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Can The Functions Of A Paper Bill Of Lading Be Replicated By Electronic Bill Of Lading?

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Abstract

The replication of the functions of paper bill of lading by the electronic bill of lading has generated series of controversy among shippers and carriers from high tech states and low tech states. Due to the nature of the traditional functions of paper bill of lading being capable of recognised as receipt for goods, evidence of contract of carriage and documents of title, proponent of the paper bill have questioned the capability of the electronic bill to actually replicate these functions.

Modern means of replicating the paper bill are in operation in advanced states. Such electronic data base system like Bolero, The @ Global Trade, APL have all attempted to replicate the paper bill of lading, though, with some defects which borders on security concerns associated with electronic data message coupled with the evidentiary value of such data messages in different jurisdictions. Furthermore the problems of negotiability and meeting the writing requirements of the paper bill by the electronic bill has been a major source of concern considering the deep rooted conservative attitude of traders.

Various arguments and defects of the paper and electronic bill of lading will be examined critically with the objective of finding practical and viable option which is faster and convenient in transacting international business for shippers and carriers.

Keywords: bill of lading, electronic bill, contract of carriage

Introduction

The question of whether electronic bill of lading is capable of replicating the major functions of the paper bill of lading remains a topic of controversy in respect of the ability of the electronic bill to replicate these functions especially the document of title function[i].

Some scholars have argued that the reason for the difficulties of electronic to replicate the document of title function is premised on the fact that legal requirement of most jurisdictions requires the bill of lading to be in writing.[ii]

Several issues have been raised concerning the electronic bill of lading which borders on legal uncertainties with particular emphasis on evidentiary value of data messages, storage of data messages, validity of data messages and incorporation of general terms and conditions in the contract of carriage.[iii]

Recognition of data messages in relation to its originality raises questions about its authenticity and secured nature of data messages. Arguments have been advanced on the value accorded to data messages considering the applicable law that will govern the contract, the court that will exercise jurisdiction and how disputes arising could be referred to arbitration.[iv] Again, electronic bill of lading is endangered by high rate of cyber crime, lack of basic infrastructure in less advanced countries, and lack of policy initiative to vigorously pursue the adoption

[i] D. Faber, 'The Use of EDI in International Trade: Implication For Trader, Bankers, Carriers and Insurers', (30-31 May 1995) 10th BILETA Conference, University of Strathclyde[web doc.version] 16 July 2008

[ii] A. N. Yiannopoulous, 'Ocean Bill of Lading: Traditional Forms, Substitute and EDI System (1995) 37

[iii] Carlos Moreno, 'Overview of Selective Legal and Regulatory Issues in Electronic Commerce', 22-27 June 2002. Available at www. upan 1.un.org (accessed on 17/05/09)

[iv] Ibid

of electronic bill of lading system in view of the raging controversy between major maritime nations and less developed states.[i]

Despite these arguments against electronic bill of lading, traders across the globe are increasingly using electronic means to carry out international transaction on a massive scale regardless of the insistence on paper bill of lading.[ii] There have been calls to abandon the customs and practice of paper bills of lading and replace it with the efficient electronic bill of lading.[iii] The paper bill of lading in modern times does not fit into the practice of commercial reality.[iv]

The paper bills of lading are insecure, complicated and costly to use in shipping transactions and are known to cause delay especially when there is re-keying errors.[v] It is common as it has been noted that paper bills rarely arrive before the vessel in voyages involving oil cargoes which prompted ship owners to rely on indemnities[vi] and banks advancing credits finds it difficult to get real security which made standby letters of credit to be used instead of documentary credit.[vii]

As a result of the defective nature of paper bills of lading, attempts were initiated to replace the paper bill of lading. In 1983, the Seadoc Scheme was introduced,[viii] but because of the monopolistic nature of Seadoc Scheme it was perceived as not acting in the interest of trading parties as it was operated as a closed system.[ix] The Data Interchange for Shipping (DISH) was set up in 1985 by P and O Containers Limited and other notable carriers and exporters which helped to remove risks associated with documentary transcription errors.[x]

CMI Rules was adopted in 1990[xi] it involved the use of radio transmission. The CMI system was defective because of its insecure open system. On the other hand, it was seen as a secured closed system. CMI model did not meet the challenges and aspiration of shipping merchants and in 1995 the Bolero Association was formed[xii] which led to the creation of the Bolero system in April 1998 by SWIFT and Through Transport Club (TT Club)[xiii]and Bolero.net was launched commercially on 27 December, 1999. Bolero is a closed system requiring users of the system to subscribe to the Bolero Rule Book. However, Bolero providers have noted that all legal definition of bill of lading may not be satisfied by Bolero bill of lading[xiv] but it is submitted that the best way that Bolero can adequately replicate the traditional bill of lading is for Bolero to incorporate all the functions of the paper bill in what is termed the 'Functional Approach', by adopting this approach, the requirement of the receipt function and evidence functions can easily be satisfied. The functional approach method of using the principle of Novation and Attornment, that is transfer of constructive possession, are excellent means of replicating the paper bill of lading.[xv]

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[i] Paul Myburg, 'Uniformity or Unilateralism in the Law of Carriage of Goods by Sea? (2002) VUWL Rev. 22 or (2001) 31 VUWLR 35

[ii] John Livermore, 'Electronic Bill of Lading and Functional Equivalence', 1999, JILT

[iii] Paul Todd, 'Bill of Lading and Banker's Documentary Credit, 3rd ed., LLP, 1998 Section 4.5.2; Thomasen and Wheble, 'Trading with EDI-The Legal Issues' IBC Financial Books (1989) P.26; The European Enterprise (1989) 2 Lyold's Rep 182

[iv] Paul Todd in Chris Reed, Ian Walden, Laura Edgar, 'Cross-Border Electronic Banking: Challenges and Opportunities, 2nd ed., LLP Publishing, 2000, P.67

[v] Mallon and Tomilson, 'Bolero: Electronic Bill of Lading and Electronic Contracts of Sale (1998) I T L Q 257 at 258

[vi] Sagona (1984) 1 Lloyd's Rep 194

[vii] The Delfini (1990) 1 Lyold's Rep 252; The Filiatra Legacy (1991) 2 Lloyd's Rep 337

[viii] Jocelyn Dube, 'Canadian Perspective on the Impact of the CMI Rules for Electronic Bill of Lading on the Liability of the Carrier Towards Endorsee', 26 Transp. L.J (1998) 107 at 108

[ix] Kathy Love, 'Seadoc: The Lessons Learned', (1992) 2 Oil and Gas Law and Taxation Review, 53.

[x] The Merchant Guide International edition, 1995, Section 6 , P.11 cited in Paul Todd and Reed(supra n) P.71

[xi] Todd supra n, P.67

[xii] Malcolm Clarke, 'A Black Letter Lawyer Looks at bolero (1999) I T L Q 69

[xiii] Marek Dubovec, 'The Problems and Possibilities for Using Electronic Bill of Lading AS Collateral', Arizona Journal of International and Comparative Law, Vol 23, No.2, 2006, P.452

[xiv] Legal Aspect of Bolero Bill of Lading- Bolero.net

[xv] R. Caplehorn,'Bolero.Net-The Global Electronic Commerce Solution for International Trade', (1999) 10 JIBFL 421

Another significant initiative was 'The @ GlobalTrade System' which used the non negotiable waybill by adopting clauses that replaced the negotiable bill.[i] The @ GlobalTrade System had a centralised system known as the Documentary Clearance Centre (DCC)[ii] as a checking technique; it was flexible and facilitated electronic or paper delivery of documents.[iii]

In 1994, the World Trade Centre Association developed the TradeCard System which facilitated inter-net based electronic system where the system allowed users to incorporate INCOTERMS provisions.[iv] TradeCard system principally aided merchants in carrying out complex electronic services without the use of any paper documentations, though, TradeCard reliability was generally commended, but it lacked the electronic capability of performing the function of electronic document of title.[v]

In order to address security concerns of electronic bill of lading, American Presidential Lines (APL) launched the APL system in December 2001.[vi] APL users digitally transmitted bill of lading by accessing APL web system known as HomePort.[vii] APL bills contain paramount clause and is subject to the laws of the state of California and its problem stems from the reluctance of banks to accept electronic bills.[viii]

By adopting the functional approach, the traditional features of the paper bill of lading are not lost, but rather replicated by electronic bill of lading.[ix] It is realizable for electronic bill of lading to replicate the traditional bill if there are basic legal infrastructures for building confidence through legal recognition of electronic messages by removing legal obstacles that hamper recognition of electronic message.

Furthermore, legal solutions such as domestic legislation, international instruments and recognition and enforcement of contractual agreements like EU Model EDI agreement, ECE Model Interchange agreement, and ECE Electronic Commerce agreement. Policy initiative should also be undertaken to encourage self-regulation by merchants by way of adopting code of conduct like OECD work and UN (CEFACT MODEL) and less developed countries can be encouraged to adopt legislative measures that would fast track the use of electronic bill of lading.

Can the Functions of a Paper Bill of Lading be Replicated by Electronic Bill of Lading?

The bill of lading performs essentially three principal functions, that is, it acts as receipt for goods shipped,[x] it serves as evidence of the contract of carriage,[xi] and it is at common law regarded as a document of title.[xii] How these functions can be replicated electronically is what causes some form of frictions as a result of some factors like uncertainties to the negotiability of electronic bill, security concerns[xiii] and conservative attitude of traders.[xiv]

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[i] P O Nedlloyd, The Merchant's Guide

[ii] Philip Damas, 'E-Shippers Kick the Paper Habit' AM Shipper J. Int'l Logistics, Feb 2001. Available at www.cceweb.com/amshipfeb2001.htm (accessed on 17/05/09)

[iii] CCEWEB, Frequently asked questions (FAQ) ABOUT @GlobalTrade. Available at www.cceweb.com/faq.asp (accessed on 17/05/09)

[iv] M. Dubovec, supra

[v] M. Dubovec, supra

[vi] Helen Atkinson, ' electronic Bill of Lading Near: APL offers Encrypted Service that Neraly Eliminate Pare Documentation', Journal of Commerce, Jan, 14, 2002, P.24

[vii] See http://www.apl.com/homeport/

[viii] E.P Ellinger, 'Use of Some ICC Guidelines', J.B.L 2004, p. 704 at 706

[ix] Marek Dubovec, Supra

[x] M.D Bools, "The Bill of Lading: A Document of Title To Goods: An Anglo-American Comparison', LLP, London, 1997, p.1

[xi] Guenter Treitel and FMB Reynolds, "Carver on Bills of Lading,1st ed, Sweet &Maxwell,London,2001, p 61

[xii] P.Todd 'Bill of Lading as Document of Title', (2005) JBL 762-779

[xiii] C.Pejovic, 'Document of Title in Carriage of Goods by Sea: Present Status and Possible Future Direction', J.B.L 2001, p. 484

[xiv] Aviva Freudmann, 'Look No Paper: Bill of Lading Go Electronic ', Journal of Commerce, 1998. P. 20

Replicating the receipt and evidence of carriage functions poses no problem electronically[i] but the document of title function remains a major obstacle to electronic bill.[ii] However, the document of title function can be replicated successfully by providing a framework through which secured transaction laws would provide sufficient rules that would enable banks and merchants to accept the document of title function through the creation and perfection of a security interest in an electronic document of title.[iii] When this is achieved, the function of negotiability can be overcome without any difficulty especially when it inspires confidence in its continued usage.[iv]

Transferability under electronic bill of lading is achievable in order to remove legal obstacles in relation to physical delivery and endorsement of the paper bill of lading. Article 16(f) of Model Law allows transferability through electronic data. Article 17 make use of data equivalent to writing or paper requirement and Article 8(1) provides that data messages satisfies originality requirements in so far as the user's title registry meets the requirement of reliability, integrity, singularity and uniqueness as envisaged by Article 17(4), though no sufficient guide is provided for assessing these criteria,[v] but Article 8(3) provides that the requirement would be met if the information remains complete and unaltered. The uniqueness of electronic bill of lading replicating the paper requirement is met by the use of cryptography.[vi]

However, Rulebook R.3.8 (5) does not allow more than one holder of Bolero bill at a time. Bolero also addressed the issue of transferability under Rulebook R.3.3(3) which enables the carrier to designate 'To Order Party' or Bearer Holder' through the instrumentality of the principle of attornment[vii] which makes it possible for constructive possession of goods whereby the carrier electronically acknowledges that he holds the goods to the transferee's order. Designating order to a new bearer shall also have the same effect by virtue of Rulebook R.3.4.1(1) and this is realizable by notifying the Title Registry which in turn notifies the new bearer by cancelling the former bearer's title in the Title Registry by means of Bolero bill of lading text. Rulebook R.3.4.1 (2) creates room for new bearer's acceptance of the designation and for the practicability of the process the carrier appoints Bolero International as it's agent in accordance with Rulebook R.3.4.2.

Meeting the requirement of writing is another challenge to electronic bill. Article 3(3) of Hague –Visby and Article 14(1) requires carrier to issue bill of lading on demand of the shipper and Articles 3(3) (a) (b) and 3(6) of Hague-Visby requires bill of lading and certain notices to be in writing. However, Article 1(8) of Hamburg Rules defines writing to include telegram and telex and provides for electronic signature on a bill of lading. It is interesting to note that Article 8-10 under Chapter 3 of the Rotterdam Rules[viii] which is yet to come into force also provides for recognition of electronic bill of lading.[ix]

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[i] M. Clarke, 'Transport Documents: Their Transferability as Document of Title; Electronic Documents [2000] LMCLQ 356 at 359

[ii] J.C.T Chuah, 'Law of International Trade, 2nd ed., Sweet and Maxwell, London, 2001, P.178-185; J.F Wilson,"Carriage of Goods By Sea",6th ed;Pearson Education limited,Engalnd,2008,p.165

[iii] Boris Kozolchyk, "Evolution and Present State of the Ocean Bill of Lading From a Banking Law Perspective",23 J.MAR.L and Com (1992) 161 at 216

[iv] George F.Chandler,"Maritime Electronic Commerce For the Twenty-First Century", 22 TUL MAR.L.J (1998) 463 at 470 ;

[v] H.P Lowry, 'The 1996 United Nations Commission on International Trade Law Model on Electronic Commerce and Guide to Enactment' [1995] 5 ILSA Journal of International and Comparative Law, P.433; G.I Zekos, ' The Use of Electronic Technology in Maritime Transport: The Economic Neccessity and the Legal Framework in European Union Law', [1998] 3 Web Journal of Current Legal Issues. Available at http://webjcli.ncl.ac.uk/1998/issue3/zekos3.html (Accessed on 7/05/09)

[vi] Sarel Du Toit, 'Towards Electronic Bill of Lading ', (2000) Financial Regulation and the Payment System- Current issues and A South African Perspective, p.7; L. Cova Arria, 'Legal Obstacle to the Implementation of the Electronic Bill of Lading in Civil Law Countries', (1997) 32 European Union Transport Law 709 at 712; J. Clif, 'Electronic Commerce: The UNCITRAL Model Law and Electronic Equivalent to Traditional Bill of Lading', (1999) 27 International Business Lawyer 311 at 313

[vii] Griffin V. Weatherby (1868) LR 3 Q.B 753; S. Taylor, 'The Bill of Lading Electronic Registry Organisation: The Bolero Project '. Cited in Winnie (Jo-Mei) Ma, ' Lading Without Bills-How Good is the Bolero Bill of Lading In Australia? [2000] Bond L.REV.; [2000] 12(2) Bond Rev. 206

[viii] UN GA Resolution 63/122, A/CN.9/XLI/CRP.9

[ix] David Glass, 'A Sea Regime Fit for the 21st Century? The UNCITRAL Draft Convention' (2009) Shipping and Transport International Vol 7 No. 2 P. 8, 14

In order to protect the interest of less developed nations in the use of electronic bills and merchants who cease to be users of Bolero, and to avoid the risk of failing to comply with the Hague-Visby Rule, the Hamburg Rules and national laws that requires bill of lading to be in writing, Bolero makes it possible for such users to switch from electronic bill to paper bill of lading.[i] Article 17(5) of Model Law also allows switching from electronic bill to paper bill[ii] and Article 17(5) has been criticised[iii] for giving preference to initially issued electronic bill of lading in line with Rulebook R.3.7(3), however, Article 17(5) protects the interest of third parties where electronic bill of lading is replaced by paper bill of lading.[iv]

Signature requirement poses no difficulties for electronic bill[v] as digital signature is considered a perfect replacement for paper signature and even more secured. Digital signature is a type of asymmetric cryptography that make use of the technique of public key –private key cryptography which is differentiated by the technique of asymmetric key algorithms in view of the fact that the key used to encrypt data message is not the same used to decrypt the message.[vi]

Use of encryption protects the confidentiality of data messages transferred through electronic medium (network), it is a process of transforming information (referred to as **plaintext**) by using algorithm (known as cipher) to make the data readable to those possessing the key which can be used to decrypt the information. Encryption uses some process; first, it uses **CISCO Router** which enables encryption at the network linklayer (Layer 3). Secondly, the **Safenet** devices which involves the use of a pair of stand alone encryption devices supports encryption at the data linklayer (Layer 2)[vii]

Authenticity of data message is done through Messages Authentication Code (MAC) or through digital signature to ensure that fraud is not perpetuated. MAC also known as **'Keyed (Cryptographic) Hash Function'** protects data by allowing access to holder who possess the secret key[viii] to detect any changes as this prevents existential forgery under chosen-plaintext attacks.[ix] Security matters are issues of concern in the maritime world especially where electronic data replicate paper data by ensuring their authenticity, uniqueness and confidentiality.[x]

Security matters lapses could be hacked into by fraudsters and the careless manner of inputting or retrieving electronic data could constitute a problem when there is ineffective management.[xi] Despite several measures being put into place, there are still few lapses in respect of the security of electronic bill.[xii] The possibility that a computer could produce identical sets of symbols while encrypting data may likely result to fraud.[xiii] Also, the operators of the electronic bill networks, that is, the Certification Authority could misidentify a fraudster.[xiv]

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[i] Bolero Rulebook R.3.7(1) International Legal Feasibility Report (Prepared by Allen and Overy and Richards Buttler)2nd ed., 1999 ; E.T Laryea, ' Bolero Electronic Trade System-An Australian Perspective', (2000) 25(1) Tul. Mar. L.J, 255

[ii] C. Debattista, 'Sale of Goods Carried by Sea, 2nd ed., Butterworth, London, 1998, P.141

[iii] K.S Toh, 'Of Straight and Switch Bills of Lading', [1996] LMCLQ 416

[iv] Bolero Rulebook R. 3.7(3)

[v] Cloud Corp V. Hasbro, 314 F.3D 289 (7th Cir. 2002); Sea-Land Services Inc V. Lozen International, 285 F.3d 808 (9th Cir. 2002)

[vi] Wikipedia- www.en.wikipedia.org/wiki/digital_signature (accessed on 17/05/09)
[vii] Wikipedia- http://en.wikipedia.org/wiki/Encryption (accessed on 17/05/09)
[viii] Fred B. Schneider, Hashes and Message Digest', (Lecture Notes) Cornell University, Available at www.cs.cornell.edu/courses/cs 513/200fa/NL20.hashing.htm (Accessed on 14/05/09); Ron Rivest, 'Computer and Network Security, Lecture delivered on Sept 11 1987. Available at www.web.mit.edu/6.857/old stuff/fall 97/lectures 3.pdf
[ix] Wikipedia- www.en.wikipedia.org/wiki/message_authentication_code
[x] David Frisch and Henry D. Gabriel, 'Much Ado About Nothing: Achieving Essential Negotiability in an Electronic Environment', (1995) Idaho L.Rev. 747; Wright .B, and Winn J., 'The Law of Electronic Commerce', 3rd ed., Aspen a &Law & Business, New York, Para 1-9
[xi] John Livermore & Karilerk Euarjai, 'Electronic Bill of Lading and Functional Equivalence : A Perspective Report (1997) 28(1) JMLC, 55
[xii] D. Faber, supra
[xiii] J.Y.Gliniecki & C.G., 'The Legal Acceptance of Electronic Bill of Lading Documents, Writing, Signatures, and Notices in International Transportation Convention: A Challenge in the Age of Global Electronic Commerce', 1992, NJIB, VOL 13, No 71, P. 135
[xiv] Pau Todd, 'Maritime Fraud', MPG Books, Bodin, Cornwal, Great Britain, 2003, P.144

Fraudsters might deduce the private key through the public key where the encryption algorithm is defective and the fraudsters could under such a situation substitute his software version of the encryption with the device of a Trojan Horse Attack.[i]

Obviously the private keys are too long and are stored on a hard disk or physical card which could be hacked or misplaced negligently and this poses serious security risk for users.[ii] Moreover, cryptograph (encryption) techniques presently is more advanced than cryptanalysis (code-breaking), but experience has shown that such electronic devices may be broken with future advances in mathematics and computer science which might make it easy to decode encrypted data. The use of encryption is the safest means of securing electronic bill and has been proven to be effective.[iii]

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Advantages Of Electronic Bill Of Lading

Electronic bill of lading has several advantages when compared with the traditional bill of lading. Electronic bills increase the speed of transacting business and delays occasioned by paper bills are eliminated entirely.

The accuracy of information transmitted through electronic bills is verifiable by the use of private keys or by electronic signature. This is possible because the information is structured in a particular format and where such messages fail to conform to this format, such messages are rejected. Documentary security of bill of lading has instilled confidence in banks especially with the use of Tradecard System which provides the functions of letters of credit and enables users to negotiate insurance terms by electronic means.[iv]

As stated by Todd, electronic message can be used for purposes of its evidential value as it represents the receipt of goods and serves as evidence of contract; electronic bill affords the proposed holder the opportunity to inspect the electronic documentation before accepting the goods and where the proposed holder rejects the goods he losses any right of control and transfer in respect of the goods.[v] Furthermore, the electronic bill is open to any prospective user and is convenient for the carrier to have proof of identity of the consignee.[vi]

Incidence of fraud is adequately checked or prevented because messages are authenticated by digital encryption[vii] this eliminates totally the manipulation of the date of the bill of lading as was seen in *The Saudi Crown*[viii] and *Rudolf A.Oetker V. IFA International Frachagentur AG (The Almak)*.[ix] It is easier for electronic bill to identify manifest inconsistencies in charter parties that occurred in *Kruger and Co. Ltd V. Moel Tryan Ship Co. Ltd*.[x]

With the advent of electronic bill of lading, the carrier will issue only one bill and ensure that no other bill is negotiated outside the electronic system. This will certainly eliminate issuing of bill of lading in sets which could make it impossible for fraudsters to perpetuate fraud akin to *Gly Mills Currie & Co. V. The East & West Indies Dock Co*.[xi]

Electronic bill of lading will prevent The *Motis Export*[xii] kind of forgery and make the Maerk Sealand V. Akar [xiii] type of fraud a thing of the past. It is worthy to note that electronic bill of lading promotes confidence among banks, carriers and shippers in the course of business and important terms in the contract of carriage can be incorporated in the electronic bill.

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[i] Ibid
[ii] Ibid 145
[iii] Adams & Bonds, 'Secure E-Commerce as a Competitive Weapon (1999) ITLQ 241
[iv] M. Dubovec, supra
[v] Paul Todd in Reed, supra
[vi] Paul Mallom, 'Electronic Bill of Lading in the Bolero System' Available at http://www.itic-conference.com/welcome/speaker_notes/agency/paulmall.html (Accessed on 17/05/09)
[vii] E.Muthow,"The Impact of EDI on Bills of Lading, A Global Perspective on the Dynamics Involved-available at http://www.uctshiplaw.com/muthow3.htm (Accessed on 15/05/09)
[viii] (1986) 1 Lyold's Rep. 261;
[ix] (1985) 1 Lloyd's Rep. 557
[x] (1907) A.C. 272
[xi] (1882) 7 A.C 591
[xii] Motis Exports Ltd v Dampskibsselskabet AF 1912 A/S [2001] 1 Llyod's Report 211
[xiii] [2003] EWHC 797

Criticisms of Electronic Bill of Lading

The acceptance or rejection of electronic bill of lading in certain jurisdiction has resulted to series of conflicts of laws crisis in contract of carriage. A notable example is the provisions of Bolero Rulebook which applies only to users and it does not affect or protect the interest of third parties who may be part of the transactions and this will affect the workability of Bolero bill of lading. Also, the Rulebook is subject to the Hague-Visby, the Hamburg Rules and various domestic laws, but the Australian law by virtue of Article 1.1(b), 1A.1 recognises data messages in line with Article 17(6) of Model Law.

Furthermore, Rulebook 2.5(2) provides that English Law is the chosen Law, though the Rulebook's duality feature and scope tacitly recognises other laws. However, the ultimate question is whether other states will accept English Law as the choice of law. For instance, Section 11(1) (2) (a) of Australian COGSA does not recognise English Law as it overlaps with Australian Law on electronic bill and where the place of shipment is a state that does not have laws permitting electronic bill, such sates will reject the application of rulebook 2.5(2).

Similarly, Rulebook R2.5 (2) which confers exclusive jurisdictions over all claims for non-compliance with the Rulebook conflicts with Article 21of Hamburg Rule which empowers parties to institute action in certain jurisdictions like the place of contract, port of loading and port of discharge.

CMI system also has several defects. It is not clear how Rule 11 will solve the problem of statutory requirement of writing in most jurisdictions.[i] CMI lacks effective administrative structure and it places heavy burden on carriers in transferring title.[ii] CMI system fails to provide guidelines on how system failure could be managed.[iii] CMI safety procedures are defective in the sense that it relies on transmission of secret codes between ship and shore by means of radio communication which does not protect the communication from being tuned in by potential fraudsters.[iv] Also, CMI security system is porous as it does not make use of the electronic digital signature.[v]

Generally, operators of different system of electronic bill adopt a centralised system excluding non-users due to the cost implication of signing up to use the services of electronic bill providers.[vi]

Electronic data could be manipulated or altered due to its fleeting nature.[vii] Though, Article 3 of CMI Rules seeks to provide procedure to deal with manipulation of electronic data, but it is easy to concede that paper bills are durable and changes or addition will be visible on the face of the paper unlike electronic documents which takes the form of magnetic medium whose data content can be altered and such changes will not be clearly visible like alteration in paper bills of lading.[viii]

Use of electronic data has divided international business community into Hi-Tech and Low-Tech entities[ix] and this distinction is still obvious in information and communication sectors[x] with no effort being made to assist the low-tech States by the hi-tech States.[xi]

Disparity in level of technological advancement has prevented banks in less developed states to avoid electronic data transactions [xii] coupled with lack of sustainable information technology policy, this low level of infrastructural development in third world countries has reduced the volume of trade in the global economy.

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[i] M.Golbdy,"The CMI Rules For Electronic Bills of Lading reassessed in the light of current practices"[2008] LMCLQ at 70
[ii] E.Laryea,"Paperless Trade,Opportunities,Challenges and Solutions"(Kluwer Law International , The Hague,2002),p 78-84
[iii] The CMI Charts a Course on the Sea of Electronic Data Interchange: Rules for Electronic Bill of Lading', 16 Tul. Mar. L.J (1992)
[iv] Todd in Reed, supra
[v] Paul Todd, Maritime Fraud, supra
[vi] Emmaelhainz M. A, ' lectronic Data Interchange : A Total Management Guide, Von Nostrand Reinhold, New York, 1990, P.19
[vii] UNCID Uniform Rules of Conduct for Interchange of Trade Data by Tele-Transmission, ICC Publication No. 452 (1988) P. 8, Eric Bergsten, ' Paperless Systems:The Legal Issues', (1988) 3 Computer Law and Security Report 25
[viii] Todd in Reeds supra
[ix] Akwule R., 'Global Telecommunication: The Tecnology, Administration, and Policies', Focal Press, Boston, 1992, p.9-16
[x] Dizard(Jr) W.P., 'The Coming Information Age: An Overview of Technology, Economics, and Politics', 3rd., Longman, New York, P.1
[xi] Golding P.,'Global Village or Culture Pillage? The Unequal Inheritance of the Communication Revolution', in McChesney R.W., Wood EM., & Foster J.B(ed.,), 'Capitalism and the Information Age: The Political Economy of the Global Communication Revolution', (1998) Monthly Review Press, New York, 69 at 73-79
[xii] Maduegbuna S., 'The Effect of Electronic Banking Techniques on the Use of Paper-Based Payment Mechanism in International Trade', (1994) JBL 338 at 339

Conclusion

Paperless bill of lading is realisable if vigorously pursued either by legislative measures or policy initiatives of States by computerisation of port facilities by customs and government authorities and amending their domestic laws to embrace electronic bill of lading. Similarly, carriers, shippers and international organisations can adopt bolero or other similar electronic means of facilitating electronic bill of lading.

Electronic bill of lading in the nearest future will acquire the status of negotiability of paper bill of lading and become the mercantile custom by its acceptance, duration and intensity of usage. The electronic bill has successfully replicated the function of paper bill of lading and can be said to be the functional equivalent of the paper bill of lading, though, with different nature and procedural characteristics.