

E-commerce all at sea: China welcomes digital bills of lading under the Electronic Signature Law 2005

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Abstract

The rapid opening of markets after China's entry into the World Trade Organization (WTO) continues to boost its imports and exports. A new economic order in China and the globalization of business has both shaped and been shaped by the advancements in transportation and information technology. The advent of internet makes paper bills of lading extremely outmoded. China's new Electronic Signature Law took effect on April 1, 2005. This article discusses China's new rules to recognize electronic bills of lading, and puts forward ideas that may help to create a blueprint for China's future legal reforms.

I. Introduction

An increasing volume of empirical research literature shows that paperless trading could lead to productivity gains and saving on costs that stem from managing numerous pieces of papers otherwise required for trade.² According to a United Nations report, 7 per cent of the cost of international trade (around US\$420 billion) is wasted on paper-based administrative processes.³ Over 280 million shipments are carried around the world every year.⁴ On average, at least 20 documents are needed to accompany a single container.⁵ Paper-based trade documentation is not just expensive, but it is also time-consuming, error-prone and vulnerable to fraud.

On the other hand, paper documentation cannot be easily eliminated, as it is required internally for evidence of agreed pricing, quantities and other contract terms, and

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² See David Walters, *New Economy, New Business Models, New Approaches* 34 INT'L J. PHYSICAL DISTRIBUTION & LOGISTICS MGMT. 219, 220-21 (2004) (discussing the new perspective on business structure and processes designed around value-creating network); Robert Halhead, *Breaking Down the Barriers to Free Information Exchange* 8 LOGISTICS INFO. MGMT. 34, 35-37 (1995) (discussing the use of technology to achieve business advantage).

³ U.N. Econ. & Soc. Council [ECOSOC], Econ. & Soc. Comm'n for Asia & the Pacific, *Emerging Issues and Developments at the Regional Level: Managing Globalization*, at 5, U.N. Doc. E/ESCAP/1273 (Mar. 11, 2003), available at <http://www.unescap.org/59/e/E1273e.pdf>

⁴ Peter Scott, *Dancing the Bolero*, <http://fiata.atalink.co.uk/html/p141.htm> (last visited Oct. 16, 2006).

for proof of delivery.⁶ The longer the physical and financial supply chains, the more papers become necessary in order to communicate information from the supplier to the main producer.⁷

The aim of the electronic bills of lading is to completely remove the paper element of international trade transactions. A bill of lading first came into existence as a receipt: an admission by the vessel's master or agent, on behalf of the shipowner, that the consignor's goods had been placed aboard the ship for carriage to the agreed destination.⁸ The performance of a carrier's obligation to deliver the cargo to the party entitled to its possession at the port of discharge is fundamental to all maritime transport.⁹ Traditionally, the carrier has honored this obligation by ensuring delivery at the port of discharge on presentation of the bill of lading.¹⁰ Also, such a document provides a satisfactory vehicle for the terms of the contract of carriage.¹¹ The bill of lading also serves as a "key to the floating warehouse", enabling the consignee to demand and obtain possession of the goods at the port of discharge.¹²

In the early history of trade and shipping, communications between ship and shore and communications between different countries regarding the creation and transfer

⁵ *Id.*

⁶ RONALD H. BALLOU, BUSINESS LOGISTICS MANAGEMENT 123-31 (4th ed. 1998) (ch. 5, "Order Processing and Information Systems") (discussing logistics information system and database management).

⁷ SUNIL CHOPRA & PETER MEINDL, SUPPLY CHAIN MANAGEMENT: STRATEGY, PLANNING AND OPERATION, PART IV: PLANNING AND MANAGING INVENTORIES IN A SUPPLY CHAIN 265-74 (2d ed. 2004) (discussing the modes of transportation and the design options for a transportation network).

⁸ *Smith v. Bedouin Steam Navigation Co.*, [1896] A.C. 70, 79; *see also* *Attorney Gen. of Ceylon v. Scinda Steam Navigation*, [1962] A.C. 60, 76-77.

⁹ *Sanders v. Maclean*, (1883) 11 Q.B.D. 327, 341.

¹⁰ *Id.*

¹¹ *The Ardennes*, [1951] 1 K.B. 55, 59-60.

¹² *Motis Exports Ltd. v. Dampskibsselskabet*, [1999] 1 Lloyd's Rep. 837, 842.

of the bills of lading were extremely difficult.¹³ Delivery of goods at the destination against presentation of paper bills of lading is the best possible way to protect the holder of the bill, as it is a basic term of the contract of carriage that the carrier must only surrender the goods against production of the paper bills.¹⁴ It also serves to discharge the carrier from further obligations under the contract of carriage.¹⁵

II. Electronic bills of lading

The need to present the paper bill of lading at the port of discharge means the bill must be sent to the consignee physically by express courier before or at the same time as the cargo. With speedier vessels, this is no longer guaranteed.¹⁶ Under the electronic data interchange procedure,¹⁷ the shipper (e.g. Company A) can supply the information to be contained in the bill of lading to the carrier online.¹⁸ Having received the cargo on board the vessel, the carrier would digitally sign a data message that would become the electronic bill of lading.¹⁹ The message of the carrier decrypted by a public key can only be encrypted by someone having the private key of the same key pair.²⁰ The shipper is provided with a private key to control the cargo during carriage.²¹

¹³ E.J. GRAHAM, A MARITIME HISTORY OF SCOTLAND: 1650-1790, at ch. 8 (2002) ("Aids to Navigation and Port Development").

¹⁴ See *Hai Tong Bank Ltd. v. Rambler Cycle Co. Ltd.*, [1959] 2 Lloyd's Rep 114.

¹⁵ *Id.*

¹⁶ See American President Line Services: Electronic Data Interchange (EDI), <http://www.apl.com/services/html/edi.html> (last visited Oct. 16, 2006).

¹⁷ Comite Maritime Int'l (CMI), Rules for Electronic Bills of Lading, <http://www.comitemaritime.org/cmidocs/rulesebla.html> (last visited Oct. 16, 2006).

¹⁸ *Id.* Rule 4(b).

¹⁹ *Id.* Rules 4(c), 5.

²⁰ *Id.* Rule 8.

²¹ *Id.*

The shipper can indorse the electronic bill of lading to a third party (e.g. Company B) by digital signing and transmission to the carrier.²² Being in control of the private key, Company B can further indorse the electronic bill in favor of Company C.²³ The process can continue until the cargo is claimed at the port of discharge by the party holding the most current private key.²⁴ On each transfer, the existing private key is cancelled and replaced by a new key issued by the carrier to the transferee.²⁵ At the port of discharge, only the party holding the most current private key is entitled to delivery of the cargo.²⁶

A digital signature is truly secure only when certified by a trustworthy certification authority.²⁷ For instance, a paper document can be duplicated and fraudulently passed on as an original without the sender's knowledge. A paper document can also be counterfeited and submitted to third parties. The same things, in theory, can happen to electronic data interchange and internet-transmitted messages.²⁸

BOLERO²⁹ (Bills of Lading Electronic Registry Organization) launched its operation in September 1999. This is a joint venture between SWIFT (the Society for

²² *Id.* Rule 7(a).

²³ *Id.* Rule 7(b).

²⁴ *Id.* Rule 8.

²⁵ *Id.* Rule 9(a).

²⁶ *Id.* Rule 9(b)-(c).

²⁷ Erick Muthow, *The Impact of EDI on Bills of Lading: A Global Perspective on the Dynamics Involved* (1997) (unpublished LL.M. dissertation, University of Cape Town), available at <http://web.uct.ac.za/depts/shiplaw/muthow2.htm>.

²⁸ *Id.* ch. 6.2 (“Admissibility of Evidence”).

²⁹ See, e.g., Amedeo Delmedico, *EDI Bills of Lading: Beyond Negotiability*, 1 HERTFORDSHIRE L.J. 95 (2003); Malcolm A. Clarke, *Transport Documents: their Transferability as Documents of Title: Electronic Documents*, 3 LLOYD'S MARITIME & COM. L.Q. 356 (2002); Emmanuel Laryea, *BOLERO Electronic Trade System: An Australian Perspective*, 16 J. INT'L BANKING L. 4 (2001); Chris Nicoll, *BOLERO Makes the Bill of Lading Obsolete*, 6 INT'L MARITIME L. 148 (1999).

Worldwide Interbank Financial Telecommunication)³⁰ and the TT Club (Through Transport Club).³¹ Under this system, encryption prevents viewing of a document by any party other than the intended receiver holding the current private key.³² Digital signatures ensure that signed documents cannot be altered.³³ BOLERO is not simply a certification authority that certifies digital signatures, it is also a title registry.³⁴ The title registry maintains an endorsement chain for each digital bill of lading, reflecting the transfer of rights and obligations between parties.³⁵ Similar to a paper bill of lading, each digital bill can be created, transferred, amended and surrendered.³⁶ In each case, only the authorized party holding the current private key can instruct the title registry to complete the transaction.³⁷

III. Legal implications in the People's Republic of China

With the potential widespread use of electronic bills of lading in China, questions such as whether the electronic bills of lading will be recognized by the Chinese laws, and whether the digital certificates will be admissible as evidence in the Chinese maritime courts will be increasingly faced by legal advisers, carriers, bankers and merchants. Ten maritime courts have been established in China along its coast and the Yangtze River: Dalian, Tianjin, Qingdao, Shanghai, Guangzhou, Wuhan, Xiamen, Haikou, Beihai and

³⁰ Bolero Company Ownership: SWIFT, <http://www.bolero.net/company/ownership/swift.html> (last visited Oct. 16, 2006).

³¹ Bolero Company Ownership: The TT Club, <http://www.bolero.net/company/ownership/ttclub.html> (last visited Oct. 16, 2006).

³² BOLERO INT'L LTD., BOLERO RULEBOOK Rules 2.2.1, 2.24 (1st ed. 1999), available at <http://www.boleroassociation.org/downloads/rulebook1.pdf> [hereinafter BOLERO RULEBOOK].

³³ *Id.* Rule 2.2.3(3).

³⁴ *Id.* Rule 3.1

³⁵ *Id.* Rule 3.4.1.

³⁶ *Id.* Rule 3.4.1(1)-(2).

³⁷ *Id.* Rule 3.8.

Ningbo.³⁸ Each maritime court has jurisdiction over a specific geographical area.³⁹ In 2003, the Chinese maritime courts handled nearly 9,700 cases, which represented a significant jump from the several dozens cases dealt with per court every year when the courts were first created in 1984. Around 14% of the cases involved overseas litigants.⁴⁰

The new Electronic Signature Law, which took effect on 1st April 2005, adopts a two-tier approach.⁴¹ Under the first tier, without prejudice to any rules of evidence, an electronic signature or record shall not be denied admissibility in evidence in any legal proceedings on the sole ground that it is an electronic record.⁴² In the context of maritime electronic commerce, an electronic bill of lading should not be denied validity solely on the ground that it is in the form of a data message.⁴³ Nothing in the application of the rules of evidence in China shall apply so as to prevent the admission of an electronic bill of lading in evidence on the ground that it is a data message.⁴⁴

At the second tier, if a rule of law requires the signature of a person or provides for certain consequences if a document is not signed by a person, a digital signature of the person satisfies the requirement, but only if the digital signature is qualified as a “reliable” digital signature.⁴⁵ To qualify as a “secure” electronic signature, the signature must: (1) be created using data that the signatory has exclusive ownership; (2) be created

³⁸ Henry Li, *The Maritime Courts of the PRC and the Roles of the Maritime Lawyers* (n.d.), available at <http://www.hkmla.org/events/Henry%20Li.pdf>

³⁹ *Id.*

⁴⁰ *China Aims at Regional Maritime Law Center*, CHINA DAILY, June 24, 2004.

⁴¹ See Felix W.H. Chan, *China's Electronic Signature Act 2005: A Great Leap Forward or Backward?*, 11 *COMPUTER & TELECOMM. L. REV.* 47 (2005).

⁴² P.R.C. Electronic Signature Law art. 4 (2004), available at http://www.japanpkforum.jp/shiryousankou/CN_esignlaw_E.PDF (based on UNCITRAL MODEL LAW ON ELECTRONIC COMMERCE arts. 5, 6 (1996)).

⁴³ *Id.* art. 7.

⁴⁴ *Id.* arts. 4, 7.

⁴⁵ *Id.* art. 16.

using data that the signatory could keep under his or her sole control; (3) be linked to a system (e.g. a certification authority) so that subsequent alteration of the signature is detectable; and (4) be linked to a system (e.g. a certification authority) so that subsequent change of the content or format of the data message is detectable.⁴⁶ If an electronic signature satisfies all four conditions, it enjoys a special legal status as the “reliable” signature. It is accorded a presumption of validity by the Chinese courts.⁴⁷

In the electronic commerce reform in China, there must be one or more trusted parties that can authenticate electronic signatures. Controversial issues will inevitably arise in the search for such a root of trust. For instance, who should be the certification authorities under the new legislation? Should the Chinese government play that role exclusively?⁴⁸

Under the Electronic Signature Law, it is an offence, punishable with a fine, for a company to operate a certification authority in China without a licence.⁴⁹ The Chinese licensing authority will only grant a licence to a certification authority which is trustworthy.⁵⁰ In assessing the trustworthiness of an applicant, the authority will take into account a list of benchmarks.⁵¹ This list includes the applicant’s technical and managerial training of its personnel, its financial resources, its operating premises, its capability to bear risk and liability, its technology and facilities regarding security controls, its retention of records related to the processing of certificates, and its

⁴⁶ *Id.* arts. 17-19.

⁴⁷ *Id.* arts. 5, 14.

⁴⁸ Chris Kuner, Stewart Baker, Rosa Barcelo & Eric Greenwald, An Analysis of International Electronic and Digital Signature Implementation Initiatives (Internet Law & Policy Forum, Sept. 2000), *available at* http://www.ilpf.org/groups/analysis_IEDSII.htm.

⁴⁹ P.R.C. Electronic Signature Law at art. 31.

⁵⁰ *Id.* arts. 17-19.

compliance with legal and administrative requirements⁵². For instance, Mr. Cao Kangtai, the Director of the Legislative Affairs Office of the PRC State Council, said: “Considering the weakness of China’s social credibility system, the draft law regulates that the online signatures certification providers should be approved and administered by governments.” Mr. Wang Yiming, the Vice Chairman of the Law Committee of the PRC National People’s Congress, averred: “Certification authorities should be approved and supervised by governments while they should be oriented by market forces and be instructed by professional associations.”⁵³

The current certification authorities operating in China, such as China Telecom Certification Authority, China Finance Certification Authority and Shanghai Electronic Certification Authority Center, are predominately owned by the Chinese government.⁵⁴ Without a doubt, they should have no problem gaining the status of “secure” certification authorities in China. However, should the Chinese government license private or even foreign certification authorities? If so, what standards should the Chinese government adopt in deciding which private sector shall (or shall not) be entitled to operate certification authorities? It is debatable whether there is adequate information in China for a transparent and reliable marketplace of private certification authorities to develop. The new Electronic Signature Law, unfortunately, does not provide clear answers to these questions. Only by investigating the actual implementation of the accreditation

⁵¹ *Id.* art. 17 (based on UNCITRAL MODEL LAW ON ELECTRONIC SIGNATURES art. 10 (2001)).

⁵² *Id.*

⁵³ *China to Launch Administrative Supervision on Electronic Signature Certification Providers*, PEOPLE’S DAILY, June 22, 2004.

⁵⁴ Xue Hong, Current Challenges in E-commerce Legal and Regulatory System Development: The Case of China (Paper Presented at the Regional Expert Conference on Harmonized Dev. of Legal & Regulatory Sys. for E-commerce, Bangkok, Thailand, July 7-9, 2004).

benchmarks can a glimpse of the full picture be provided. Whether China will embrace a new era of openness will depend chiefly on China's willingness to offer a flexible electronic marketplace committed to eliminating barriers to entry.

Although BOLERO is both a central registry of bills of lading and a certification authority, currently it is not yet an accredited certification authority in China under the Electronic Signature Law. In order to use their service, each user must enter into a standard form contract with the BOLERO association, becoming member of the association and binding themselves to the conditions of use of the service contained in their rulebook.⁵⁵ According to the Chinese Contract Law,⁵⁶ since the standard offer-acceptance process is complied with, the provisions contained in the rulebook constitute the terms of the contract binding on all its members. Under the rulebook, no user shall contest the validity of any communication made by means of a signed message on the grounds that it was made in electronic form instead of by paper and/or signed.⁵⁷ Each user further agrees that a signed message will be admissible before any court as evidence of the message.⁵⁸

IV. The existing shipping-related legislation in China

The Maritime Code of the PRC came into force in July 1993.⁵⁹ The preparation and drafting of the Code lasted almost forty years and went through twenty drafts.⁶⁰ The

⁵⁵ BOLERO RULEBOOK, *supra* note 32.

⁵⁶ P.R.C. Contract Law arts. 13-28 (1999) (English translation) (stipulating the standard offer-acceptance process), *available at* http://www.novexc.com/contract_law_99.html.

⁵⁷ BOLERO RULEBOOK, *supra* note 32, Rule 2.2.2(3).

⁵⁸ *Id.* Rule 2.2.3(1)-(2).

⁵⁹ P.R.C. Maritime Code (1993) (English translation), *available at* <http://www.colaw.cn/findlaw/marine/maritime.htm>.

⁶⁰ Zengjie Zhu, The Salient Features of the Maritime Code of the People's Republic of China (Paper Presented at the First Int'l Conference on Maritime Law, China Maritime Law Ass'n, Shanghai, P.R.C., Oct. 11-14, 1994).

Legislative Bureau of the State Council conducted extensive discussions with legal experts from the International Maritime Organization and the American Maritime Law Association.⁶¹ The Maritime Code is basically a merchant shipping law. It covers contractual relationships such as contracts of carriage of goods or passengers by sea.⁶²

Article 72 of the Maritime Code states: “When the goods have been taken over by the carrier or have been loaded on board, the carrier shall, on demand of the shipper, issue to the shipper a bill of lading. The bill of lading may be *signed* by a person authorised by the carrier. A bill of lading *signed* by the Master of the ship carrying the goods is deemed to have been *signed* on behalf of the carrier” (emphasis added). The Maritime Code fails to explicitly explain whether an electronic signature complies with the requirement regarding the signing of a bill of lading.

Since there is a gap in the Maritime Code, one may resort to reviewing the Civil Procedure Law, promulgated in 1991, to figure out whether the courts in China can admit electronic evidence. Chapter Six of the legislation deals with evidence. According to Article 63 of Chapter Six, evidence falls into the following categories: (1) documentary evidence; (2) material evidence; (3) video and audio material; (4) testimony of witnesses; (5) statements by litigants; (6) expert opinions; and (7) records of inquests. A digital private key representing the electronic bill of lading, however, does not appear to fall readily within any of the seven categories of admissible evidence. Both the Civil Procedure Law and the Maritime Code fail to clarify whether an electronic bill of lading is admissible as evidence in courts.

⁶¹ *Id.*

V. Need for further legislative reform

The Maritime Code and the Civil Procedure Law in China both fail to grant full legal recognition to electronic bills of lading, despite the promulgation of the Electronic Signature Law. The call for further legislative reform is pressing. In fact, China's shipping law is lagging behind when compared with that of other jurisdictions.

In the United States of America, section 2(5)(A) of the draft Carriage of Goods by Sea Act (commonly known as the "US COSCA 1999") redefines the term "contract of carriage" to mean "a contract for the carriage of goods either by sea or partially by one or more other modes of transportation, including a bill of lading (or similar) document, whether negotiable or non-negotiable and *whether printed or electronic*".

In Australia, the Sea-Carriage Document Act 1996⁶³ was also drafted to bring electronic and computerized sea-carriage documents into practice. Section 4 of the Act stipulates that the statute applies to sea-carriage document in the form of a *data message* in the same way as it applies to a written sea-carriage document.⁶⁴ It also applies in relation to communication of a sea-carriage document by means of a *data message* in the same way as it applies to the communication of a sea-carriage document by other means.

The latest version of the draft UNCITRAL (United Nations Commission on International Trade Law) Instrument on Transport Law was published on January 8, 2002

⁶² Dongnian Yin, Zhaonan Yang & Hongxi Yao, The Characteristics of the Law of Contract Relating to Carriage of Goods by Sea of the Chinese Maritime Code (Paper Presented at the First Int'l Conference on Maritime Law, China Maritime Law Ass'n, Shanghai, P.R.C., Oct. 11-14, 1994).

⁶³ Sea-Carriage Documents Act, 1996 (Austl.), available at http://www.austlii.edu.au/au/legis/qld/consol_act/sda1996202/index.html.

⁶⁴ *Id.* § 4, available at http://www.austlii.edu.au/au/legis/qld/consol_act/sda1996202/s4.html.

for international deliberation.⁶⁵ According to Chapter One of the draft instrument, “contract particulars” means any information relating to the contract of carriage or to the goods (including terms, notations, signatures and endorsements) that appears in a transport document or an *electronic record*.⁶⁶ “Electronic record” means information in one or more messages issued by electronic communication pursuant to a contract of carriage by a carrier or a performing party that either (a) evidences a carrier’s or a performing party’s receipt of goods under a contract of carriage, or (b) evidences or contains a contract of carriage, or both⁶⁷. It includes information attached or otherwise linked to the electronic record contemporaneously with or subsequent to its issue by the carrier or a performing party.⁶⁸ Under Chapter Eight of the draft instrument, upon delivery of the goods to a carrier, the shipper is entitled to obtain a transport document.⁶⁹ If the carrier and the shipper have agreed to the use of an electronic record, the shipper is entitled to obtain from the carrier an electronic record evidencing the carrier’s receipt of the goods.⁷⁰

To keep abreast of the latest international shipping practice, the Chinese legislature should urgently amend the existing shipping legislation to cope with the potential widespread use of electronic bills of lading in China. The mere promulgation of the Electronic Signature Law is not sufficient to address the statutory inconsistencies identified above. The relevant provisions in the Maritime Code and the Civil Procedure

⁶⁵ U.N. Comm’n on Int’l Trade Law [UNCITRAL], Working Group III (Transport Law), Preliminary Draft Instrument on the Carriage of Goods by Sea (Jan. 8, 2002), *available at* <http://www.mcgill.ca/maritimelaw/maritime-admiralty/cmi-uncitral/>.

⁶⁶ *Id.* § 1.6.

⁶⁷ *Id.* § 1.9.

⁶⁸ *Id.*

⁶⁹ *Id.* § 8.1(i).

⁷⁰ *Id.* § 8.1(ii).

Law must be amended to put in place a clear, comprehensive and solid legislative scheme for the recognition of digital bills of lading.

VI. Conclusion

International trade with China continues to grow rapidly. In 1996, the annual total volume of China's foreign import and export reached US\$289.9 billion.⁷¹ In 2000, the figure raised to US\$474.3 billion.⁷² In 2005, the figure hit a record high of US\$1,422 billion.⁷³ China's entry into WTO will certainly continue to be the catalyst in the continuous expansion of China's international trade. Owing to the huge potential in China's foreign trade, there will be a corresponding increase in the demand for sophisticated ocean shipping.

Carriers, banks and international traders expect to see significant volumes of online live transactions in China in the near future. Several examples can be used to illustrate this trend. In April 2000, COSCO (China Ocean Shipping Company) announced that it had signed up to BOLERO.⁷⁴ Being the biggest shipping company in China, COSCO has alliance agreements with a number of other carriers, including Evergreen and K-Line, both of which had previously announced that they have joined BOLERO.⁷⁵ In January 2000, the Taiwanese carrier Evergreen Marine Corporation, one

⁷¹ U.S.-China Bus. Council, U.S.-China Trade Statistics and China's World Trade Statistics tbl. 4, <http://www.uschina.org/statistics/tradetable.html> (last visited Oct. 17, 2006).

⁷² *Id.*

⁷³ *Id.*

⁷⁴ Press Release, Bolero, Cosco Joins Bolero.net (Apr. 20, 2000) available at <http://www.bolero.net/assets/26/COSCO%20joins%20Bolero%2020%20Apr%20001091553454.pdf>.

⁷⁵ Press Release, Bolero, First Japanese Carrier Adopts Bolero.net (Apr. 5, 2000), available at <http://www.bolero.net/assets/26/First%20Japanese%20Carrier%205%20Apr%20001091553751.pdf> [hereinafter Press Release, First Japanese Carrier].

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<http://www.okjolt.org/>

of the world's largest containership operators, also announced that it would make the traditional bills of lading a thing of the history by becoming a BOLERO user.⁷⁶ The Bank of China Group in Hong Kong, the second largest banking group in Hong Kong, announced in July 2001 that that it had signed up to BOLERO to allow international trade and documentary credit transactions to be administered online.⁷⁷ In April 2005, BOLERO entered into an agreement with CIECC (China International Electronic Commerce Center). CIECC is a direct subsidiary associate of the Ministry of Commerce of the People's Republic of China. Under the agreement,⁷⁸ the Chinese exporters working with CIECC will be able to receive all their documentary credit advices on the same e-platform and in the same conformation, irrespective of the identity of their advising bank. Hence, the time-consuming process of data re-entering is removed. The exporters can simultaneously process various letter of credits from multiple banks adopting the same standards-based BOLERO technology. The participation of COSCO, Bank of China Group and CIECC in BOLERO represents an important milestone in the development of China's shipping and foreign trade.

According to the research of legal historians, bills of lading were commonly employed since the thirteenth century.⁷⁹ Freight charges were frequently stated in the bills of lading. This is an extract of a medieval bill of lading dated 1248:

April twenty-fourth in the year of the Incarnation of the Lord 1248.

⁷⁶ Press Release, Bolero, Evergreen to Sign Up to Global Electronic Trade System (Jan. 10, 2000), available at

<http://www.bolero.net/assets/26/Evergreen%20to%20sign%20up%2010%20Jan1091553644.pdf>.

⁷⁷ Press Release, First Japanese Carrier, *supra* note 75.

⁷⁸ Press Release, Bolero, Bolero Partners with CIECC (Apr. 4, 2005), available at <http://www.bolero.net/news/news.html?article=NTA0MA>.

⁷⁹ ROY C. CAVE & HERBERT H. COULSON, A SOURCEBOOK FOR MEDIEVAL ECONOMIC HISTORY 159 (1965).

We, Eustace Cazal and Peter Amiel, carriers, confess and acknowledge to you, Falcon of Acre and John Confortance of Acre, that we have had and received from you twelve full loads of brazil wood and nine of pepper and seventeen and a half of ginger for the purpose of taking them from Toulouse to Provence, to the fairs of Provence to be held in the coming May, at a price or charge of four pounds and fifteen solidi in Vienne currency for each of the said loads. And we confess we have had this from you in money, renouncing, etc. And we promise by this agreement to carry and look well after those said loads with our animals, without carts, and to return them to you at the beginning of those fairs and to wait upon you and do all the things which carriers are accustomed to do for merchants. Pledging all our goods, etc.; renouncing the protection of all laws, etc. Witnesses, etc.⁸⁰

As we have entered the new era of conducting commercial activities on the internet, paper bills of lading, just like this medieval bill, may one day be consigned to ‘museum’ status. Will paper bills of lading be progressively replaced by their digital counterparts in China? It depends. For this to happen, China must be determined to remove the legal barriers that will impede the impetus towards the implementation of its market reform. No matter how impressive the Chinese Government’s focus on information technology infrastructure is, the proper legal infrastructure must first be put in place to face the fast-growing developments as well as new challenges. In the context of maritime e-commerce, the Chinese Government should promptly carry out legal reforms to remove the inconsistencies and rectify the loopholes in the Maritime Code and the Civil Procedure Law in line with international practices. After all, an enabling, not disabling, e-commerce legal framework is what China desperately needs to establish. In this respect, China should continue to provide the channels for discussion, feedback and consultation in accordance with the spirit of trade liberalization envisaged by WTO.

⁸⁰ *Id.*