



## **The Role of Economic, Cultural, and Legal Backgrounds**

### **in the ICT Law:**

### **A Particular Examination on the Regulation of Electronic Signatures**

Minyan Wang\*

Centre for Commercial Law Studies

Queen Mary, University of London

[m.wang@qmul.ac.uk](mailto:m.wang@qmul.ac.uk)

#### **Abstract**

*This paper intends to explore how the different backgrounds, including economic development, culture, and legal system, impact on the regulation of electronic signatures (e-signatures). Are they relevant in such regulation and why? To what extent and in what way they have an impact on such regulations? It attempts to examine these issues from an international and comparative perspective. It will choose four countries with completely different economic, cultural, and legal backgrounds – The US, the UK, Germany and China to analyse and compare. It is argued in this paper that the different backgrounds seem not significant in deciding the entry of e-signatures regulation. The less significance of the different backgrounds on entry of such regulations, however, does not result in an agreement or similarity on how e-signatures should be regulated. The different backgrounds have an impact on the design of e-signatures law as different jurisdictions take different views on the development of e-signature technologies and the role of governments in regulating e-signatures. More effort is needed to build a coherent regulatory framework on e-signatures around the world.*

---

\* The author would like to thank Professor Chris Reed for comments on an earlier draft of this article. Any errors are my own responsibility.

**Key words:** Signature, Electronic Signature, Information and Communication Technology Law

## 1. Introduction

The development of advanced technology, especially the advent of the Internet, greatly changes the ways in which people communicate and conduct the business. The Internet allows people to negotiate and transact without meeting or even knowing each other. However, it also places challenges on certain action which cannot be achieved in the electronic environment. For example, people cannot sign a document through the Internet where signing a document was usually thought to write down the name on a paper document. Electronic signatures (e-signatures) are developed to cater for this need.

An e-signature can be defined generically as “data in an electronic form in, affixed to or logically associated with, a data message, which may be used to identify the signatory in relation the data message and indicate the signatory’s approval of information contained in the data message”.<sup>1</sup> There are different types of e-signatures providing different levels of security. They include biometric records, scanned manuscript signatures, typing a name on electronic documents, digital signatures, etc. The digital signature utilises a Public Key Infrastructure (PKI), using a pair of keys – a private key kept by the sender to encrypt the message and a public key available to the public to decode the message. It is often perceived as offering a higher degree of security than any other e-signatures.<sup>2</sup> To ensure that the digital signature belongs to the signatory, Certification Authorities (CAs) are introduced to issue ID certificate to verify the identity of the signatory and that the sender does in fact control the private

---

<sup>1</sup> UNCITRAL, 2001, The Model Law on E-signature 2001, available at: [www.uncitral.org](http://www.uncitral.org). (last visited on 24 Feb. 06)

<sup>2</sup> Scoville, A. W., “Clear Signature, Obscure Signs, (1999) 17 *Cardozo Arts & Ent. L.J.* p.361; see also, Koger J. L., “You Sign, E-sign, We all Fall Down: Why the United States Should not Crown the Marketplace as Primary Legislator of E-signatures”, (2001) 11 *Transnal’l L. & Contemp. Probs.* 501.

key.

Although the e-signature technologies resolve the technical problem of signatures in transactions, they place great challenges on the validity of such e-signatures in law. Do they fulfil the requirement of signatures? Are they valid when used in a transaction? This uncertainty was thought to stifle the development of e-signature technology and e-commerce. Therefore, recent years have seen the adoption of numerous laws and regulations of e-signatures across the world to recognise e-signatures.<sup>3</sup> Despite of the difference in economy, culture and legal system between different jurisdictions, certain levels of legislation and legal reform have been taken or proposed by national governments in the last decade. It raises the question whether the information and communications technology (ICT) development makes the different backgrounds irrelevant in such regulations. If not, what kind of role do they play in such regulations?

This paper intends to examine this issue from an international and comparative perspective and therefore particularly look at four countries - the US, the UK, Germany and China. They are strong representatives of eastern and western countries, developed and developing countries, common and civil law countries. It will first identify the different economic, cultural, and legal backgrounds in these four countries. Second, the current regulatory status in these four countries will be critically examined and compared. Third, whether the different backgrounds are relevant to such regulation and why? To what extent and in which way? And last, there will be conclusion.

## **2. The different economic, cultural and legal backgrounds**

The world is multifarious, with different economic, cultural and legal backgrounds in each jurisdiction. It is impossible here to explore every country's economic, cultural

---

<sup>3</sup> Brazell, L., *Electronic Signatures Law and Regulation*, 1st Ed, London: Sweet & Maxwell, 2004, P. 2.

and legal backgrounds. And therefore this paper would like to look at four countries with completely different backgrounds, the US, the UK, Germany and China.

### 2.1 Economic gap between developed and developing countries

The economic development around the world is uneven and there is huge gap between developed and developing countries. For example, the US remains the main engine of world economic growth.<sup>4</sup> Although the developing countries, such as China and India, are playing a more and more important role in the world, the gap between them is still large. For instance, the US has the most powerful economy in the world with Gross Domestic Product (GDP) of \$12,485.7 billion and per capita GDP of \$41,800 in 2005<sup>5</sup> The UK is a leading trading power and financial centre and one of the strongest in Europe with per capita GDP of \$30, 900. Germany, a technologically powerful economy, has per capita GDP of 29,700. On the other hand, with rapid economic development in the last few decades among developing countries, China announced its GDP in 2005 is RMB18,231.1 billion.<sup>6</sup> However, its per capita GDP is only ranked 118 in the world. Most developed countries adopted the market-oriented economy.<sup>7</sup> The private individuals and business firms enjoy more freedom, and the governments carry out intervention only when necessary. Although China has gradually changed from a centrally planned system to a more market-oriented economy, the government still plays an important role in the private sector.

With the development of advanced technology development, the gap between developed and developing countries was widen instead shorten. The developed countries have more economy power to construct the infrastructure needed to develop e-commerce; while in the developing countries, the inefficient infrastructure was regarded as a big barrier to e-commerce development. Despite of this, the market on

---

<sup>4</sup> United Nations, "World Economic Situation and Prospect 2006", at [http://www.un.org/esa/policy/wesp/wesp2006files/es\\_2006\\_english.pdf](http://www.un.org/esa/policy/wesp/wesp2006files/es_2006_english.pdf) (last visited on 5 Mar. 2006)

<sup>5</sup> See a news from Bureau of Economic Analysis, U.S. Department of Commerce, <http://www.bea.gov/bea/dn/gdplev.xls> (last visited on 6 Mar. 2006)

<sup>6</sup> <http://finance.sina.com.cn/g/20060125/10032305363.shtml> (Chinese, last visited on 6 Mar. 2006)

<sup>7</sup> <http://www.cia.gov/cia/publications/factbook/rankorder/2004rank.html> (last visited on 7 Mar. 2006)

the industry of e-signatures as well as e-commerce have not been fully developed in both developed and developing countries.

## 2.2 Cultural diversity between eastern and western countries

As we know, cultures across the world are diverse, which affect people's daily life, behaviour, attitude and value. What is culture? There are, however, many different definitions. In this paper, Hofstede's definition would be adopted as his definition and research on culture was regarded very influential, unique and significant.<sup>8</sup> Hofstede defined 'culture' as "the mental programming-software of the mind",<sup>9</sup> and refers to 'national culture', which is the collective programming of the mind acquired by a country<sup>10</sup>. He also divided culture into two dimensions: individualism vs. collectivism, which has been applied in social science, such as philosophy, sociology, politics, economics and psychology, etc. Individualism vs. Collectivism refers to the relations between individual and his/her family or fellows.<sup>11</sup> The distinction between individualism and collectivism are thought to be the main reason of the difference between national cultures.<sup>12</sup> Individualism refers to the loose relationship between individuals in one society, and everyone only look after himself or herself and his or her immediate family.<sup>13</sup> *Collectivism* refers to the close relationship in one society where strong and cohesive groups are formulated to protect individuals in exchange for unquestioning loyalty.<sup>14</sup> Triandis argues that all the cultures have the characteristics of individualism and collectivism and one culture may weigh

---

8 Mead, R. *International management: cross-cultural dimensions* (2nd. Ed). Blackwell Publishers Inc, 1998

9 Hofstede, G. *Cultures and organizations: soft ware of the mind*. McGraw-Hill Book Company, 1991, p.4.

10 Ibid; see also Hofstede, G., *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations* (2nd Ed.). London, Sage Publications, Inc, 2001.

11 Ibid.

12 Zandpour, F., & Harich, K. R. "Think and feel country clusters: A new approach to international advertising standardization", (1996) 15 *International Journal of Advertising* 325-344.

13 Ibid.

14 Ibid.

individualism more than others.<sup>15</sup>

In most western countries, such as the US and the UK, the individualism characteristics are more obvious than those of collectivism. This might have an impact on the role of the governments. The individuals are more concerned with their own rights and the governments could not jeopardize the human right when carrying out actions. In the contrary, the characteristics of collectivism are more distinct in most eastern countries, such as China. For instance, people get used to resort to the governments and regard governments' decision authoritative and irrefutable. Although there are increasing awareness of individual's right and the constant efforts by the governments to protect individual's rights, the influence of collectivism in people's mind is ineradicable.

### 2.3 Legal distinction between common and civil law countries

The legal systems in the world could be generally divided into two categories: Common and Civil law systems. The civil law is a codified system of law where legislation is the primary source of law.<sup>16</sup> The judge decides a case by applying and interpreting the provisions of codes and statutes. The former decisions do not control the court in later cases. In the contrary, under the common law, cases are the primary source of law. The judge in later decisions must comply with the precedents. Therefore, the role of the judges in common law is much greater than the civil law. However, it is argued that these two legal systems are convergent because the common law countries have been and are increasingly legislating the statutes and codes in many areas of law, while the judges in civil law jurisdiction increasingly rely

---

<sup>15</sup> Triandis, H. C. "Theoretical and methodological approaches to the study of collectivism and individualism". In U. Kim, H. Triandis, C. Kagitcibasi, & G. Yoon, (Eds.), *Individualism and Collectivism: Theory method, and applications*, 1994, Vol 18, p41-51. Thousand Oaks, California: Sage Publications.

<sup>16</sup> For a detailed study of the civil law system, please see James G. Apple & Robert P. Deyling, "A Primer on the Civil-Law System", 1995, at: [http://www.fjc.gov/library/fjc\\_catalog.nsf/autoframepage!openform&url=/library/fjc\\_catalog.nsf/DPublication!openform&parentunid=A18D33FC1E8F0EB085256CA30067C10B](http://www.fjc.gov/library/fjc_catalog.nsf/autoframepage!openform&url=/library/fjc_catalog.nsf/DPublication!openform&parentunid=A18D33FC1E8F0EB085256CA30067C10B) (last visited on 7 Mar. 2006)

on the precedents.<sup>17</sup>

The US is federal court system based on English common law. Each state has its own legal system, most of which is also based on English common law. The UK is a strong representative of the common law countries. Germany and China belong to civil law countries. Since this paper will particularly examine the regulation of e-signatures, it will first look at the legal status of 'signatures'.<sup>18</sup> There is, however, no clear answer on what constitute a legally valid signature in most jurisdictions.<sup>19</sup> The concept of a signature seems to have been taken for granted or assumed.

### 2.3.1 The UK

It was generally held under the English law that a signature could be regarded valid regardless of its form, provided that it is to **authenticate the document**.<sup>20</sup> For example, seals (for some but not all types of document)<sup>21</sup>, pseudonyms<sup>22</sup> and identifying phrases<sup>23</sup>, printed names<sup>24</sup> and rubber stamps<sup>25</sup> are given legal validity in the relevant cases. The court firstly refers to whether the form used falls within the range of previous forms of signatures, and then to the functions performed by the

---

<sup>17</sup> Caslav Pejovic, "Civil Law and Common Law: Two Different Paths Leading to the Same Goal", at <http://www.upf.pf/recherche/IRIDIP/RJP/RJP7/16Pejovic.doc> (last visited on 13 Mar. 06); D N MacCormick and R S Summers (eds) *Interpreting Statutes: A Comparative Study* (Dartmouth, Aldershot, 1993) and D N MacCormick and R S Summers *Interpreting Precedents: A Comparative Study* (Dartmouth, Aldershot, 1997).

<sup>18</sup> The examination in this section will be based on the laws applicable to all signatures, which do not include the laws that are specifically about e-signatures.

<sup>19</sup> The exception might be France. See Art. 1316-4 of the Civil Code, which provides that "The signature necessary to the execution of a legal transaction identifies the person who apposes it. It makes clear the consent of the parties to the obligations which flow from that transaction. When it is apposed by a public officer, it confers authenticity to the document." [http://www.legifrance.gouv.fr/html/codes\\_traduits/liste.htm](http://www.legifrance.gouv.fr/html/codes_traduits/liste.htm). (last visited on 13 Mar. 06)

<sup>20</sup> Chris Reed, "What is a Signature" 2000, 3 *the Journal of Information, Law and Technology (HILT)*. <http://elj.warwick.ac.uk/jilt/00-3/reed.html>. (last visited on 13 Mar. 06)

<sup>21</sup> *In re Doe d. Phillips v. Evans* 2 LJ Ex 193 (signature by seal valid for purposes of Insolvency Act); *in re Byrd* 3 Curt 117 (signature by seal invalid for purposes of Wills Act).

<sup>22</sup> *Redding, in re* (1850) 14 Jur 1052, 2 Rob. Ecc. 339.

<sup>23</sup> *Cook, In the Estate of (Deceased). Murison v. Cook and Another*, [1960] 1 All ER 689 (holograph will signed 'your loving mother')

<sup>24</sup> *Brydges v. Dix* (1891) 7 TLR 215; *France v. Dutton*, [1891] 2 Q.B. 208. Typewriting has also been considered in *Newborne v. Sensolid (Great Britain), Ltd.* [1954] 1 QB 45.

<sup>25</sup> *Ex parte Dryden* (1893) 14 NSW 77; *Goodman v J Eban LD* [1954] 1 QB 550; *London County Council v. Vitamins, Ltd., London County Council v. Agricultural Food Products, Ltd.* [1955] 1 QB 45; *Lazarus Estates, Ltd. v. Beasley* [1956] 1 QB 702; *British Estate Investment Society Ltd v Jackson (HM Inspector of Tax* [1956] TR 397.

particular form of a signature to assess whether it fulfils the function of a signature, that is, authenticating the document. If the signature could authenticate that document in that particular case, then that method of signature will be regarded valid.

### 2.3.2 The US

The US held a similar position with the UK. Various forms, including the signatory's initials<sup>26</sup>, an identification number<sup>27</sup>, printed name<sup>28</sup>, typed name<sup>29</sup>, rubber stamp<sup>30</sup>, seal<sup>31</sup>, lithographed or engraved name<sup>32</sup>, or that made with a signature facsimile device<sup>33</sup> have been recognised valid provided that it indicates the signatory's intent to adopt the relevant document and to be bound by it. As stated in UETA, "whether any particular record is 'signed' is a question of fact. In any case the critical element is the intention to execute or adopt the sound or symbol or process for the purpose of signing the related record."<sup>34</sup>

### 2.3.3 Germany

Although there is no definition of 'signature' under German law, § 126 of BGB provides that "If written form is prescribed by statute law, the document must be signed by the author with his own hand by the signature of his name or by means of a notarially attested mark."<sup>35</sup> It seems that only two forms - the handwritten signature and notarially attested mark, could fulfil the requirement of a signature. It is generally held that the combination of a written form and a signature served the function of identifying the signatory and guaranteeing the authenticity of the statement.<sup>36</sup> In

---

<sup>26</sup> *United States v. Wexler*, 657 F. Supp. 966, 971 (E.D. Pa. 1987), rev'd on other grounds, 838 F.2d 88 (3d Cir. 1988).

<sup>27</sup> *People v. Zavulunov*, 629 N.Y.S.2d 934, 936 (Crim. Ct. 1995).

<sup>28</sup> *Carna v. Bessemer Cement Co.*, 558 F. Supp. 706, 708 (W.D. Pa. 1983).

<sup>29</sup> *Mohawk Airlines, Inc. v. Peach*, 365 N.Y.S.2d 331, 338 (Sup. Ct. 1974).

<sup>30</sup> *Parshalle v. Roy*, 567 A.2d 19, 27 (Del. Ch. 1989).

<sup>31</sup> *Zenith Radio Corp. v. Matsushita Elec. Indus.*, 505 F. Supp. 1190, 1224-25 (E.D. Pa. 1980).

<sup>32</sup> *Maricopa County v. Osborn*, 136 P.2d 270, 274 (Ariz. 1943).

<sup>33</sup> *State v. Hickman*, 189 So.2d 254, 258 (Fla. Dist. Ct. App. 1966).

<sup>34</sup> NCCUSL, "UETA 1999 With Prefatory Note and Comments", p.9-10.

<sup>35</sup> § 126(1) of BGB.

<sup>36</sup> Sigrun Erber-Faller, "Draft Bill of the German Federal Chamber of Notaries Regarding the Introduction of the Digital Signature", 1996, 3 *EDI Law Review* 25.

relation to consumer protection, the warning function of the signature is generally emphasized.<sup>37</sup> Some signature requirements also serve to protect the parties from rushing into the significant agreements.<sup>38</sup>

#### 2.3.4 China<sup>39</sup>

There is no definition of ‘signatures’ in almost all Chinese laws. Where a signature is required<sup>40</sup>, it usually provides that the signature or the seal will meet the requirement.<sup>41</sup> Article 7 the Negotiable Instruments Law (NIL) provides that “the ‘signature and seal’<sup>42</sup> on a negotiable instrument mean the signature or seal or signature plus seal. ...The signature on a negotiable instrument shall be the true name of the person who signs it.”<sup>43</sup> However, this definition of a signature is very unclear. What is true name and must it be full name? Furthermore, does this definition apply to other documents than negotiable instruments? The signature, according to the interpretation by Supreme People’s Court, refers to an individual’s signature of his/her own name by his/her own hand.<sup>44</sup> It seems that a signature in Chinese law means the hand-written signature. Therefore, under the Chinese law, the requirement of a signature could be fulfilled by two methods, the hand-written signature and a seal. The purposes of the requirement of a signature by the law are not explicitly expressed in the law or the interpretation by the courts. However, it is generally held that a signature is to provide the identity of the parties and the approval of the signed

---

37 Christopher Kuner, “German Consumer Association Denounces EU Draft Digital Signature Directive”, at: <http://www.kuner.com/data/sig/verbrauc.htm>. (last visited on 13 Mar. 06)

38 For example, contracts for the purchase of land, section 313 of the civil code.

39 Please note that the introduction of China in this paper is on mainland China, not including Hongkong, Macao and Taiwan.

40 See for example, Art. 386, 387 of the Contract Law; Art. 65 of the General Civil Code; Art. 22 of the Company Law.

41 In practice, the hand-written signature and the company’s or institute’s seal are added to the document in many circumstances.

42 “The Signature and Seal” is actually the translation of one terminology in Chinese, called “Qianzhang”.

43 An English version could be found at: <http://www.colaw.cn/findlaw/finance/instruments.htm> (last visited on 6 March 2006). Please note that there may be more due to the limitation of the individual ability.

44 See, e.g., Supreme People’s Court’s opinion concerning several issues about implementation of the Succession Law art. 40 (dated October 11, 1985). (in Yongjun Jin, “Driving Off a Tiger, But Leading a Wolf – A Review of Chinese Contract Law Art. 11”, ICEC’05, August 15–17, 2005, Xi’an, China.)

documents.<sup>45</sup> In some cases, it is to provide the integrity of the signed documents.

### 2.3.5 Summary

From the discussion above, it was found that how to fulfil the signature requirement is completely different between the US, the UK and Germany and China. The UK and the US allows multiform signatures provided that it could be used to authenticate the document. Contrarily, Germany and China have a restrict form requirement on signatures. Only two methods, the hand-written signature, notarially attested mark or seal could fulfil the signature requirement. It seems that German and China take a more 'restrictive' form requirement on a signature than that of the UK and the US.

## 3. The regulation of e-signatures around the world

Although there are many debates on whether there is the need to regulate e-signatures and if so, how they should be regulated, recent years have seen the adoption of numerous laws and regulations of e-signatures across the world.<sup>46</sup> More than 50 countries around the world, including common and civil law countries, developed and developing countries, and eastern and western countries, have enacted or proposed the legislation as such.<sup>47</sup> It is said that the regulatory activities in the area of e-commerce, especially e-signatures, is much surprising compared with other areas of the law<sup>48</sup>. These high legislative initiatives, however, do not result in an agreement or similarity on how e-signatures should be regulated. Various jurisdictions designed the e-signatures laws in a very different way.

### 3.1 The different structure of the e-signatures law

The legislation relating to e-signatures in the UK is the Electronic Communications

---

<sup>45</sup> See for example, the contract by memorandum is concluded when signatures or seals was made. Art. 32 of the Contract Law. See also, Yongjun Jin, note 44.

<sup>46</sup> Lorna Brazell, note 3, P. 2.

<sup>47</sup> See a review of the legislation around the world in Lorna Brazell, note 3.

<sup>48</sup> Ibid.

Act 2000 (ECA) and the Electronic Signatures Regulation 2002 (ESR). The ECA clarifies legal status of e-signatures; gives the government powers to modernise outdated legislation so that the option of electronic communication and storage can be offered as an alternative to paper; and provides a fallback to self-regulatory schemes that will ensure the quality of e-signature and other cryptography support services.<sup>49</sup> The ESR was enacted to implement the EU Directive on a Community Framework for Electronic Signatures (DES)<sup>50</sup>. The provisions of this directive relating to the supervision of certification-service-providers, their liability in certain circumstances and data protection requirements are implemented in this regulation. The provisions on the admissibility of e-signatures as evidence in legal proceedings are implemented in the ECA.

In the US, there have been a number of states that have enacted their own legislations on e-commerce and e-signatures since 1995.<sup>51</sup> These states, however, take divergent approaches which result in the inconsistency on the regulations between states.<sup>52</sup> In 2000, the Electronic Signatures in Global and National Commerce Act (E-sign) was promulgated by the Congress to promote the uniformity of the legislation governing e-signatures. Besides the nature and reliability of e-signatures, E-sign also contains the provisions on consumer disclosure<sup>53</sup>, which concerned with the issues of consumer protection when using electronic record. Unlike the UK or other countries, E-Sign says nothing about the conduct or liability of the signatory, recipient or the CAs.

In Germany, the Digital Signature Act came into existence in 1997 and adopted a

---

49 <http://www2.dti.gov.uk/industries/ecommunications/regulation.html> (last visited on 13 Mar. 06)

50 Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community Framework for Electronic Signatures, Official Journal of European Communities, L 13/12, 19/1/2000.

51 Amillia H. Boss. "Electronic Commerce and the Symbiotic Relationship Between International and Domestic Law Reformation", (1998) 72 Tul. L. Rev. 1970; Ian A. Rambarran, "I Accept, But Do They? ... The Need for Electronic Signature Legislation on Mainland China", (2002) 15 Transnational Lawyer 413; Anda Lincoln, "Electronic Signature Laws and the Need for Uniformity in the Global Market", (2004) 8 The Journal of Small & Emerging Business Law 71.

52 For a table of these state's legislation, please see <http://www.mbc.com/ecommerce/legislative.asp> (last visited on 13 Mar. 06)

53 Sec. (101)(c).

highly prescriptive approach which only gives legal effect to digital signatures supported by a CA that must fulfill high technical, organisational and infrastructural requirements. This law has been proved limited feasibility in practice and was criticized because it may put the German companies in a disadvantageous position in the international transactions.<sup>54</sup> With the passage of the EU e-signature Directive, Germany has to implement the Directive into the national law. The Digital Signature Act was then been superseded by the “Law Governing Framework Conditions for Electronic Signatures and Amending Other Regulations” (SigG) entering into force on 22 May 2001. This law was supplemented by a series of secondary legislations, which include the Ordinance on Electronic Signatures (SigV), amendment of the Civil Code and Code of Civil Procedure. The German law does not regulate the conduct of the signatory and the relying party. But the SigG prescribes the nature and liability of e-signatures and imposes detailed requirements and liability on CAs.

In China, the first relevant regulation on electronic commerce traces back to the Contract Law issued in March 1999. Article 11 provides that “a written form means a memorandum of contract, letter or data message (including telegram, telex, facsimile, electronic data exchange and electronic mail), etc. which is capable of presenting its contents in a tangible form”.<sup>55</sup> It, however, only recognizes data message as a form of writing in law and says nothing about e-signatures. At the provincial level,<sup>56</sup> some local governments have released some rules to govern the electronic transactions, especially on the electronic certification services. For example, Hainan is the first government who enacted the *Hainan Administrative Measures on Digital Certification* in 2001.<sup>57</sup> Shanghai also issued the *Shanghai Administrative Measurement on Digital Certificate* on 18 November, 2002.<sup>58</sup> On 6<sup>th</sup> December, 2002

---

54 Toralf Noeding and Kristina Bumberger, “Electronic Signatures in German Civil Law”, 2001, 6(3) Communications Law 87.

55 Art. 11 of the Contract Law.

56 In China, the rules enacted at the provincial level are only effective within its own jurisdiction, and must not be contrary to the constitution, law and administrative regulation at the state level. (The term ‘law’ here means the law issued by the National People’s Congress or the Standard Committee of the National People’s Congress.)

57 Available at: [http://www.infosec.org.cn/fanv/02\\_04.htm](http://www.infosec.org.cn/fanv/02_04.htm). (Chinese, last visited on 13 Mar. 06)

58 Available at: [http://www.infosec.org.cn/fanv/02\\_03.htm](http://www.infosec.org.cn/fanv/02_03.htm). (Chinese, last visited on 13 Mar. 06)

Guangdong province passed the *Electronic Transactions Regulations*, which became effective as of 1<sup>st</sup> February, 2003.<sup>59</sup> On 28 August, 2004, the Electronic Signatures Law (ESL) was Passed by No. 11 meeting of the No. 10 Standard Committee of the National People's Congress, and it will come into force on 1<sup>st</sup> April, 2005. To supplement this law, the Ministry of Information industry also enacted the Administrative Measure on Electronic Certification Service (AMECS) which will come into force on 1 April, 2005.<sup>60</sup> The ESL not only address the issues of e-signatures, but also those of data message. It also prescribes the obligations of the signatory and the CAs, but keeps silent on the relying party. The law together with AMECS provides detailed requirements and supervision on the conduct of the CAs.

### 3.2 The different level of recognition of e-signatures

In these four countries, an e-signature is defined in such a way to include various forms.<sup>61</sup> However, they give different level of recognition of e-signatures. The UK and the US does not give any favourable presumption on any kinds of e-signature. All e-signatures receive the same treatment and will be recognised valid provided that they indicate the purpose of authenticating the document in that particular case. The evidential value of an e-signature is to be decided on a case-by-case circumstance.

In the UK, the ECA only states that e-signatures, the certification and the processes under which such signatures and certificates are created, issued and used shall be **admissible** in evidence in terms of the authenticity of the communication or data or the integrity of the communication or data.<sup>62</sup> This definition of an e-signature was adopted because it was thought that there exists in the UK law a mechanism which is sufficient to recognise e-signatures, and furthermore, the English law does not give preferable assumption on any kind of signatures and their evidential weight is

---

59 Available at: [http://www.sol.net.cn/law/law\\_show.asp?ArticleID=20344](http://www.sol.net.cn/law/law_show.asp?ArticleID=20344). (Chinese, last visited on 13 Mar. 06)

60 Available at: <http://www.mii.gov.cn/zcfg/bl35.htm>. (Chinese, last visited on 13 Mar. 06)

61 See Sec. 106(5) of E-Sign, Section 2 of the ESR, Section 2(1) of SigG, Art. 2 of ESL.

62 Section 7 of the ECA.

assessed on the case-by-case basis in authenticating the signed document.<sup>63</sup>

In the US, a signature requirement may be met by e-signatures.<sup>64</sup> A signature may not be denied legal effect, validity, or enforceability on the sole ground that it is in electronic form.<sup>65</sup> The denial of an e-signature requires more other factors than the electronic form. A contract in relation to a transaction may not be denied legal effect, validity, or enforceability on the sole ground that an e-signature was used in the contract.<sup>66</sup> That means, the single fact that an e-signature was used does not affect the effect or enforceability of a contract. This approach adopted by the UK and the US is called “the minimalist approach”, the primary consideration behind which is to let the marketplace to determine which technology will flourish.<sup>67</sup>

In Germany and China, certain kinds of e-signatures are given preferable assumption. Other kinds of e-signatures may not be denied legal effect only because it is in electronic form or it does not belong to ‘advanced’, ‘qualified’ or ‘reliable’ e-signatures as defined in the law. This approach is called the “two-tiered approach”.

The SigG gives favourable assumption to reliable e-signatures and recognised them equivalent to hand-written signatures.<sup>68</sup> ‘Qualified’ e-signatures are those advanced e-signatures which are based on a qualified certificate and have been produced with a secure signature-creation device.<sup>69</sup> ‘Advanced’ e-signatures are those e-signatures which (i) are unique to the signatory, (ii) could identify the signatory, (iii) are under sole control of the signatory, and (iv) link to the document signed in a way that any alteration of the document could be detected.<sup>70</sup> The ‘electronic form’ can also

---

63 Chris Reed, note 20; Jos Dumortier etc, “The Legal and Market Aspect of Electronic Signature”, p. 29, available at:

[http://europa.eu.int/information\\_society/eeurope/2005/all\\_about/trust/electronic\\_sig\\_report.pdf](http://europa.eu.int/information_society/eeurope/2005/all_about/trust/electronic_sig_report.pdf).

64 Sec. 101(b)(1) of E-Sign.

65 Sec. 101(a)(1) of E-Sign.

66 Sec. 101(a)(2) of E-Sign.

67 John S. Stolz & John D. Cromie, “Electronic Signatures in Global and National Commerce Act”, available at: <http://www.cfg-lawfirm.com/articles/oneclick.html>. (last visited on 13 Mar. 06).

68 § 126a of BGB

69 Section 2(3) of SigG.

70 Section 2(2) of SigG.

substitute the written form unless the statute law says otherwise.<sup>71</sup> Moreover, the Code of Civil Procedure presumes that an electronic declaration signed with the ‘qualified e-signature’ is authentic.<sup>72</sup> In the public sector, the administrative procedure law, the general tax law and the general social also recognise the electronic form equivalent to the handwritten form.<sup>73</sup> The rules for the use of electronic documents in court procedure have also been established.<sup>74</sup>

In China, The ESL offers the reliable e-signature the same legal effect as the hand-written signatures or seals.<sup>75</sup> The reliable e-signatures are those which meet the requirements prescribed in article 13. These requirements include (i) The signature creation data is uniquely linked to the signatory; (ii) the signature creation data is under the sole control of the signatory; (iii) any alteration to an e-signature after signing could be detected; and (iv) any alteration to the data message after signing could be detected. These requirements are similar to those of ‘advanced’ e-signature in SigG in Germany.

### 3.3 The different requirement and liability of the parties

Different jurisdictions hold different views on the requirement and liability issues of the parties involved in an e-signature. In the UK, the ESR does not impose any liability on either the signatory, the relying party or the CAs who does not issue the qualified certificate to the public. It only imposes detailed requirements on qualified certificates and the CAs who issue qualified certificates to the public.<sup>76</sup> Such CAs will also be liable for the loss suffered by the person who reasonably relied on such certificate unless the CAs prove he was not negligent.<sup>77</sup> In the UK, there is an independent, industry-led, self-regulatory scheme, called tScheme, which is set up to

---

<sup>71</sup> § 126(3) of BGB.

<sup>72</sup> § 371a of the Code of Civil Procedure.

<sup>73</sup> Jos Dumortier, et, note 63, p72.

<sup>74</sup> Justizkommunikationsgesetz, entered into force on 1 April, 2005. (Information from *e-Signature Law Journal*, 2005, Vol. 2, No. 2, p.75.)

<sup>75</sup> Art. 14 of ESL.

<sup>76</sup> Annex I and II of the RSR.

<sup>77</sup> See Section 4 of the ESR.

assess and approve trust services on minimum standards.<sup>78</sup> But this is a volunteer scheme.

In the US, the E-sign says nothing about the conduct or liability of the signatory, recipient or the CAs. However, E-sign imposes detailed requirements in relation to the consumer disclosure on the person who provides the electronic record in the consumer transactions. For example, a requirement to be in writing in a consumer transaction requires prior consent with the use of electronic means.<sup>79</sup> The consumer, prior to consenting, should be provided with a clear and conspicuous statement informing them of their rights and obligations,<sup>80</sup> including their right to withdraw the consent and how to withdraw<sup>81</sup>; the scope of application of the consent<sup>82</sup>; how to obtain a hard copy of an electronic record after the consent<sup>83</sup>; and the requirements to access and retain the electronic records<sup>84</sup>. If there is any change to the requirements after consent, the consumer shall be provided with a statement of such changes and the rights to withdraw the consent without cost<sup>85</sup>. The consumer shall consent electronically in such a manner that can reasonably expect that they can access the subject of the consent in the electronic form.<sup>86</sup> However, the legal effect of the contract shall not be denied only because of failure to obtain electronic consent or confirmation of consent.<sup>87</sup> Moreover, E-Sign does not affect the content or timing of any disclosure or other record required by other laws.<sup>88</sup>

The German law does not regulate the conduct of the signatory and the relying party. But SigG and the Ordinance impose detailed requirements on CAs and qualified certificates, and liability on CAs. For instance, the CAs must show that they have the

---

<sup>78</sup> For more information, see [www.tscheme.org](http://www.tscheme.org). (last visited on 13 Mar. 06)

<sup>79</sup> Sec. 101(c)(1)(A) of E-Sign.

<sup>80</sup> Sec. 101(c)(1)(B) of E-Sign.

<sup>81</sup> Sec. 101(c)(1)(B)(II), (iii) of E-Sign.

<sup>82</sup> Sec. 101(c)(1)(B)(ii) of E-Sign.

<sup>83</sup> Sec. 101(c)(1)(B)(iv) of E-Sign.

<sup>84</sup> Sec. 101(c)(1)(C)(i) of E-Sign.

<sup>85</sup> Sec. 101(c)(1)(D) of E-Sign.

<sup>86</sup> Sec. 101(c)(1)(C)(ii) of E-Sign.

<sup>87</sup> Sec. 101(c)(3) of E-Sign.

<sup>88</sup> Sec. 101(c)(2) of E-Sign.

necessary reliability and specialized knowledge and report to the competent authority<sup>89</sup> and ensure that they can meet their statutory obligation for reimbursement of damages caused by him due to the infringement of the requirements or products or failure of the security facilities.<sup>90</sup> When issuing a qualified certificate, a CA shall reliably identify the applicant, ensure that data for qualified certificates cannot be falsified or forged without detection, keep the signature codes secret and employ reliable personnel and products that meet the requirements under this law.<sup>91</sup> The CAs have the obligation to inform the applicant of the measure to ensure the security of the qualified e-signatures and of the legal validity associated with qualified e-signatures.<sup>92</sup> If the CAs infringe the above requirements or their product or security facilities fail, they shall be responsible for any damage suffered by a third parties because of relying their products unless the third party knew or must have known the data has been compromised or they have incurred no culpability.<sup>93</sup> Although the German law does not require prior governmental approval for Certification Services as that in previous digital signature act, it offers a system of voluntary governmental “accreditation” of the CAs. If they meet additional technical and administrative security requirements as required in section 15, they will be granted a certificate from the competent authorities.<sup>94</sup> This voluntary accreditation system has been widely accepted by the CAs who issue qualified certificates.<sup>95</sup>

The Chinese ESL imposes obligations on the signatory and the CAs, but says nothing about the relying parties. Particularly, the ESL together with the AMECS provides detailed requirements and liability on the CAs and how the CAs will be administrated and supervised. The signatory shall exercise reasonable care to protect the signature creation data and shall notify any related party without undue delay and stop using the signature creation data if the signature creation data has been or may have been

---

<sup>89</sup> § 4 of SigG.

<sup>90</sup> § 12 of SigG.

<sup>91</sup> § 5 of SigG.

<sup>92</sup> § 6 of SigG.

<sup>93</sup> § 11 of SigG.

<sup>94</sup> § 15 of SigG.

<sup>95</sup> Jos Dumortier, et, note 63, p190.

compromised.<sup>96</sup> The applicant shall provide genuine, complete and accurate information when applying for a certificate,<sup>97</sup> or he will be responsible for any damages caused.<sup>98</sup> The CAs shall meet the capital, technical, professional, spatial and physical criteria as required by the law,<sup>99</sup> and apply for a licence before providing the certification service<sup>100</sup>. The CAs will bear the damage suffered by the signatory and the relying party acting on the certification service if not complying with the rules as prescribed to provide the service unless they could prove they are not at fault and will be published by the Ministry of Information Industry (MII).<sup>101</sup>

#### **4. Are the different backgrounds relevant in e-signatures regulation?**

It could be found from the analysis above that although there are high initiatives on regulating e-signatures, the policy-makers in different jurisdictions do not achieve a consensus on how to regulate e-signatures. The e-signatures laws have been designed differently no matter on the structure, the nature and reliability of e-signatures and the requirement and liability of the parties involved in e-signatures, etc. It raises the questions why there are such high consensus on regulating e-signatures in different jurisdictions and why this high consensus does not result in the agreement or similarity on the design of such laws. Are the different backgrounds relevant or irrelevant?

It seems that the different economic, cultural and legal backgrounds are irrelevant or not significant in deciding the entry of such regulation as certain level of legislation and legal reform have been taken by national governments around the world no matter in developed or developing countries, common or civil law countries, western or

---

<sup>96</sup> Art. 15 of ESL.

<sup>97</sup> Art. 20 of ESL.

<sup>98</sup> Art. 27 of ESL.

<sup>99</sup> Art. 17 of ESL; Art. 5 of AMECS.

<sup>100</sup> Art. 18 of ESL; Art. 6 of AMECS.

<sup>101</sup> Art. 28, 31 of ESL; Art. 17, 18, 20 of AMECS.

eastern countries. There has never been such a high level of consensus on the initiatives of legal reform around the world. The reasons for this, in the author's view, might be (i) the government wants to promote the developments of e-commerce to improve its economy power, as indicated in many e-signatures law's purposes; (ii) the government wants to resist the negative influence of e-commerce and other countries' regulation. The legislation may provide more certainty in e-commerce and put domestic parties in a disadvantageous position in international transactions. This highlights the pervasiveness and significance of electronic authentication and then the ICT in the economic and social development, which have significantly impacted on the existing legal systems. (iii) The "regulative competitiveness", that is, a country decides to regulate e-signatures because other jurisdictions have taken such actions, might trigger such regulatory initiatives of the governments. It is in the policy-makers' mind that non-action might put domestic parties in a disadvantageous position in international transactions. (iv) As showed in 2.3, the fact that the previous laws in most jurisdictions do not provide a clear definition of a signature and answer of what constitute a legally valid signature, to some extent, provides an easier entry for e-signature regulations. Therefore, recently years saw a huge number of laws and regulations on e-signatures.

However, the diversity of the regulation on e-signatures, in the author's view, might partly result from the different economic, cultural and legal backgrounds. (i) The economic background might not have a great impact on the diverse regulation as e-commerce as well as the e-signatures technologies have not been fully developed in developed as well as developing countries. However, the debate on regulation of e-signatures does begin earlier in developed countries than developing countries. (ii) The market-oriented economy in developed countries requires least intervention by the governments. Although China has gradually changed from centrally planned system to a more market-oriented economy, the government's intervention in the market is still obvious than other market-oriented economy countries. This difference might result in the different regulation on the CAs, where China has enacted a very

detailed administrative and supervisory system, such as AMECS, on the CAs', while the US, the UK and Germany does not, or only provide a volunteer scheme on the CAs. (iii) The different attitude on the CAs might also result from the different culture. The collectivism tendency in China has historically put the governments on a position where their decisions are usually regarded authoritative and irrefutable and people get used to resort to the governments. Therefore, an administrative system on the CAs has been supported by the policy-makers. On the compulsory administration on the CAs by the governments, and a volunteer scheme is preferred. (iv) The different requirement on a legally valid signature might have resulted in the different level of recognition of e-signatures. SigG and ESL give favorable assumption on certain kind of e-signatures and make them equivalent to hand-written signatures. This may be partly because German and Chinese laws have a more restrict form requirement on signatures. While in the US and the UK, all e-signatures receive the same treatment because a signature could be regarded valid regardless of its form and no presumption is given on hand-written signatures. other hand, the individualism tendency in western countries concerns more with the individuals' freedom in the market and governments exert intervention only when necessary. Therefore, there usually is no compulsory administration on the CAs by the governments, and a volunteer scheme is preferred. (iv) The different requirement on a legally valid signature might have resulted in the different level of recognition of e-signatures. SigG and ESL give favorable assumption on certain kind of e-signatures and make them equivalent to hand-written signatures. This may be partly because German and Chinese laws have a more restrict form requirement on signatures. While in the US and the UK, all e-signatures receive the same treatment because a signature could be regarded valid regardless of its form and no presumption is given on hand-written signatures.

## **5. Conclusion**

ICT development greatly challenges the legal systems which are formulated in a world where paper document are used in transactions. The last decade has seen the

adoption of a number of legislation on e-commerce, especially e-signatures, to recognize the legal validity of electronic documents and e-signatures in jurisdictions with different economic, cultural and legal backgrounds. The different backgrounds seem irrelevant or not significant in the entry of such regulation, but have an impact on the design of such laws, which have resulted in divergent rules on e-signatures.