the firm. See Stephen E. Blythe, supra note 45.

72 CAR, supra note 24, art. 4.

73 ESL, supra note 23, art. 25.

74 Under China law, a relying third party is referred to as a “Party Depending on Electronic Signature” (hereinafter “relying third party”) and is defined as “the person who undertakes the relevant activities on the basis of his trust on any electronic signature certification certificate or electronic signature.” ESL, supra note 23, art. 34(2). This article prefers “relying third party” because that phrase is more popular internationally.

75 For an article pertaining to the attainment of trust in E-commerce in China, see Timothy L. Fort & Liu Junhai, Chinese Business and the Internet: The Infrastructure for Trust, 35 VAND. J. TRANSNAT’L L. 1545 (2002).

76 CAR, supra note 24, art. 18.

77 ESL, supra note 23, art. 17.

78 CAR, supra note 24, art. 17.

79 CAR, supra note 24.

80 ESL, supra note 23, art. 19; see also CAR, supra note 24, art. 34.

81 CAR, supra note 24, art. 36-40.

82 ESL, supra note 23, art. 33.

7 Chi.-Kent J. Intell. Prop. 8
In reaction to the government’s desire to maintain security for state secrets, and the concern of e-commerce parties over security of private information, the ESL included a provision mandating secrecy. Official secrets must not be divulged. Persons attaining access to confidential data while performing functions covered by the ESL (e.g., the CA acquires a subscriber’s personal information during an application for a certificate) are prohibited from disclosing it to other persons. The ESL also forbids disseminating false information whilst engaged in a function under the statute (e.g., giving false information to a CA in an application for a certificate), or pretending to be a CA. Violators may be subject to fine or imprisonment.

II. The Background of E-Commerce Law in China

Before the appearance of the ESL and the CAR in 2005, Chinese e-commerce law was influenced by federal contract law, rules of the banking industry, and provincial and municipal e-commerce law.

A. The Contract Law of 1999

Prior to the enactment of the new ESL, e-commerce parties relied on the general Contract Law of 1999 (“Contract Law”) for authority. The Contract Law recognizes that contracts may be concluded in “written, oral or other forms.” “Other forms” is significant because it opened the door to consideration of the validity of the electronic form.

Under the Contract Law, if the parties have agreed that the contract in writing, then that agreement controls. However, the next article implies that information stored in digital form is “equal” to information stored in writing. An e-mail message may fulfill the writing requirement because it physically conveys the contractual terms and can show the described content “visibly.” However, this only provided “simple” equivalency. The United Nations Commission on International Trade Law, in its Model Law for Electronic Commerce (“MLEC”), called for e-commerce laws of the world to recognize the “functional” equivalency of digital information in

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83 CAR, supra note 24, art. 20.
84 ESL, supra note 23, art. 15.
85 Id. at art. 18.
86 CAR, supra note 24, art. 20.
87 ESL, supra note 23, art. 20.
88 Id. at art. 29.
91 ESL, supra note 23, at art. 10. (Emphasis added).
92 Id.
93 Id. at art. 11.
95 MLEC, supra note 32.
electronic form, which consists of three elements: (1) “simple” equivalency—that an electronic record is equal to a writing; (2) that an e-signature is equal to a written signature as required by law; and (3) that an electronic record has the same legal status as an original record, if specified criteria are met. Because it failed to address the second and third items, the Contract Law did not convey how electronic records would serve the functions of a paper document. Accordingly, the Contract Law failed to fulfill the legal needs of parties engaged in e-commerce in China.

Article 32 states that the contract does not come into existence until the parties “sign or affix their seal on it.” This statement leaves room for ambiguity. Articles 11 and 32 seem to be in conflict; the former allows e-mail messages to qualify as written form, but the latter establishes a rule that a contract will not come into existence until the parties have signed or sealed it. The problem is this: since e-mail messages are neither signed nor sealed, it is debatable as to whether an e-signature complies with Article 32.

Nevertheless, the Contract Law contains some sound authority for the recognition and validity of electronic contracts in China. For example, several of its Articles specify when and where electronic contracts are formed:

1. Ordinarily, an offer becomes effective when the offeree receives it. However, if a contract is negotiated electronically, the time at which the offer becomes effective is determined as follows: (a) if the offeree has designated a specific computer system under his control for the offer to be sent to, the time the offer enters that system will be the time the offer becomes viable; but (b) if the offeree has not designated a specific computer system under his control as the one for the offer to be sent to, the time the offer enters any computer system under the control of the recipient will be the time that the offer becomes viable.

2. Ordinarily an acceptance becomes effective when the offeror receives it. (This assumes that it is a bilateral contract. For unilateral contracts, see Rule 3, below.) However, if a contract is negotiated electronically, the time at which the acceptance— and the contract—becomes effective is determined as follows: (a) if the offeror has designated a specific computer system under his control for the acceptance to be sent to, the time the acceptance enters that system will be the time the acceptance (and the contract) becomes viable; but (b) if the offeror has not designated a specific computer system under his control as the one for the acceptance to be sent to, the time the acceptance enters any computer system under the control of the offeror will be the time that the acceptance, and the contract, become viable.

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96 Fuping Gao, supra note 96.
97 Id.
98 Id.
100 Id.
101 CONTRACT LAW, supra note 90, art. 16, par. 1.
102 Id. at art. 16, par. 2.
103 Id. at art. 26, par. 1. There is no “Mailbox” Rule in China.
104 In the English translation, the Contract Law refers to electronic messages as “data-telex.” Id. at art. 16, par. 2.
105 Id. at art. 26, par. 2, citing CONTRACT LAW, art. 16, ¶2.
3. In the case of a unilateral contract, the offeree accepts with action, not words. Therefore, the acceptance and the contract become viable when the offeree performs an act of acceptance “in accordance with transaction practices or as required in the offer.”

4. If the contract is negotiated using e-mail messages, one party may require the other to execute a confirmation letter before the contract is formed. If so, the contract will come into existence when the confirmation letter is executed.

5. Ordinarily, a contract will be considered to have come into existence at the place the acceptance occurred. However, if a contract is negotiated electronically, the acceptance is assumed to have occurred at the “main business place” of the recipient. If the recipient has no business place, it will be considered to have occurred at the recipient’s residence.

6. The parties have latitude to make their own agreement as to the assumed place at which their contract comes into existence, notwithstanding Rule 5, above.

Unfortunately, the Contract Law of 1999 did not consider the validity and enforceability of e-signatures. Furthermore, e-signatures did not fit easily and naturally into any of the seven categories of admissible evidence in China, so it was debatable whether e-signature evidence was admissible in court. Nevertheless, if authentic, e-signature are potentially admissible under two categories of evidence: “audio-visual” or “documentary.” For e-signatures to fall under audio-visual, the party would have to provide circumstantial evidence to support the introduction of the e-signature. On the other hand, if a party introduces an e-signature as “documentary” evidence, it would have to be an original, since copies are not acceptable. The problem created here is that the recipient of a contract in e-commerce necessarily receives only a copy—not the original.

B. The Banking Industry’s China Financial Certification Authority

Often, developments in the private sector precede the creation of law by the government. Such was the case of e-signature Law in China. Realizing the need for the issuance of e-signatures, the banking industry was proactive and created a joint venture of twelve banks (including the People’s Bank of China), calling itself the China Financial Certification Authority (“CFCA”). They began to issue digital certificates in reference to (1) bank-to-bank transactions;

107 CONTRACT LAW, supra note 90, art. 26.
108 Id. at art. 33.
109 Id.
110 Id. at art. 34.
111 Id. at art. 34, ¶2.
112 Id.
113 Id.
114 Rambaran, supra note 99, at 426.
115 Id.
116 Id. at 426-27.
117 Id.
118 Id. at 427.
119 Id.
(2) business-to-business transactions; and (3) business-to-consumer transactions. Their plans included the validation of more than $1 billion of transactions through the issuance of more than 100,000 digital certificates. The CFCA issued only digital certificates and used PKI exclusively.\textsuperscript{120}

C. The Emergence of E-Commerce Law at the Municipal and Provincial Levels

Chinese e-commerce law originated at the municipal and provincial levels, not at the federal level.

1. Municipal Law: Shanghai Electronic Certification Authority Center

In 2000, sensing the need for law pertaining to e-commerce, the Shanghai City Government adopted an ordinance designed to manage e-commerce.\textsuperscript{121} This ordinance created a governmental CA, the Shanghai Electronic Certificate Authority Center Co., Ltd., which became the only institution in Shanghai authorized to engage in the following CA activities: (1) verifying a person’s identity; (2) creating and managing digital certificates; and (3) issuing the software necessary to create digital certificates.\textsuperscript{122} However, the ordinance did not mandate that the Center remain a CA monopoly in Shanghai. It also gave the Center the authority to entrust other firms to become CAs.\textsuperscript{123}

The Shanghai law was the first legislation in China to require the utilization of PKI technology (and thereby technological-specificity); and establish a governmental CA.\textsuperscript{124} However, the Shanghai law did not extend official legal status to digital certificates, which forced a reliance on the ambiguous national Contract Law.\textsuperscript{125} Nevertheless, the Shanghai ordinance was an important step in the evolutionary development of e-commerce law in China.

2. Provincial Law

Governments in the provinces were mindful of the e-commerce developments. They began to take action. Hainan Province and Guangdong Province led the way in the passage of e-commerce law.

a. Hainan

In August 2001, Hainan became the first province to issue digital signature rules—the Interim Measures for the Administration of the Certification of Digital Certificates.\textsuperscript{126} The

\textsuperscript{120} Shanghai Municipal Informatization Commission, http://www.shanghait.gov.cn/englishweb/index.htm;
\textsuperscript{121} Rambarran, supra note 99, at 427-28.
\textsuperscript{122} Id.
\textsuperscript{123} Id.
\textsuperscript{124} Id. at 428-29.
\textsuperscript{125} Id.
Interim Measures defined basic terms and established a governmental agency, the Hainan Information Industry Administration, to regulate CA’s. The law specifies the CA licensing procedure, the CA’s services and liabilities, and the content and standards pertaining to digital certificates.

b. Guangdong

The Congress of Guangdong Province issued its Ordinance on Electronic Transactions in December 2002. Significantly, the Guangdong Ordinance became the one of the first laws to provide legal authority in court for eradicating barriers to utilizing electronic transactions. The Guangdong Ordinance covers e-signature issues as well as CA issues. The provincial government of Guangdong established a public CA—the Guangdong Electronic Certification Authority.

III. China’s Electronic Signature Law

The Electronic Signature Law (“ESL”) was enacted and disseminated on August 28, 2004 and was implemented on April 1, 2005. According to China’s Ministry of Justice, the writers of the ESL considered the following sources in the drafting process: legal and e-commerce experts, the UNCITRAL Model Law on Electronic Commerce, the UNCITRAL Model Law on E-Signatures, the European Union’s E-Commerce Law, the European Union’s E-Signatures Directive, and e-signature statutes of the United States, Japan, Korea, Singapore, and other countries.

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128 Id.
129 Id.
131 Chu and Li, supra note 35, at 336-37.
132 Gao, supra note 96, at 57.
133 Digi-Sign and Guangdong Electronic Certification Authority Cooperate on Unified-Cert Service, Hong Kong, 18 May 2004, available at http://www.tradelink.com.hk/eng/20040518.html. The Guangdong Electronic Certification Authority (“GECA”) now has more than 180,000 subscribers; its website address is http://www.cnca.net. On 18 May 2004, GECA announced it had entered into a cooperative agreement with Digi-Sign, a Hong Kong CA, to jointly issue a “Unified-Cert.” The Unified-Cert makes it possible for Mainland China residents (possessing valid travel documents to Hong Kong, or a Hong Kong Identity Card) to simultaneously obtain, in one application, both the digital certificate of GECA and Digi-Sign’s ID-Cert. This service is expected to lead to an increase of online activities between Guangdong Province and Hong Kong.
134 ESL, supra note 23.
135 Id. at preface.
136 ESL, supra note 23, at preface and art. 36.
137 MLEC, supra note 32.
The ESL was enacted for these reasons: (1) to grant e-signatures the same legal status as the handwritten or sealed signature; (2) to regulate the procedures undertaken when using e-signatures; and (3) to delineate the rights and responsibilities of the parties, i.e., the subscriber, the CA, and relying third parties.\textsuperscript{146}

In private, civil matters, the parties are free to agree on whether they will or will not use e-signatures or data messages.\textsuperscript{147} The ESL does not compel any party to contract electronically in a private agreement. That is a private decision for the parties to make.

Documents created using e-signatures or data messages, if agreed to by the parties, are just as legally binding as “hard copy” documents.\textsuperscript{148} The ESL forbids parties to contest their legal status based on the mere fact that they were created using e-signatures or data messages.\textsuperscript{149}

The ESL requires the traditional “hard” copy in these special cases:\textsuperscript{150} (1) family-related documents (e.g., marriage, divorce, adoption, wills, etc.);\textsuperscript{151} (2) documents pertaining to transfer of real estate;\textsuperscript{152} (3) documents relating to canceling public utility services (e.g., electricity, water, natural gas, telephone, TV cable);\textsuperscript{153} and (4) other instances as determined by applicable laws or regulations.\textsuperscript{154}

The ESL covers data messages, rules of evidence, e-signatures, and liabilities of the parties; those issues are presented in that order.

\textbf{A. Data Messages}

\begin{itemize}
\item[142] \textsuperscript{142} Japan, LAW CONCERNING ELECTRONIC SIGNATURES AND CERTIFICATION SERVICES (24 May 2000), \textit{available at} http://www.meti.go.jp/english/report/data/gesignconte.html. See Stephen E. Blythe, \textit{supra} note 44.
\item[144] \textsuperscript{144} Republic of Singapore, ELECTRONIC TRANSACTIONS ACT (1998), \textit{available at} http://statutes.agc.sg/. See Blythe, \textit{supra} note 36.
\item[145] \textsuperscript{145} Ministry of Justice, LEGISLATIVE DEVELOPMENTS, August 28, 2004, \textit{available at} http://www.legalinfo.gov.cn/english/LegislativeDeve/legislativedeve2_25.htm. One of the principal drafters of the ESL, and a member of the consulting board advising the drafters, contend that the most influential information sources were: UNCITRAL Model Law on E-Commerce of 1996, the UNCITRAL Model Law on E-Signatures, and the E-signature law of Singapore. See Chu and Lei, \textit{supra} note 35, at 344-47.
\item[146] \textsuperscript{146} ESL, \textit{supra} note 23, art. 1.
\item[147] \textsuperscript{147} Id. at 3.
\item[148] \textsuperscript{148} Id.
\item[149] \textsuperscript{149} Id.
\item[150] \textsuperscript{150} Id. at art. 3(1).
\item[151] \textsuperscript{151} Id. at art. 3(2).
\item[152] \textsuperscript{152} Id. at art. 3(3).
\item[153] \textsuperscript{153} Id. at art. 3(4).
\end{itemize}

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If a law or a regulation mandates that pertinent information be recorded in writing, the ESL states that utilization of a data message will suffice if it includes the same contents, and is just as accessible, as a paper document.155

In order for a data message to have the same legal status as an original, it must (1) be capable of accurately communicating the contents of the original; (2) have the ability to be retrieved for use at any time; and (3) provide assurance that the contents are complete and unaltered from the time they were created.156

In assessing whether the data message has integrity vis-à-vis the original, it is irrelevant that the data message may contain an endorsement or have its form altered during “data interchange, storage, and display.”157

If a law or a regulation mandates retaining a document in a repository, the document may be in the form of a data message if (1) the data message contains the same information, and is just as accessible, as a paper document; (2) either the format of the data message is same as when it was “created, sent, or received,”158 or, despite a different format, it is still able to convey the original contents; and (3) it identifies the addresser and the addressee of the data message, and its dispatch and receipt times.159

B. Rules of Evidence

The ESL contains several rules pertaining to admitting a data message into evidence in a court of law. The mere fact that the evidence is in the form of a data message, with no extenuating circumstances, is an insufficient ground for excluding the evidence.160 In other words, just because information was created, sent, or received as a data message is not enough to prevent the information from being admitted into evidence in court.161 Of course, just because information in the form of a data message has been admitted into evidence does not guarantee that the information is accurate. Factors to be considered by the court in assessing the veracity of information in a data message include: (1) whether the methods used in creation, storage, or transmission of the data message were reliable; (2) whether the methods used to maintain integrity of the contents were reliable; (3) whether the methods used to identify the addresser were reliable; and (4) other factors which may be relevant in the particular case.162

C. Data Message Assumed Sent by Addresser

The ESL presumes in any of the following situations that the message in question emanated from its addresser: (1) the message was sent after the addresser authorized it to be sent; or (2) it was sent automatically by the addresser’s computer information system; or (3) using the

155 Id. at art. 4.
156 Id. at art. 5.
157 Id.
158 Id. at art. 6(2).
159 Id. at art. 6.
160 Id. at art. 7.
161 Id.
162 Id. at art. 8.

7 Chi.-Kent J. Intell. Prop. 15
validation method prescribed by the addresser, the addressee determines that the data message is valid.\textsuperscript{163} Notwithstanding the above, the parties are free to negotiate different rules and to stipulate them in their contract.

\textbf{D. The Time and Place of Transmission and Receipt of Messages}

If a law or regulation mandates a sender to confirm receipt of a data message, or if the parties have so stipulated, the ESL requires that the sender confirm.\textsuperscript{164} If the sender has received any confirmation from the recipient, then the ESL assumes that the recipient received the data message.\textsuperscript{165}

The ESL assumes the sender sent the message at the time it first entered into an information system outside the control of the sender.\textsuperscript{166} If the recipient has designated a specific information system to send the message to, then the ESL assumes the recipient received the message at the time it entered said system.\textsuperscript{167} Alternatively, if the recipient does not designate a specific information system, then the ESL assumes the recipient received the message at the time it first entered into any system under the control of the receiver.\textsuperscript{168} However, if the parties have different stipulations regarding the time of sending or receiving, then the stipulations will control.\textsuperscript{169}

The ESL assumes the message was sent from the sender’s primary business address, and the message was received at the recipient’s primary business address.\textsuperscript{170} If a party has no primary business address, then it assumes that the person’s habitual residence was the sending or receiving place.\textsuperscript{171} However, if the parties have stipulated which sending or receiving address to assume, then the stipulation will control.\textsuperscript{172}

\textbf{E. E-Signatures and Their Certification}

This section explores the interrelation among: reliability of an e-signature, the subscriber’s duties, and the CA.

\textit{1. Characteristics of a Reliable E-Signature}

Because of the heightened level of its security, the ESL grants reliable e-signature the same legal status as the handwritten signature, or signing with a seal.\textsuperscript{173}

\textsuperscript{163} Id. at art. 9.
\textsuperscript{164} Id. at art. 10.
\textsuperscript{165} Id.
\textsuperscript{166} Id. at art. 11.
\textsuperscript{167} Id.
\textsuperscript{168} Id.
\textsuperscript{169} Id.
\textsuperscript{170} Id. at art. 12.
\textsuperscript{171} Id.
\textsuperscript{172} Id. The ESL rules pertaining to time and place in which a message is sent or received are in agreement with the rules set out in the Contract Law, but they are not as comprehensive as the Contract Law rules. Hence, it appears the Contract Law rules remain applicable to E-commerce in some situations, e.g., when one party requires the other to sign a confirmation letter. CONTRACT LAW, supra note 90, art.33.
\textsuperscript{173} ESL, supra note 23, art. 14.
In order to be considered “reliable,” an e-signature must simultaneously meet all of the following requirements: (1) all data generated in the e-signature process is used exclusively by the e-signature, and the e-signature’s sole owner is the subscriber; (2) the data generated by the e-signature is controlled exclusively by the subscriber when signing; (3) any modification of the e-signature after signing is discoverable by the subscriber; and (4) any modification of the form or contents of the data message is discoverable by the subscriber after signing.\textsuperscript{174}

The parties may also elect to use the e-signature under reliable conditions, in compliance with their stipulations.\textsuperscript{175}

2. Subscriber’s Duty to Protect and to Inform

The subscriber has a duty to the other parties to protect the data that the e-signature has generated. If the subscriber becomes aware that the security of such data has been or may become compromised, the subscriber should immediately stop using such data and notify all other relevant parties (i.e., the CA and relying third parties) immediately.\textsuperscript{176}

3. The Certification Authority

The Certification Service Provider, as mentioned in the ESL, is often referred to in other jurisdictions as the CA. The purpose of the CA is to provide a third-party verification of the authenticity of an e-signature. In China, only an organization licensed by the MII, the designated regulatory agency of the national government, can provide CA services.\textsuperscript{177}

4. The CA Application Procedure

The prospective CA organization must file an application with the MII\textsuperscript{178} and submit relevant documentary evidence\textsuperscript{179} showing that (1) it has sufficient suitable personnel—both technicians and managers—to engage in the CA business; (2) it possesses sufficient capital and has a place of business suitable for the CA business; (3) it possesses sufficient equipment and technology that is in compliance with the national safety standards; (4) it has certification documents with codes approved by the appropriate government agencies; and (5) it meets all other legal and regulatory requirements.\textsuperscript{180}

Upon receipt of an application, the MII must undertake an investigation of the applicant to ascertain whether it qualifies to be a CA.\textsuperscript{181} The MII must consult with the commerce department on the matter.\textsuperscript{182} Within 45 days, the MII must make a decision.\textsuperscript{183} If the decision is

\textsuperscript{174} Id. at art. 13.
\textsuperscript{175} Id.
\textsuperscript{176} Id. at art. 15.
\textsuperscript{177} Id. at art. 16. For elaboration of the CA’s functions, see CAR, supra note 24, art. 17.
\textsuperscript{178} Id. at art. 18.
\textsuperscript{179} Id. See also CAR, supra note 24, art. 6.
\textsuperscript{180} ESL, supra note 20, art. 17. More specificity of these items is provided in the CAR, art. 5 infra.
\textsuperscript{181} ESL, supra note 20, art. 18.
\textsuperscript{182} Id.
\textsuperscript{183} Id.
positive, the MII will issue the license.\textsuperscript{184} If the decision is negative, the MII will not issue the license,\textsuperscript{185} and the MII must inform the applicant, explaining the reasons for the negative decision.\textsuperscript{186}

5. Requirements of New CAs

Upon receiving the license, the new CA must register as a business enterprise at the department of commerce.\textsuperscript{187}

The MII requires the new CA to post the following on the CA’s website: name of entity, license number, and other relevant information.\textsuperscript{188}

Additionally, the MII mandates the new CA to write its “business rules,” to file them with the MII, and to disseminate them to the public on the CA’s website.\textsuperscript{189} This statement of business rules (hereinafter, “CPS”\textsuperscript{190}) must include the following information: (1) extent of liabilities, and to whom; (2) operational matters and specifications; (3) measures taken to protect the information under the CA’s control; and (4) other matters that the MII may determine.\textsuperscript{191}

6. Application of Subscriber to CA for Certificate

Subscribers are legally bound to provide full and accurate information to the CA when applying for a certificate.\textsuperscript{192} In turn, the CA is legally required to check the validity of the subscriber’s identification and the accuracy of the information submitted in the application.\textsuperscript{193}

7. Information Required on Certificates

Before issuance, the CA must carefully check all certificates for accuracy to eliminate any mistakes.\textsuperscript{194} Each and every certificate must contain the following items: (1) name of the CA organization; (2) name of the subscriber; (3) serial number of the certificate; (4) the date the certificate becomes valid and the date it expires; (5) the e-signature “validation data”\textsuperscript{195} of the subscriber; (6) e-signature of the CA; and (7) other items that the MII may be determine.\textsuperscript{196}

\textsuperscript{184} Id.
\textsuperscript{185} Id.
\textsuperscript{186} Id.
\textsuperscript{187} Id.
\textsuperscript{188} Id. Additional information to be published by the new CA is mentioned in the CAR, art. 12 infra. Also, the MII will give public notice of the issuance of the new license. See CAR art. 10 infra.
\textsuperscript{189} ESL, supra note 20, art. 19. See also CPS infra, art. 15-16.
\textsuperscript{190} In other jurisdictions (e.g., Hong Kong and the United States), this list of operating rules is referred to as the “Certification Practice Statement,” (or “CPS”), and that is the designation used in this article. For a detailed analysis of the Hong Kong CA Regulations pertaining to preparation of the CPS, see Blythe, supra note 50.
\textsuperscript{191} ESL, supra note 20, art. 19.
\textsuperscript{192} Id. at art. 20.
\textsuperscript{193} Id.
\textsuperscript{194} Id. at art. 21.
\textsuperscript{195} Id. This is the subscriber’s “public key.”
\textsuperscript{196} Id. The CA also has an obligation to inform the certificate applicant several categories of information. CAR, supra note 24, art. 21.
8. CA’s Duty to Keep Relying Parties Informed

The CA has a legal duty to maintain the accuracy of information contained in the certificate during the period of its validity.\(^\text{197}\) The CA must ensure that relying third parties are aware of relevant matters pertaining to the certificate and are able to prove the accuracy of information contained in the certificate.\(^\text{198}\)

9. Voluntary Termination of the CA’s Business

If a CA decides to go out of business, it must inform all affected parties (i.e., the subscriber and relying third parties) at least ninety days before the proposed termination date.\(^\text{199}\) At least sixty days before the proposed termination date, the CA must inform the MII, and begin negotiations for another CA to take over the business activities of the departing CA.\(^\text{200}\) In the event the departing CA is unable to find another CA to assume its business activities, it must so inform the MII, who will then designate another CA to take over the departing CA’s business.\(^\text{201}\)

10. Involuntary Termination of the CA’s Business

If the MII revokes the CA’s license to do business, the CA has no obligation to locate another CA to take over its business operations.\(^\text{202}\) In that situation, the MII will handle all matters pertaining to finding of another CA to assume the revoked CA’s business operations.\(^\text{203}\)

11. Retention Requirement

A CA has the responsibility to retain all documents and information related to certificates it has issued for a period of five years after the invalidation of the certificate.\(^\text{204}\)

12. Oversight by MII

China’s Ministry of Information Industry is the administrative department designated to provide oversight of the CAs, in accordance with the ESL and the CAR.\(^\text{205}\)

13. Reciprocal Recognition of Foreign CAs

China affords certificates issued in a foreign country, by a foreign CA, the same legal status as domestically issued certificates, provided that the MII approves the recognition, and a reciprocity agreement exists between China and the foreign country in question, or the recognition is justified because of reciprocity principles.\(^\text{206}\)

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197 ESL, supra note 23, art. 22.
198 Id. See also CAR, supra note 24, art. 18.
199 ESL, supra note 23, art. 23; see also CAR, supra note 24, art. 24(1).
200 ESL, supra note 23, art. 23; see also CAR, supra note 24, art. 23 and art. 24(2).
201 ESL, supra note 23, art. 23; see also CAR, supra note 24 art. 25.
202 ESL, supra note 23, art. 23; see also CAR, supra note 24, art. 26.
203 ESL, supra note 23, art. 23; see also CAR, supra note 24, art. 26.
204 ESL, supra note 23, art. 24. The length of the retention period varies from jurisdiction to jurisdiction. For example, it is seven years in Hong Kong. See Blythe, supra note 45.
205 ESL, supra note 23, art. 25.
206 ESL, supra note 23, art. 26; see also CAR, supra note 24, art. 42.
F. Liabilities of the Parties

The ESL imposes liabilities upon the subscriber, the CA and relevant government officials.

1. Liability of the Subscriber

The subscriber shall be liable for payment of compensatory damages to relying third parties in the following situations: (1) when the subscriber does not provide full and truthful information to the CA; (2) when the subscriber knows that any data made by an e-signature has either exposed official secrets or possibly may expose official secrets, but the subscriber fails to notify the other parties and stop them from utilizing the data; and (3) when the subscriber has been at fault in any other manner.207

2. Liability of the CA

The CA may incur legal liability in three situations.

a. Failure to Inform of Inaccurate Information in Certificate

The CA shall be liable for payment of compensatory damages to the subscriber, and to relying third parties when the other parties have been harmed by utilizing the CA’s service.208 To avoid this liability, the burden of proof is on the CA to show that it has no fault.209

b. Failure to Inform MII before Termination

If a CA goes out of business, but fails to inform the MII at least sixty days before doing so, the MII is mandated to impose a fine against the CA’s “person directly in charge” in the range of 10,000-50,000 Yuan.210

c. Failure to Abide by CA Regulation

The MII will sanction the CA for the following: failing to abide by its own CPS,211 not fulfilling the retention requirement,212 or other illegal acts.213 The MII will order the CA to correct the behavior and will impose a deadline.214 If the CA fails to accomplish the correction

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207 ESL, supra note 23, art. 27; see also CAR supra note 24, art. 21.
208 ESL, supra note 23, art. 28; see also CAR supra note 24, art. 17.
209 ESL, supra note 23, art. 28. This is a stringent provision which may drive up the cost of CA service in China, due to the need for the CA to purchase a greater amount of insurance coverage. By comparison, other jurisdictions do not place the burden of proof on the CA to show it is blameless. See, e.g., Hong Kong, supra note 45; U.S. E-Sign Act note 301 infra. Nevertheless, the author appreciates this provision because it helps to ensure that CA’s in China will make a special effort to ensure the trustworthiness and integrity of their computer systems.
210 This corresponds to a range of approx. U.S. $1240-6200. See also CAR, supra note 24, art. 23 and art. 24(2).
211 ESL, supra note 23, art. 31; see also CAR, supra note 24, art. 16. These are the “business rules” which have been written and disseminated by the CA; they correspond to the Certification Practice Statement (“CPS”) in the U.S. and Hong Kong; see also Blythe, supra notes 34 and 50.
212 ESL, note 23, art. 31. Certification documents must be retained for a period of five years.
213 Id. at art. 31.
214 Id.
by the deadline, the MII will revoke the CA’s license and will prohibit the manager in charge and other responsible persons from engaging in CA activities for a period of ten years. The MII will post notice of CA’s revoked license, and inform the department of commerce.

3. Liability of Imposter CA

If an organization is engaged in providing CA services without a license, the MII shall order it to cease and desist. The MII will confiscate any illegal gains made by the imposter CA. Furthermore, the MII shall impose a fine against the imposter. If there are no illegal gains or the illegal gains are less than 300,000 Yuan (approx. U.S. $3718), the fine will be in the range of 100,000-300,000 Yuan. If the illegal gains exceed 300,000 Yuan, the fine will be in the range of the amount of the illegal gains, up to triple the amount of the illegal gains.

a. Liability for Fraudulent Use of E-Signatures

It is a crime to forge, fraudulently use, or embezzle an e-signature of another person or entity, and persons committing these acts are subject to punishment under the criminal law. Additionally, the offender may become civilly liable to persons that have incurred damages because of the offender’s acts.

b. Government Employees’ Liability for Corruption

Staff members of the MII who fail to properly carry out their licensing and supervisory duties pertaining to CAs will be administratively punished pursuant to the law. If crimes are committed, they will be subject to criminal penalties as well.

K. MII Charged with Responsibility to Draft Regulations

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215 Id.
216 Id.
217 Id. at art. 29.
218 Id.
219 Id.
220 Id. This corresponds to a range of approx. U.S. $ 12,392-37,176.
221 Id. at art. 29.
222 Id. at art. 32.
223 Id.
224 Id. at art. 33. More specific administrative sanctions are mentioned in the CAR, supra note 24, art. 38.
225 ESL, supra note 23, art. 33. Government corruption is an old problem in China. It still survives, notwithstanding the very stringent punishments imposed for it—up to, and including, the death penalty! For examples of capital punishment for corruption see China Sentences 14 Officials to Death in Graft Case, CNN.COM, (November 9, 2000), http://edition.cnn.com/2000/ASIANOW/east/11/08/china.corruption/index.html and Former Deputy Public Security Minister Sentenced to Death, PEOPLE’S DAILY, (Oct. 23, 2001), http://english.people.com.cn/english /200110/23/eng20011023_82949.html. It doesn’t pay to be a public whistleblower in China, either. A local Communist party official in southern China was recently given a life sentence “after he went public with complaints that senior government officials were blocking his efforts to fight corruption.” Philip P. Pan, Chinese Whistle-Blower is Given a Life Sentence, THE ASIAN WALL STREET JOURNAL, Nov. 11-13, 2005. For a discussion of government corruption in China, the government’s response to it, and possible implications for the U.S., see Benjamin van Rooij, China’s War on Graft: Politico-Legal Campaigns Against Corruption in China and Their Similarities to the Legal Reaction to Crisis in the U.S., 14 PAC. RIM L. & POL’Y J. 289 (2005).

7 Chi.-Kent J. Intell. Prop. 21
The ESL consists of broad guidelines. Implementing the ESL, however, necessitates transforming it into “concrete measures.” Such measures are much more specific; they consist of policies, procedures, and rules to be delegated to the appropriate personnel in order to carry out the ESL’s broad guidelines. Policies, sometimes referred to as standard operating procedure, are the ordinary response of the organization to a recurring type of decision or situation. Procedures are the exact sequence of steps that the CA must carry out in order to accomplish some objective. Rules are the most specific of the three and consist of fixed orders. The policies, procedures, and rules for implementing the ESL’s guidelines in reference to CAs are the Certification Authority Regulations, which this article covers next.

IV. China’s Certification Authority Regulations

The Certification Authority Regulations (“CAR”) were adopted at the 12th Executive Meeting of the Ministry of Information Industry (“MII”) on January 28, 2005, were promulgated on February 8, 2005, and were implemented on April 1, 2005. The MII created the CAR pursuant to the ESL in order to regulate CA’s and CA services. It emanates from the ESL, but is more detailed. The ESL and the CAR often overlap. The ESL is relatively general, and the CAR provides more specific procedural rules. The CAR provides more specific policies, procedures and rules to regulate CAs, and it serves to complement and to reinforce the broad guidelines laid out in the ESL.

A. Jurisdiction and Regulatory Agency

The CAR is applicable only to CAs and their activities occurring within the People’s Republic of China. The Ministry of Information Industry (“MII”) regulates CAs and the services they offer.

B. The Licensing of a CA Organization

One of the most important duties of the MII is to license organizations that have applied to become a CA.

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226 ESL, supra note 23, art. 35.
227 CAR, supra note 24.
228 Id. at preface.
229 Id. at preface and art. 43.
230 ESL, supra note 23 art. 35; and CAR, supra note 24, art. 1.
231 ESL, supra note 23, art. 35.
232 Neither ESL, supra note 23 and CAR, supra note 24 do not apply in Hong Kong or in Macau; those former British and Portuguese colonies, respectively, have each been designated a “Special Autonomous Region.” Pursuant to that status, Hong Kong has enacted its own E-commerce law—the ELECTRONIC TRANSACTIONS ORDINANCE (hereinafter “ETO”), Order No. 1 of 2000. For an article covering the E-Signature Law and CA Regulations of Hong Kong, see Blythe, supra note 50. To date, Macau has not enacted its own E-commerce law, although it could do so if it desired. In 2001, Macau did enact its own “telecom” law—the TELECOMMUNICATIONS BASIC LAW, available at http://www.gdtti.gov.mo/eng/laws/14_2001.htm. Furthermore, the ESL and the CAR do not apply in the so-called “renegade” province of Taiwan; it, too, has enacted its own legislation—the ELECTRONIC SIGNATURE LAW of 2002, http://www.mantraco.com.tw/electronics
233 CAR, supra note 24, art. 4. See also ESL, supra note 23, art. 18.
7 Chi.-Kent J. Intell. Prop. 22
C. Seven Basic Requirements

The MII will not issue a license until it is satisfied that the applicant organization (1) is an autonomous legal entity; (2) has at least 30 employees (including technicians, operators, managers, security and customer service personnel); (3) is capitalized in the amount of at least thirty million Yuan; (4) maintains an appropriate physical business site with an adequate environment; (5) possesses equipment and technology that meets or exceeds the national safety standards; (6) has been approved by the federal government’s “encryption management” agency to be allowed to use passwords; and (7) has complied with any other laws or regulations that may apply.237

D. Initial Application and its Processing by MII

The prospective CA will submit an application package to the MII.238 The package must contain (1) a completed application form; (2) affidavits prepared by the applicant’s technical and managerial personnel, attesting to their qualifications; (3) affidavits pertaining to the amount of capital held by the applicant and the characteristics of the proposed business location; (4) the document prepared by the safety regulatory agency, attesting that the applicant’s equipment and proposed business site meet the national safety standards; and (5) a confirmation from the national encryption agency that it has granted the applicant permission to use passwords.239

Upon receipt of an application, the MII will quickly review it to ensure that it complies with form requirements.240 If it is not in the proper form, the MII will not accept it.241 If the form is acceptable, the MII will next consider the substance242 of the application. If necessary in order to verify the contents of the application, the MII may dispatch two or more inspectors to visit the applicant’s proposed place of business.243 The CAR also requires the MII to consult with the Ministry of Commerce to verify that the applicant has the status of a separate legal entity and other relevant matters.244

The MII must issue a decision to the applicant within 45 days of receipt of the application.245 If the decision is negative, the MII is required to inform the applicant in writing of the reasons for denial of the application.246 If the decision is positive, it will issue the license247 to the applicant248 and will provide the general public with the following information: (1) the

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235 CAR, supra note 24, art. 6-10 and 14.
236 Thirty million Yuan is approximately 3.75 million U.S. dollars.
237 CAR, supra note 23, art. 5. These are the more detailed aspects of the general requirements laid out in the ESL, supra note 23, art. 17.
238 CAR, supra note 24, art. 6.
239 Id.
240 Id. at art 7.
241 Id.
242 Id. at art. 8. In the English translation of the CAR, substance is referred to as the “essence” of the application.
243 Id.
244 Id. at art. 9.
245 Id. at art 10. See also ESL, supra note 23, art. 18
246 Id. supra note 24, art. 10.
247 In the English translation of the CAR, the license is referred to as a “Permit for Electronic Certification Services.”
248 CAR, supra note 24, art. 10.

7 Chi.-Kent J. Intell. Prop. 23
name of the CA; (2) the serial number on the license; (3) the date of issuance of the license; and (4) the fact that the MII regulates CA’s. The license will be valid for five years.\textsuperscript{249} If any of the information changes during the five years after the license’s issuance, the MII has a duty to inform the public of the changes in a timely manner.\textsuperscript{250}

### E. CA’s Duty to Post Information

The MII requires the new CA to file a copy of its license with the administrative agency for industry and commerce.\textsuperscript{251} Furthermore, before beginning to provide CA services, the CA must post the following information: (1) its legal name and registered agent;\textsuperscript{252} (2) the location of its domicile and the preferred means of contacting the CA; (3) the location of the CA’s domicile and the preferred means of contacting the CA; (4) the date of issuance of the license and the name of the agency—MII—that issued it; and (5) the period of validity of the license.\textsuperscript{253} During the license period, if changes occur in the CA’s name, domicile, legal agent or the amount of capital, the CA is required to post the changes on its website within five days of the changes.\textsuperscript{254} Additionally, the CA is required to report the changes to the MII within fifteen days of the changes.\textsuperscript{255}

### F. Application for Renewal of the License

The CA must apply to the MII for a renewal of the license at least thirty days before the expiration date.\textsuperscript{256} If the MII approves the renewal, the CA must post the new information (e.g., the new license period) on its website within five days.\textsuperscript{257}

### G. CA Services

The CAR requires the CA to disseminate its operating rules and to inform the subscriber of conditions pertinent to issuance of the certificate. Certain guarantees are made by the CA which should lead to specific outcomes. The CAR requires the CA to maintain confidentiality of information. The CAR also controls voluntary and involuntary termination of the CA’s business.

#### 1. Posting of CA’s Operating Rules

Before beginning to offer its services to the public, each licensed CA must prepare a list of policies, procedures, and rules that it will generally follow when providing its services.\textsuperscript{258}

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\textsuperscript{249} Id.

\textsuperscript{250} Id.

\textsuperscript{251} Id. at art. 11. See also ESL, supra note 23, art. 18(2).

\textsuperscript{252} Apparently, this will facilitate the serving of process upon the CA if it is sued.

\textsuperscript{253} CAR, supra note 24, art. 12. See also ESL, supra note 23, art. 18(3).

\textsuperscript{254} CAR, supra note 24, art. 13.

\textsuperscript{255} Id.

\textsuperscript{256} Id. at art. 14.

\textsuperscript{257} Id. This is the same posting procedure mentioned in CAR, supra note 24, art. 12.

\textsuperscript{258} CAR, supra note 24, art. 15; see also ESL, supra note 23, art. 19. This idea originated in the United States, where the CA-generated rules statement is referred to as a “Certification Practice Statement.” See ABA, Digital Signature Guidelines available at http://www.abanet.org/scitech/ec/isc/dsgfree.html. Hong Kong also uses the term “Certification Practice Statement” and has largely adopted the U.S. standards and procedures for preparation of the CPS, they may be found in the Hong Kong Code of Practice for Recognized Certification Authorities, Section 4 and Appendix 1, http://www.ogcio.gov.hk/textonly/eng/earo/esub3.htm. See Blythe, supra note 50.
They must be posted at the CA’s website before it accepts subscribers, and it must file a copy with the MII. The CA must promptly post changes made to these practices, procedures, and rules at its website and must report changes to the MII within thirty days after posting them.

2. Informing the Subscriber

Before agreeing to issue a certificate to an applicant, the CA must inform the applicant of (1) any conditions placed upon the usage of the e-signature and the e-signature certificate; (2) how the fees are computed; (3) the applicant’s duty to protect the private key and other confidential information, and liability incurred if the applicant fails in this duty; (4) the CA’s duties and liabilities; and (5) other information as necessary. To ensure that the applicant is fully aware of the duties and liabilities of both parties, the CA and the subscriber should enter a contract.

3. Guaranteed Services

CAs guarantee to (1) create, issue, and manage e-signature certificates; (2) confirm the authenticity of e-signature certificates that it has issued; and (3) provide an online information search service pertaining to the current status of e-signature certificates it has issued.

H. Expected Outcomes

The CAR considers the CA’s services successful when the CA is able to (1) ensure the accuracy of the issued e-signature certificates during the period of their validity, (2) guarantee relying third parties that they will be kept apprised of developments pertaining to the e-signature certificates, and (3) maintain confidentiality of private information garnered during the CA’s services.

I. Privacy of Information

The CA will be liable to subscribers and to relying third parties for violating their right of privacy of personal information. In order to maintain confidentiality, the CA should establish “well-developed confidentiality systems,” adopt good “safety management and internal auditing systems,” and obey the national confidentiality laws and the MII regulations.

J. Voluntary Termination of the CA’s Business

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259 CAR, supra note 24, art. 15.
260 Id.
261 Id.
262 Id.
263 Id. at art. 21.
264 Id. at art. 22.
265 Id. at art. 17; see also ESL, supra note 23, art. 22.
266 Id. at art. 18; see also ESL, supra note 23, art. 15.
267 Id. at art. 19.
268 Id.
269 Id. at art. 19.
270 Id. at 20; see also ESL, supra note 23, art. 15.
271 CAR, supra note 24, art. 19.
If a CA decides to go out of business before the end of its period of licensure, it must notify all subscribers and reliant third parties at least 90 days before business activity ceases. The CA must inform subscribers of details pertaining to “succession of services” and other relevant matters.\footnote{Id. at art. 24(1); see also ESL, supra note 23, art. 23(1).}

At least 60 days before going out of business, the CA must make an application to the MII to cancel the license. After the MII cancels the CA license, the CA must present the cancellation confirmation to the governmental department for industry and commerce to cancel its registration there.\footnote{CAR, supra note 24, art. 23; see also ESL, supra note 23, art. 23(2).}

At least 60 days before going out of business, the CA must also begin to look for another CA to assume its role after it exits.\footnote{CAR, supra note 24, art. 24(2); see also ESL, supra note 23, art. 23(2).} If it is unable to find another CA to assume its duties, then the CA must ask the MII to request some other CA to assume its duties.\footnote{CAR, supra note 24, art. 25; see also ESL, supra note 23, art. 23(3).} If no other CA is willing to take over the departing CA’s duties voluntarily, then the MII has the authority to compel another CA to take over the departing CA’s duties.\footnote{CAR, supra note 24, art. 27; see also ESL, supra note 23, art. 23(3).}

\textbf{K. Revocation: Involuntary Termination}

The MII may revoke the license of any CA that fails to carry out its duties properly.\footnote{CAR, supra note 24, art. 26; see also ESL, supra note 23, art 23(4).} In that case, the MII has the discretion to handle the situation as it sees fit.\footnote{CAR, supra note 24, art. 27; see also ESL, supra note 23, art. 23(3).} The MII will look for another CA to take over the duties of the departing CA and, if necessary, may compel another CA to take over those duties.\footnote{CAR, supra note 24, art. 26.}

\textbf{L. Electronic Signature Certificates}

The CAR requires specific contents of Certificates, grounds for their cancellation, and means of verification of the subscriber’s identity.

\textit{1. Mandatory Contents of Certificates}

When issuing a certificate, the CA must ensure that it contains (1) the name of the CA company; (2) the name of the subscriber; (3) a serial number; (4) the effective date and the expiration date; (5) the e-signature verification data of the subscriber; (6) the CA’s e-signature; and (7) other information that the MII may require.\footnote{CAR, supra note 24, art. 28; see also ESL, supra note 23, art. 21.}

\textit{2. Grounds for Cancellation of Certificates}
Any of the following is sufficient justification for the CA to cancel a certificate it has previously issued: (1) the subscriber requests it to be cancelled; (2) the CA learns that some of the information provided by the subscriber is false; (3) the subscriber fails to carry out his contractual obligations; (4) the security of the certificate is in doubt; or (5) other circumstances pursuant to law or regulations.\(^{281}\) In each of the above situations, the CA is not required to cancel the certificate, but cancellation is within its discretion.\(^{282}\) The CA would probably cancel in these situations in order to avoid enhanced legal liability.\(^{283}\) If the CA decides to cancel, the CA must post a notice on its website.\(^{284}\)

### M. Verification of Subscriber’s Identification

The CA is required to verify all information pertaining to the identity of (1) an applicant for a certificate; (2) a subscriber applying for a renewal of a certificate; and (3) a subscriber applying for cancellation of a certificate.\(^{285}\)

### N. Government Oversight of CAs

CAs must uphold high standards of service during the period of their licensure.\(^{286}\) Accordingly, the CAR mandates CAs to give training to employees to ensure they are fulfilling their duties properly.\(^{287}\)

In order for the government to provide sufficient oversight, it requires the CA organization to submit timely and accurate statistical information and reports to the MII regarding its activities.\(^{288}\) However, reports are not enough to provide effective oversight. Every year, the MII will conduct an on-site inspection of the CA in order to verify the information contained in the reports.\(^{289}\)

In exceptional situations, the MII, acting through its subordinate departments at the provincial level, has the authority to directly supervise and to administer the affairs of a CA.\(^{290}\)

### O. Punishment Provisions

If a CA files fake documents, is deceptive, or gives false information to the MII pertaining to its activities, the MII shall order the CA to “make a correction.”\(^{291}\) Furthermore, the MII shall issue a warning to the CA, or may fine the CA in the range of 5,000 to 10,000 Yuan.\(^{292}\)

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281 CAR, supra note 24, art. 29.
282 Id.
283 ESL, supra note 23, art. 27.
284 CAR, supra note 24, art. 31. As mentioned, the CA also is required to post a notice on its website when a license is renewed; ESL, supra note 23, art. 18(3).
285 CAR, supra note 24, art. 30. See also ESL, supra note 23, art. 20.
286 CAR, supra note 24, art. 33.
287 Id. at art. 35.
288 Id. at art. 34.
289 Id. at art. 32.
290 Id. at art. 36; see also ESL supra note 23, art. 23(4). The maximum allowable duration of the supervision or the administration is not specified. Id.
291 CAR, supra note 24, art. 37.
292 Id. This range corresponds to approximately U.S. $ 620-$1240.
If a CA fails to abide by the CA regulations, or fails to take over the duties of another CA after the MII asks it to do so, the MII shall order it to make a correction within a time limit. Furthermore, the MII will issue the CA a warning and/or fine the CA in an amount up to 10,000 Yuan.

If a CA fails to maintain the high caliber of standards that it expressed in its application for the license, the MII shall order the CA to “make a correction within a time limit.” Furthermore, the CA must pay a fine of not more than 30,000 Yuan. The CA Regulations are also cognizant of the possibility of corruption within the MII. To discourage this behavior, the CAR mentions several possible administrative sanctions: “warning, demerit recording, major demerit recording, degradation, dismissal from post, or removal from office,” according to the circumstances of each case. Additionally, if an MII official commits a crime, that official will be subject to penalties pursuant to the criminal law.

P. Impact of ESL on Previously Existing CAs

CAs in operation before the promulgation of the CA Regulations were given a “grace” period—until October 1, 2005—to get their license pursuant to the CA Regulations. After October 1, 2005, no CA may continue to offer its services without a license. CAs in operation before the promulgation of the CA Regulations that plan to terminate their services must follow the termination procedures specified in the CA Regulations.

Q. Reciprocal Recognition of Validity of Foreign Certificates

China recognizes the legal validity of a certificate that a foreign CA issued in a foreign country, provided: China has concluded a reciprocal treaty with the foreign country, in which the two countries have agreed to recognize each other’s certificates; and the MII has ratified the certificate pursuant to the “relevant agreement or reciprocal principles.” If recognized, the

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293 Id. at art. 16.
294 Id. at art. 27; see also ESL, supra note 23, art. 23(3).
295 CAR, supra note 24, art. 39.
296 Id. Ten thousand Yuan is approximately U.S. $ 1240.
297 Id. at art. 33.
298 Id. at art. 40.
299 Id. Thirty thousand Yuan is approximately U.S. $ 3720.
300 Id. at art. 38. The CA Regulations of the Hong Kong Special Autonomous Region do not contain an anti-corruption provision; see, respectively: Stephen E. Blythe, supra note 34, and ELECTRONIC SIGNATURES IN GLOBAL AND NATIONAL COMMERCE ACT (“E-Sign”) sec. 101-104, codified at § 15 U.S.C. 7001-31 (2000).
301 CAR, supra note 24, art. 38; see also ESL, supra note 23, art. 33.
302 CAR, supra note 24, art. 38.
303 Id. See also ESL, supra note 23, art. 33.
304 CAR, supra note 24, art. 41.
305 Id.
306 Id.
307 Id. at art. 42. In the United States, the E-Sign Act mandates the U.S. to “Take a nondiscriminatory approach to electronic signatures and authentication methods from other jurisdictions”, infra note 310, sect. 301(a)(2)(D).
foreign-issued certificate will have “equal legal binding force” as a certificate issued within China pursuant to the CA Regulations.  

V. Conclusion

China is on the verge of a tremendous upsurge in e-commerce transactions. China’s new e-signature law and CA Regulations are expected to play an important role in this regard and to accentuate this phenomenon.

China implemented the ESL on April 1, 2005 to provide for legal recognition of e-signatures in e-commerce transactions. The ESL gave an e-signature the same legal effect as if it were a handwritten one, or one made with a seal. This removal of the legal impediments toward electronic “signing” should facilitate the development of e-commerce in China. China recognizes all forms of e-signatures (including digital signatures), as long as they meet basic standards of reliability. If the transacting parties choose to use a digital signature, they will be employing asymmetric cryptology, public key infrastructure, and will be interacting with Certification Authorities (“CA”).

China has a “compulsory” system of regulating CAs; it requires CA’s to hold a license issued by the designated governmental agency, the Ministry of Information Industry (“MII”). An advantage of a compulsory system is that the government may be able to impose more stringent security and trustworthiness requirements than a voluntary system would. Accordingly, CAs in China should be able to provide a relatively high degree of security to their subscribers. Pursuant to the ESL, the MII issued its Measures for the Administration of Electronic Certification Services (“CA Regulations”). These are detailed policies, procedures, and rules applicable to CAs that became effective on April 1, 2005. The CA Regulations specify how to carry out the functions of a CA, and include requirements pertaining to the CA’s self-generated set of standard operating procedures (the “CPS”). The CA and the CPS play an important role in the attaining of governmental oversight over the activities of CAs. Furthermore, the CA is legally liable to both subscribers and relying third parties, and, in litigation, the CA will have the legal burden of proof to show that it was not negligent. Therefore, while the ESL is rather liberal in recognizing the validity of several forms of e-signatures, simultaneously it has taken a rather conservative, stringent approach toward regulating CAs. In the opinion of the author, both of these are positive developments.

However, one criticism of the government’s promulgating so many minute regulations of CAs is that it runs counter to a basic trend in worldwide electronic signature law—minimizing regulatory control by the government. The “minimalists” argue that digital signatures should be controlled more by market forces than by governmental ones. One of the counter-arguments to this point of view, however, is that the digital signature is not required for private e-commerce transactions in China. China does not confine transacting parties to utilizing a digital signature, leaving them free to choose another form of electronic signature and avoid altogether the rather stringent regulatory rules that govern CAs. A party “opting out” of the digital signature, though, may later regret that decision; that party would ordinarily have a less secure type of e-signature than that afforded by the digital signature.  

308 CAR, supra note 24, art. 42.  

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A. Recommendations

The Electronic Signatures Law and Certification Authority Regulations establish a good basic framework for the attainment of secure e-commerce transactions in China. They do not go far enough, however; improvements are needed.

The following additions should be considered:

1. The stringent controls placed on the CA minimize the likelihood that the CA will commit illegal acts. However, the greatest potential threat to the online consumer is often neither the CA nor the computer hacker—it is the online seller! The present computer laws in China do not sufficiently protect the naïve cyber-buyer from the unscrupulous cyber-seller.309 Consumer protections are needed, such as: (a) requirements mandating the cyber-seller to promptly give a confirmation notice to the cyber-buyer regarding the details of the purchase after it has been consummated;310 (b) a brief window of opportunity after consummating the purchase—about

309 China has already written some commendable legislation pertaining to consumer rights: at the federal level, the CONSUMER PROTECTION LAW OF THE PEOPLE’S REPUBLIC OF CHINA (1993), and the PRODUCT QUALITY LAW OF THE PEOPLE’S REPUBLIC OF CHINA (1993), http://www.lawinfochina.com/dispecontent.asp?db=1&id=1834. At the municipal level, the REGULATIONS OF SHANGHAI MUNICIPALITY ON CONSUMER LEGITIMATE RIGHTS AND INTERESTS PROTECTION (1994 Amended), http://www.lawinfochina.com/dispecontent.asp?db=1&id=967. Both were enacted before the emergence of E-commerce and do not sufficiently address the needs of cyber-buyers.

310 The consumer disclosures could be paraphrased from those in the U.S. Electronic Signatures in Global and National Commerce Act (“E-Sign”)

1. If the seller is already required to give information to the consumer in writing, provision of the information in electronic form is only allowed if:
   a. the buyer consents to the electronic form (and has not withdrawn consent); and
   b. prior to the consent, the consumer was informed in a “clear and conspicuous statement,”
      i. that he/she is not mandated to accept the electronic form, he/she may refuse to accept it, and he/she was informed of the right to withdraw the consent (and any penalties incurred because of withdrawal of consent);
      ii. whether the consent applies only to the particular transaction currently under consideration, or other transactions as well;
      iii. how to withdraw consent and how to electronically update contact information of the buyer;
      iv. how the buyer may obtain a paper copy of an electronic record, and the amount of fee (if any) charged for the copy; and
   c. the consumer:
      i. before consenting, was given a statement of the required computer hardware and software necessary to access the electronic records; and
      ii. consented electronically, “in a manner that reasonably demonstrates” that the consumer possesses enough computer knowledge and understanding to be able to “access information in the electronic form that will be used to provide the information that is the subject of the consent;” and
   d. after consent has been given, if a change in the hardware or software required to access electronic records leads to a “material risk” that the consumer won’t be able to obtain access in the future, or to retain an electronic document in the future, then the seller must:
      i. provide the buyer a statement of the revised hardware and software requirements, with notice that the buyer may now withdraw the consent previously given without imposition of a fee or a penalty; and
      ii. again comply with (c), above.

2. These provisions do not affect or replace any other disclosures to the consumer which may be required under another statute, regulation or rule of law.

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seven days—with which a cyber buyer should be able to change her mind and back out of the order; (c) controls are needed over cyber-sellers’ telephone calls to cyber-buyers; (d) rules for a cyber-seller who runs out of stock, but is already committed to supplying a good to a cyber-buyer; (e) prohibitions of misleading, deceptive or fraudulent advertising by a cyber-seller; and (f) rules pertaining to cyber-sellers who maintain a database of consumers’ private information without their consent. Iran’s e-commerce consumer protections are useful as a model for items (b) through (f). 311

2. A comprehensive computer crimes statute needs to be enacted. The statute should include the following crimes: (a) Unauthorized Access to Computer Material, (b) Unauthorized Tampering with Computer Information, (c) Unauthorized Use of a Computer Service, (d) Unauthorized Interference in the Operation of a Computer, and (e) Unauthorized Dissemination of Computer Access Codes or Passwords. The Singapore Computer Misuse Act can be used as a model. 312

3. Because of the specialized knowledge often required in adjudicating e-commerce disputes, China should establish Information Technology Courts as courts of first instance for such disputes. The I.T. Courts would be tribunals consisting of three experts. The chairperson would be an attorney versed in e-commerce law, and the other two persons would be an I.T. expert and a business management expert. The attorney would be required to hold a law degree and be a member of the bar with relevant legal experience; the I.T. person would be required to hold a graduate degree in an I.T.-related field and have experience in that field; and the business management expert would be required to hold a graduate degree in business administration and have managerial experience. The e-commerce law of the Kingdom of Nepal is a useful model. 313

4. E-government—offering of governmental services in electronic form—needs to be implemented by making it a part of the e-commerce statutes. China should undertake planning to pinpoint the governmental departments that would reap the greatest cost savings with e-government, and allocate I.T. resources to those departments. Additionally, China needs to develop implementation schedules for e-government with specific deadlines for completion. E-government implementation would be a very worthwhile endeavor because it would increase

3. Withdrawal of consent in (1), above, does not affect the legal validity of electronic records provided to the buyer before the consent was withdrawn. The buyer’s withdrawal of consent is effective “within a reasonable time” after receipt of the withdrawal by the seller. The buyer may elect to treat a failure of the seller to comply with (1)(d), above, as a withdrawal of consent.

E-Sign, ss 101(c)(1)(A)—(D), 101(c)(2)(A), and 101(c)(4). (Emphasis added.) The “clear and conspicuous” requirement means just what it says—this notice should be in plain view, not hidden and accessible only by clicking on an inconspicuous link which can be easily overlooked.

MLEC supra note 37, articles 36-39, 50-53 and 58.


convenience for citizens, improve efficiency, and reduce government expenses. The e-commerce statutes of the Republic of South Korea\textsuperscript{314} and Finland\textsuperscript{315} are useful models.

\textbf{B. A Final Thought}

An ancient Chinese proverb states, “[a] journey of a thousand miles must begin with a single step.” China’s Electronic Signature Law is a good first step, but it is only that. The law needs additions, and the author anticipates them. The government of China seems to realize the importance of having progressive e-commerce law. They understand that it is one of the keys to achieving the e-commerce boom that many are predicting. Accordingly, expect the e-commerce law of China to be continually updated. The law implemented in 2005 merely marks the beginning of the journey and not the destination.

\textsuperscript{314} Korean Legislation Research Institute (hereinafter “KLRI”), FRAMEWORK ACT ON ELECTRONIC COMMERCE, art. 27, published in Statutes of the Republic of Korea, Vol. 13, pp. 395-400 (1999). The KLRI is an independent non-profit organization funded by the government of the Republic of South Korea. The KLRI’s charge is to translate all of the Korean federal statutes into English. They do an admirable job of this and the Statutes’ twenty volumes, in loose-leaf form, are continually updated. This is one of the Korean government’s globalization thrusts. Of course, the “official” statutes are the ones in Korean Language as originally enacted. However, given that the KLRI’s work is financed by the Korean government, the English-Language versions of the Statutes used in research for this article could be described as “quasi-official.” See Blythe, supra note 43.