

The Advantage of Activating the Role of the EDI-Bill of Lading And its Role to Achieve Possible Fullest

A. Elentably

Maritime Economics, King Abdul-Aziz University, Kingdom of Saudi Arabia

ABSTRACT: With a steady increase in maritime traffic of foreign trade of the world, and the continuing trend to maximize returns for investors and states alike, the time factor in the flow of goods linchpin of achieving those savings, and then highlight the absolute importance of handling freight bill, a title of goods of various types, and to achieve electronic exchange of invoice is on the top priorities for the departments of marine ports to achieve those savings, since the bill of lading for goods as a title to the goods traded electronically requires a thorough understanding of certain aspects which are complementary to each other, such as: Rules of procedure When not in conflict with these Rules, the Uniform Rules of Conduct for interchange of Trade Data by Teletransmission, 1987 (UNCID) shall govern the conduct between the parties. .beside that the Form and content of the receipt message and its meaning The carrier, upon receiving the goods from the shipper, shall give notice of the receipt of the goods to the shipper by a message at the electronic address specified by the shipper. In addition This receipt message shall include different information such as: the name of the shipper; the description of the goods, with any representations and reservations, in the same tenor as would be required if a paper bill of lading were issued; the date and place of the receipt of the goods; and a reference to the carrier's terms and conditions of carriage; plus the Private Key to be used in subsequent Transmissions, also the role of Terms and conditions of the Contract of Carriage , Right of Control and Transfer, the terms of Delivery, Option to receive a paper document , Through those tangles and measures to deal electronically bill of lading, highlights the importance of the element of time to achieve the fullest possible use of electronic exchange of data bill of lading and the implications of this exchange to achieve a standard rate of loading and unloading and to reduce waiting times for ships in ports to the marine and rates of performance standard berths port and optimize the use of journals and equipment docks and achieve financial savings from shipping operations. These rules shall apply whenever the parties so agree.

1 DEFINITIONS

- "Contract of Carriage" - means any agreement to carry goods wholly or partly by sea.
- "EDI" means Electronic Data Interchange, i.e. the interchange of trade data effected by *teletransmission*.
- "UN/EDIFACT" - means the United Nations Rules for Electronic Data Interchange for Administration, Commerce and Transport.
- "Transmission" - means one or more messages electronically sent together as one unit of dispatch which includes heading and terminating data.
- "Confirmation" - means a Transmission which advises that the content of a Transmission appears to be complete and correct, without prejudice to any subsequent consideration or action that the content may warrant.
- "Private Key" - means any technically appropriate form, such as a combination of numbers and/or letters, which the parties may agree for se-

curing the authenticity and integrity of a Transmission.

- "Holder" - means the party who is entitled to the rights.
- "Electronic Monitoring System" - means the device by which a computer system can be examined for the transactions that it recorded, such as a Trade Data Log or an Audit Trail.
- "Electronic Storage" - means any temporary, intermediate or permanent storage of electronic data including the primary and the back-up storage of such data.

2 HOW CAN HANDLING OF PROCEDURE

When not in conflict with these Rules, the Uniform Rules of Conduct for interchange of Trade Data by Teletransmission, 1987 (UNCID) shall govern the conduct between the parties. The EDI under these Rules should conform with the relevant UN/EDIFACT standards. However, the parties may use any other method of trade data interchange acceptable to all of the users. Unless otherwise agreed, the document format for the Contract of Carriage shall conform to the UN Layout Key or compatible national standard for bills of lading. In the event of a dispute arising between the parties as to the data actually transmitted, an Electronic Monitoring System may be used to verify the data received. Data concerning other transactions not related to the data in dispute are to be considered as trade secrets and thus not available for examination. If such data are unavoidably revealed as part of the examination of the Electronic Monitoring System, they must be treated as confidential and not released to any outside party or used for any other purpose. Any transfer of rights to the goods shall be considered to be private information, and shall not be released to any outside party not connected to the transport or clearance of the goods.

2.1 *Form and content of the receipt message*

- 1 The carrier, upon receiving the goods from the shipper, shall give notice of the receipt of the goods to the shipper by a message at the electronic address specified by the shipper.

This receipt message shall include: the name of the shipper; the description of the goods, with any representations and reservations, in the same tenor as would be required if a paper bill of lading were issued; the date and place of the receipt of the goods; a reference to the carrier's terms and conditions of carriage; and the Private Key to be used in subsequent Transmissions. The shipper must confirm this receipt message to the carrier, upon which Confirmation the shipper shall be the Holder.

- 2 Upon demand of the Holder, the receipt message shall be updated with the date and place of shipment as soon as the goods have been loaded on board.
- 3 The information contained in paragraph (b) above including the date and place of shipment if updated in accordance with paragraph (c) of this Rule, shall have the same force and effect as if the receipt message were contained in a paper bill of lading

2.2 *Terms and conditions of the Contract of Carriage*

- 1 It is agreed and understood that whenever the carrier makes a reference to its terms and conditions of carriage, these terms and conditions shall form part of the Contract of Carriage.
- 2 Such terms and conditions must be readily available to the parties to the Contract of Carriage.
- 3 In the event of any conflict or inconsistency between such terms and conditions and these Rules, these Rules shall prevail.

2.3 *Applicable Law*

The Contract of Carriage shall be subject to any international convention or national law which would have been compulsorily applicable if a paper bill of lading had been issued.

3 THE SELECTION RIGHT OF CONTROL AND TRANSFER

The Holder is the only party who may, as against the carrier: claim delivery of the goods; nominate the consignee or substitute a nominated consignee for any other party, including itself; transfer the Right of Control and Transfer to another party;

- 1 instruct the carrier on any other subject concerning the goods, in accordance with the terms and conditions of the Contract of Carriage, as if he were the holder of a paper bill of lading. A transfer of the Right of Control and Transfer shall be effected: by notification of the current Holder to the carrier of its intention to transfer its Right of Control and Transfer to a proposed new Holder, and confirmation by the carrier of such notification message, whereupon the carrier shall transmit the information as referred to (except for the Private Key) to the proposed new Holder, whereafter the proposed new Holder shall advise the carrier of its acceptance of the Right of Control and Transfer, whereupon the carrier shall cancel the current Private Key and issue a new Private Key to the new Holder.
- 2 If the proposed new Holder advises the carrier that it does not accept the Right of Control and

Transfer or fails to advise the carrier of such acceptance within a reasonable time, the proposed transfer of the Right of Control and Transfer shall not take place. The carrier shall notify the current Holder accordingly and the current Private Key shall retain its validity.

The transfer of the Right of Control and Transfer in the manner described above shall have the same effects as the transfer of such rights under a paper bill of lading.

4 THE PRIVATE KEY

- 1 The Private Key is unique to each successive Holder. It is not transferable by the Holder. The carrier and the Holder shall each maintain the security of the Private Key.
- 2 The carrier shall only be obliged to send a Confirmation of an electronic message to the last Holder to whom it issued a Private Key, when such Holder secures the Transmission containing such electronic message by the use of the Private Key.
- 3 The Private Key must be separate and distinct from any means used to identify the Contract of Carriage, and any security password or identification used to access the computer network.

5 DELIVERY

- 1 The carrier shall notify the Holder of the place and date of intended delivery of the goods. Upon such notification the Holder has a duty to nominate a consignee and to give adequate delivery instructions to the carrier with verification by the Private Key. In the absence of such nomination, the Holder will be deemed to be the consignee.
- 2 The carrier shall deliver the goods to the consignee upon production of proper identification in accordance with the delivery instructions specified in paragraph (a) above; such delivery shall automatically cancel the Private Key.
- 3 The carrier shall be under no liability for misdelivery if it can prove that it exercised reasonable care to ascertain that the party who claimed to be the consignee was in fact that party.

6 OPTION AVAILABLE TO RECEIVE A PAPER DOCUMENT

- 1 The Holder has the option at any time prior to delivery of the goods to demand from the carrier a paper bill of lading. Such document shall be made available at a location to be determined by the Holder, provided that no carrier shall be obliged to make such document available at a place where

it has no facilities and in such instance the carrier shall only be obliged to make the document available at the facility nearest to the location determined by the Holder. The carrier shall not be responsible for delays in delivering the goods resulting from the Holder exercising the above option.

- 2 The carrier has the option at any time prior to delivery of the goods to issue to the Holder a paper bill of lading unless the exercise of such option could result in undue delay or disrupts the delivery of the goods.
- 3 A bill of lading issue shall include: the information set out in the receipt message referred to (except for the Private Key); and a statement to the effect that the bill of lading has been issued upon termination of the procedures for EDI under the CMI Rules for Electronic Bills of Lading.
The aforementioned bill of lading shall be issued at the option of the Holder either to the order of the Holder whose name for this purpose shall then be inserted in the bill of lading or to bearer.
- 4 The issuance of a paper bill of lading shall cancel the Private Key and terminate the procedures for EDI under these Rules. Termination of these procedures by the Holder or the carrier will not relieve any of the parties to the Contract of Carriage of their rights, obligations or liabilities while performing under the present Rules nor of their rights, obligations or liabilities under the contract of carriage.
- 5 The Holder may demand at any time the issuance of a print-out of the receipt message (except for the Private Key) marked as non-negotiable copy. The issuance of such a print-out shall not cancel the Private Key nor terminate the procedures for EDI.

7 ELECTRONIC DATA IS EQUIVALENT TO WRITING

The carrier and the shipper and all subsequent parties utilizing these procedures agreed that any national or local law, custom or practice requiring the Contract of Carriage to be evidenced in writing and signed, is satisfied by the transmitted and confirmed electronic data residing on computer data storage media displayable in human language on a video screen or as printed out by a computer. In agreeing to adopt these Rules, the parties shall be taken to have agreed not to raise the defense that this contract is not in writing.

7.1 INTRODUCTION

This paper aims to give some idea of the **dynamics involved in implementing electronic bills of**

lading. The bill of lading is one of the compendium of documents used in carriage of goods by sea. The writer did therefore not attempt to isolate the bill of lading, although the emphasis is clearly placed on substituting the traditional (*tangible*) bill of lading with EDI.

To understand the complexity of adapting existing documentation to EDI, it is essential to place the bill of lading into an EDI context. The electronic transfer of documents is nothing new. It is the statutory requirements and legal rights and obligations associated with the transfer that is currently stretching the boundaries of the law. Most of the legislation dealing with carriage and shipping documentation was drafted in an age where EDI was clearly not envisaged. Consequently, uncertainty exists regarding the legal recognition of electronic documentation.

The **role and function of the traditional bill of lading** is briefly examined followed by the electronic evolution of the bill of lading.

The **technical and legal obstacles** to the implementation of EDI are then reviewed. These include the requirement that the document has to be in writing, signature, negotiability and liability. The admission of computer generated evidence is also dealt with.

Parties wishing to enter the arena of electronic documentation will have to draw up an **interchange agreement** to regulate the various technical and legal issues arising out of the electronic transfer of documents. Various model interchange agreements are examined. The interchange agreement will in many ways be the backbone of the EDI operation. Parties will have to consider the legal and technical issues that might arise in the interchange agreement. A properly drafted interchange agreement will go a long way towards reducing some of the potential problems associated with electronic transactions.

EDI model rules provide for the incorporation of EDI into an acceptable legal framework. These rules will be considered. The emphasis is placed on the **CMI Model Rules**. The **UNCITRAL Model Law on Electronic Commerce** will also be briefly examined. This model law should provide a great impetus towards EDI acceptance and full scale legal recognition.

The paper then focuses on the attempt by various bodies to implement electronic bills of lading. Two prominent examples are given namely **Bolero** and **SeaDocs**. Lastly, a brief introduction is given to the impact of the Internet on EDI. This is an existing development and deserves further discussion. In conclusion, it is suggested that the traditional bill of lading can be substituted by EDI.

7.2 THE ordinary BILL OF LADING

The use of the bill of lading is almost as old as maritime trade itself. One of the earliest references to the keeping of records for cargo shipped on board is found in *The Ordonnance Maritime of Trani* of 1063. The original function of the bill of lading was therefore to acknowledge that the goods have been shipped. The use of the bill of lading became widespread during the 16th century and continued to develop as a respected document in international trade. Growing trade eventually necessitated the transfer of title in the goods before they arrived. It therefore became necessary to endorse the bill of lading to a third party in order to effect transfer of the goods. The bill of lading became a negotiable instrument. *Mitchelhill* reports that the first reported case in which endorsement of the bill of lading is mentioned dates from 1793.

The importance of the traditional bill of lading in international trade is largely self-evident when viewed against its functions. It is:

- Evidence of the contract of affreightment i.e. it contains all the essential terms;
- Prima facie evidence of the receipt issued by the carrier that the goods have been shipped or are received for shipment; and
- A 'quasi negotiable' document which passes the title in the goods.

International traders will almost always enter into a contract of carriage before the bill of lading is issued. The contract of carriage is then evidenced by the bill of lading. It is only possible to exclude this provision by express agreement.⁴ Furthermore, the bill of lading will also normally contain the terms of the contract of carriage.

Arguably, the most important function of the bill of lading relates to its negotiability. The bill of lading serves as negotiable commercial paper thereby enabling the transfer of title of the goods while they are in transit. Under English law, the bill of lading is not a truly 'negotiable' instrument because the indorse of the bill of lading can not receive a better title than the original holder had.⁵ However, the bill of lading is a document of title and the holder of the bill of lading is entitled to take delivery of the goods. This is settled law and is reflected in a 1912 House of Lords⁶ decision where it was held that:

delivery of the bill of lading when the goods are at sea can be treated as delivery of the goods themselves, this law being so old that I think it quite unnecessary to refer authority for it.

The fact that the bill of lading is a document of title presents one of the greatest obstacles to the implementation of the electronic bill of lading. The effect will be examined later in this paper.

The traditional bill of lading also has several **disadvantages** in the modern shipping environment. Containerization and modern vessels have resulted in a speedier carriage of goods. The result is that the goods arrive at the port of destination before the relevant shipping documents. This causes delay and erodes the advantage gained by the expedited voyage. Considerable expenses are also incurred in the issuing and processing of bills of lading.⁷

The issuing of fraudulent bills of lading has also become a matter of international concern. Bills of lading are customarily issued in sets of three, consequently there is scope for the fraudulent use of more than one original to sell cargo on the water. These bills of lading are falsified in a number of ways:⁸

- Altering the quantity and quality of goods shipped in the bill of lading;
- in spite of the fact that an original bill of lading has been issued, the consignor may fraudulently sell the goods to other buyers during transit;
- the bill of lading can also be counterfeited in order to obtain fraudulent delivery; and
- it is possible to forge the bill of lading in order to obtain payment in a documentary credit.

There are various kinds of bills of lading. The form of the bill of lading will depend on the required function. Mitchelhill 9 lists the following types of documents:

- Bill of lading issued with printed clauses for conventional or through traffic on liner terms;
- Bills of lading issued for goods accepted under 'Combined Transport' conditions;
- 'Short form' or 'blank form' bills of lading;
- Bills of lading issued under a charter party; and
- Bills of lading issued by a freight forwarder.

Negotiable bills of lading are not always required. The result is that there has been an increase in recent years in substitutes for the traditional bill of lading. One such example is the **sea waybill**. Unlike the bill of lading, the sea waybill is not a document of title. It is intended for use where there is no transfer of goods envisaged. The sea waybill constitutes evidence of the receipt of the goods by the carrier as well as the contract of carriage. It is not necessary for the consignee to produce the document in order to obtain delivery of the goods. The consignee would merely have to produce adequate identification.¹⁰ This document is however not without inherent risks. The buyer who has paid in advance might find that the seller has changed the identity of the consignee. It therefore does not offer the same level of security that a traditional negotiable bill of lading does.

7.3 THE ELECTRONIC PROGRESSION OF THE BILL OF LADING

The traditional bill of lading has evolved over time to reflect commercial realities. Maritime commerce has been at the forefront of commercial development since its inception. It is therefore not surprising that the shipping industry has embraced the concept of an electronic bill of lading. Attempts are now afoot to replace the traditional, tangible bill of lading with electronic data.

Containerization has been the catalyst in introducing electronic data interchange to shipping documentation.¹¹ Shipping and cargo interests started competing in an increasingly competitive environment. Computers made it possible for shipping documents to be processed quicker and more effectively than the traditional paper based documentation. It was therefore only a matter of time before electronic documentation was introduced in the shipping market. An EDI system would enable the parties to reduce the volume of documentation and the delay caused in transferring the documents.

Yiannopoulos 12 provides a strikingly accurate comment when he reflects on the development of the electronic bill of lading. He suggests that:

The [electronic bill of lading] is not a mere evolution in the form of bills of lading; it is the creation of a new species of bills of lading.

The bill of lading is issued by or on behalf of the carrier after the goods have been loaded on board. The holder of the bill of lading is therefore entitled in law to ownership of the goods. However, it can be endorsed to a 3rd party who then becomes the legal holder of the bill of lading and is entitled to take delivery of the goods. It is this transferability of the document that presents the real challenge to develop an EDI system for negotiable bills of lading.¹³

Besides, that can even take advantage and to achieve savings from the use of electronic data, and ensure the achievement of those savings must be adapted to many organizations and operational organizations for the inclusion of a number of laws and regulations should be binding for the introduction of the application of electronic exchange and work to ensure the rights of the Parties to maritime transport, either the shipper or carrier, or owners of the goods And produce a variety of laws that are binding on the authorities of ports and marine transport for the adoption of multi-electronic bills of lading And work to reduce the number of paper documents which used and also to reduce the duration of the cargo handling operations, which reflected positively on the parties to the process of maritime transport and leads to increases in growing the added value of Maritime Transport Sector

The impact of EDI on the traditional bill of lading also has to be evaluated against the formal requirements for a valid bill of lading. Most shipping nations subscribe to the Hague-Visby rules. Most of the international rules applicable to bills of lading were codified in the Hague Convention. This Convention was later amended by the Visby-protocol and became known as the Hague-Visby rules. No express provision is made in these rules regarding the formalities of a bill of lading. The Hague-Visby rules are applicable to any bill of lading relating to the carriage of goods. These rules are set out in the Schedule to the South African COGSA and have force of law in South Africa. Article III(3) reads:

After receiving the goods into his charge the carrier or the master or agent of the carrier shall, on demand of the shipper, issue to the shipper a bill of lading...

The implication is therefore that a document has to be issued. Will EDI satisfy this requirement? There is no specific reference to the fact that these documents have to be in writing or on paper. It is furthermore important to inquire into the formalities prescribed by each local forum. In Germany, for example, a bill of lading without a hand-written signature is null.¹⁴ Many other national laws and domestic legislation requires the use of paper documents. These requirements, which could present a serious obstacle to the use of EDI, will be dealt with later in this paper.

In addition to the legal obstacles involved in implementing EDI, several other factors also have to be taken into consideration. These include the technical aspects involved in setting up an EDI network. In order for EDI to be used effectively, it has to provide a secure means of transmitting the information. The trading partners will have to feel confident that the electronic messages are private and provide adequate protection against fraudulent misuse.

It is clear that the implementation of the electronic bill of lading holds many challenges. The success of this new species of bills of lading will depend on the work and effort of all the interested parties. Ultimately however, a wide scale acceptance will depend on practical results.

If the electronic bill of lading suits to the needs of the modern shipping industry and amplifies the functions of the traditional bill of lading, it will secure its survival in the competitive shipping environment.

7.4 EDI

The benefits of electronic commerce are widely accepted. Electronic Document Interchange (EDI) in

particular has evoked considerable interest in recent years. EDI has been developed to allow computers to copy the relevant elements of data from a pre-existing source within a subsequent message, thereby eliminating re-keying and duplication of activities.¹⁵

In order to understand the impact of EDI on international trade and commercial transactions, it is necessary to examine how EDI functions. A number of important legal considerations also arise in the process of facilitating electronic commerce. These considerations have been alluded to above, and will be discussed in more detail.

7.5 UNDERSTANDING EDI

A number of definitions has been formulated for EDI. In essence, EDI is:

...the replacement of the paper documents relative to an administrative, commercial, transport or other business transaction, by an electronic message structured to an agreed standard and passed from one computer to another without manual intervention.¹⁶

EDI, as a means of conducting business, is gaining popularity and acceptance for a number of reasons. These are:

- EDI increases the speed with which business is conducted by eliminating the delay caused by manual (paper-based) documentation. The transfer of documentation is therefore speeded up. It would eliminate the delay caused by cargo arriving at the port of destination before the actual documentation required to take delivery arrives.
- Messages sent by EDI are also accurate since the information is structured to an agreed format. The result is that the message will be rejected if it does not conform to this format. The electronic information would furthermore be verifiable by means of either a 'private key' or electronic signature.
- Digital encryption ensures that the message is authentic. Fraud would therefore be reduced.
- All of these factors ensure that a company trading via EDI would save time and money.

In spite of all these advantages, EDI is not as extensively used as one would expect. One of the reasons for this is the legal uncertainty surrounding EDI. The capital expense involved has also inhibited the development of EDI in some sectors. In spite of this, EDI is poised to have a significant impact on the way business is conducted in the immediate future.

An EDI message consists of several parts. The messages approved for EDI use also have to be incorporated into a message framework. This would then in effect provide "a language of alpha-numeric

*codes around which the content of each EDI message is constructed and a 'grammatical' structure through which those codes can be organised".*This message can then be divided into three concentric subparts:

- The first subpart is the message itself, e.g. the electronic version of the bill of lading.
- The transaction set is then made up of segments.
- The segment is then made up of data elements.

The message framework and code list will then translate these conventional terms into a computer understandable unit. This implies that the EDI users will not have to enter a complete new set of data/information into the computer every time a new transaction is conducted.

In order for EDI to function there has to be a combination of technology and management resources to ensure that the data is transmitted correctly and accurately between the computer systems of the various parties. Parties need to ensure that the correct software is utilised to transmit the internal data format to an acceptable EDI format. It might also be required to make use of a third party EDI network.

8 THE TRANSACTION OF VALUE-ADDED NETWORKS (VAN)

Although it is possible for EDI users to link their computer systems directly to each other, in practice they would often make use of a Value-Added Network service provider (VAN). These firms specialize in technical assistance. VAN's would also provide technical support and assist in data security and the configuration of the required software.

Computer programmes and data systems are not always compatible with each other. For example: the carrier could use a computer system which cannot process the information received by the computer system of the shipper. In such a scenario, the carrier and the shipper would make use of a VAN. The biggest advantage of a Value Added Network service provider is the fact that it can bridge the gap between these two systems. In other words, the VAN will match the various computer protocols and provide the necessary software. This ensures that data that has been created on one system can be received on the other system.

Most of these networks operate on a generic basis. The network will offer its services to any party entering into an agreement with it. However, it is also possible for networks to specialise and provide their services only to a particular class of users. It would therefore be possible for a network to specialise in the movement of EDI information and documentation exclusive to the shipping industry. In

practice however, it is likely that the parties will have to make use of multiple networks because of the vast amount of documentation involved originating from the various sectors in an international trade transaction. In some cases, an additional network might be required to connect the different parties to each other.

The choice of the Value Added Network is crucial to the operation of the EDI transmission. The VAN will control the communication between the various parties and will hence be responsible for the smooth operation of the electronic transfer of the relevant documentation. If the VAN experiences problems or shuts down completely, this will directly affect the transfer of the electronic documentation. Liability issues are also likely to arise under these circumstances and these issues will have to be regulated in an underlying user agreement.

9 SOLVE OF TECHNICAL PROBLEMS

There are a number of technical problems associated with EDI. One of these is the fact that electronic documents have to be exchanged according to a certain common standard. A standard data format would therefore be required in order to ensure compatibility between the various systems currently in use. Furthermore, it is essential for the relevant data documentation to conform to adequate security standards. Opponents of EDI argue that the electronic transmission of data is not secure enough to provide a solid foundation for transmitting the bill of lading on a computer. These are valid concerns and will have to be addressed. However, it is submitted that various techniques exist to secure the data transmission and provide for the integrity of the message. These techniques include encryption and the use of Personal Identification Numbers. Alleviating fears about real and perceived lack of security will be a great challenge to the proponents of EDI.

9.1 *Useful STANDARDS*

Electronic documents have to be exchanged in a standard data format. The computer has to process the data to enable the data to become information that can be understood by the receiver. Document content standards are used for this purpose. These standards will then ensure that the order in which data appears is fixed to a certain common standard.

Unfortunately, the search for a common standard has resulted in two very different standards being developed. In the United States of America the ANSI X12 cross-industry standard (American National Standards Institute Accredited Standards

Committee X.12) is widely in use while the United Nations (in co-operation with the International Standards Organization) has developed EDIFACT (EDI for Administration, Commerce and Trade). EDIFACT consists of:

a set of internationally agreed standards, directories and guidelines for the electronic interchange of structured data, and in particular that relating to trade in goods and services, between independent computerised information systems.

The EDIFACT language is made up of a comprehensive coded data register. This register basically covers all the words and printed forms used in trade. Furthermore; it provides a common syntax and format that will result in the production of recognizable shipping documents. It would not make a difference if the hardware and the software used are not compatible. Human intervention will therefore not be necessary to process the information. This will enable the bulk of the shipping documentation to be processed at a speedy rate which in turn ensures efficiency and savings in costs. A carrier could therefore send a computerized bill of lading according to an agreed standard (e.g. EDIFACT); the shipper's computer will instantly recognise the document as a bill of lading and proceed to conduct computer operations on the document.

The lack of a universally agreed standard should not necessarily be seen as a bar to the growth of international trade or the use of EDI. Some commentators have suggested that a common standard is not desirable in an industry where every sector has its own unique way of communicating and conducting business.

In order to ensure the full benefit of a universally recognised standard, it is suggested that parties should specify the standard to be used in the interchange agreement. This would ensure that an added degree of interchange security is obtained. The technical problems relating to a common 'language' or agreed standard can therefore easily be overcome by co-operation of the various sectors involved in the exchange of information by EDI. Other problems however remain, these are:

- Providing the necessary hardware and software service. These services will have to be agreed upon in the interchange agreement.
- Providing adequate backup procedures for emergencies. It is essential to establish the liabilities involved in the event of a communications breakdown.

It is suggested that these technical problems can easily be overcome by drafting a proper interchange agreement to regulate the EDI operations of the parties. However, the greatest area of concern for the parties will be to provide for adequate security.

9.2 Requirement's SECURITY

In order for traders to be comfortable with the use of EDI, they will have to be satisfied that the system as a whole and the message in particular, is secure. Security weaknesses will also inhibit the legal acceptance of EDI transactions. Various methods are used to ensure that the electronic data is transmitted on a secure basis. These methods include passwords, encryption, PIN codes and electronic signatures. Encryption will ensure that the data transmission is kept confidential while authentication will provide for data integrity.

9.3 The Method of Protecting the System

The data stored in the computer system is susceptible to tampering. Access to the data will therefore in most cases be restricted to authorised users. The use of an access card is one way of ensuring that only an authorised person uses the system. It is almost impossible (and neither financially viable) to provide a foolproof system. The parties would therefore have to agree to the level of security needed in order to minimize the risk of fraud or tampering. The need for security has also been recognized by UNCITRAL, stating that:

...it is clear that the legal reliability of EDI techniques requires that high standards be used to determine legal certainty as to the identity of the sender, its level of authorisation and the integrity of the message.

It might also be useful for parties to have their system audited by a security expert at various intervals. The security expert should be independent and must ensure that the required security measures have been implemented. This would provide for an added sense of security between the parties.

9.4 Protecting the Integrity of the Message

The message integrity can be assured by the process of authentication, i.e. ensuring that the data sent has not been tampered with. Encryption would seem to provide the most security but it must be noted that encryption techniques are prohibited by some governments as reported in a recent Time magazine article. Governments opposing the export of encryption techniques fear that this technology might be abused by criminals and terrorists. Parties would normally agree to the use of encryption in the interchange agreement. One example of a model interchange agreement that provides for encryption is UNCID. Article 9(b) deals with the possibility of parties to agree to use encryption.

An interesting development concerning EDI security has been the approval of a resolution by the American Bar Association (ABA) dealing with

legal-security issues involving electronic data interchange and electronic commerce. According to this resolution, the ABA has to:

- facilitate and promote the orderly development of legal standards to encourage use of information in electronic form, including appropriate legal and professional education;
- encourage the use of appropriate and properly implemented security techniques, procedures and practices to assure the authenticity and integrity of information in electronic form; and
- recognise that information in electronic form, where appropriate, may be considered to satisfy legal requirements regarding a writing or signature to the same extent as information on paper or in other conventional forms when appropriate security techniques, practices, and procedures have been adopted.

As has already been mentioned, cryptography offers a viable means of providing security. However, the costs of implementing these measures are often quoted as an inhibitor. This problem was addressed in a workshop (conducted by the National Institute of Standards and Technology of Gaithersburg, Maryland) on Security Procedures for the Interchange of Electronic Commerce. The cost in implementing cryptographic methods would include software licensing, export filing process, overheads and professional training of staff. It was argued that a premature consideration of costs could eliminate other viable options. The parties would therefore have to evaluate their underlying requirements to determine what level of security is required. Since a bill of lading is a document of title and entitles the holder to claim delivery of the goods, the level of security needed would have to be substantially higher than the security required for a normal receipt.

Security services will have the added benefit of providing services that are not possible to provide with paper-based techniques. An example of such a service is non-repudiation. This method ensures that the originator of a document cannot deny the origin of the document, thereby providing irrevocable proof of authenticity.

Digital signatures are limited in some respects. Parties making use of EDI or digital signatures will often have to revert to a trusted third party to provide security assurance. The third party will be required to date-stamp, store and keep an audited data log of the transaction. This would provide proof of the time of origination and content of the electronic document. Once again, the liability issues arising from the use of a third party will have to be worked out in the interchange agreement.

Proper message or data authentication will also enhance the evidential value of the message. The

court will have to be sure that the message submitted as evidence is authentic. Admissibility of EDI evidence will be dealt with later.

10 LEGAL PROBLEMS

EDI has been the catalyst for a number of changes in the scope and function of the law. Legal reform has however not always kept pace with technological development. The legal problems involved in implementing EDI on a global basis become apparent when viewed against the relevant statutory requirements imposed by the various jurisdictions. Bills of lading have to meet certain statutory and formal requirements before they become legally enforceable. These requirements will now be examined.

11 CONCLUSION

It is difficult for parties to relinquish a document which has served them well over the years. The bill of lading is one of the most respected documents in international trade. It has been held that:

*A bill of lading is a document of dignity, and courts should do everything in their power to preserve its integrity in international law for there, especially, confidence is of the essence.*¹⁷⁹

However, new technology has brought new challenges and possibilities. Once the remaining technical concerns regarding security and authentication have been resolved, and legal recognition assured, full scale implementation is possible.

Substituting the traditional bill of lading with EDI is still fraught with real (and perceived) problems. Parties wishing to trade with EDI will have to be aware of the potential pitfalls associated with electronic trading. Pending legislative reform, the parties will have to regulate many of the technical and legal requirements in the underlying EDI interchange agreement.

It is possible even take advantage and to achieve savings from the use of electronic data, and ensure the achievement of those savings must be adapted to many organizations and operational organizations for the inclusion of a number of laws and regulations should be binding for the introduction of the application of electronic exchange and work to ensure the rights of the Parties to maritime transport, either the shipper or carrier, or owners of the goods And produce a variety of laws that are binding on the authorities of ports and marine transport for the adoption of multi-electronic bills of lading And work to reduce the number of paper documents

which used and also to reduce the duration of the cargo handling operations, which reflected positively on the parties to the process of maritime transport and leads to increases in growing the added value of Maritime Transport Sector

The traditional bill of lading will still have its place in the immediate future. The capital expenses of setting up an EDI network might prove too costly to afford these services to everybody. There is no reason why the electronic bill of lading can't co-exist with the paper bill of lading for the immediate future. The real challenge lies in creating a system in which both traders and the courts feel comfortable. This will require a concerted global effort from all the parties involved. This is certainly a difficult, but by no means impossible, task. The proponents of EDI will have to prove that the electronic bill of lading can function in the real trading environment and, ultimately, that it provides users with a competitive edge.

The electronic bill of lading will undoubtedly become a reality. There are simply too many advantages attached to this form of trading to dismiss the concept. In order for the electronic bill of lading to replace the paper bill of lading, it would essentially have to offer the same advantages and level of security associated with the paper bill of lading.

The functions of the negotiable paper bill of lading can be duplicated, but the electronic bill of lading would have to go one step further: it would have to improve on the traditional bill of lading. The advantages of the electronic bill of lading have been discussed. It is suggested that these advantages will

prove sufficient to eventually replace the paper bill of lading and take the bill of lading into the next century.

REFERENCES

- [1] Bainbridge D. Introduction to Computer Law 3rd Ed. Pitman Publishing 1996
- [2] De Boer Th.M. The Missing Link: Some thoughts on the relationship between private international law and comparative law in Boele-Woelki et al Martinus Nijhoff (Dordrecht) 1994
- [3] Delatista, C. Incoterms in Practice ICC Publication 1995
- [4] Farlam & Hathaway. Contract 3rd Ed. Juta & Co Ltd 1994
- [5] Forsyth, C.F. Private International Law 2nd Ed. Juta (Cape Town) 1990
- [6] Hinge, K.C. Electronic Data Interchange -- From Understanding to Implementation AMA Membership Publication Division (New York) 1988
- [7] Mitchelhill, A. Bills of Lading Chapman & Hall 1982
- [8] Payne & Ivamy Carriage of Goods by Sea 13th Ed. Butterworths (London) 1989
- [9] Scrutton on Charterparties 19th Ed. Sweet & Maxwell (London) 1984
- [10] Walden, EDI and the Law Blenheim Online Publishing (London) 1989
- [11] Wheble, B The EDI Handbook Blenheim Online Publishing (London) 1988
- [12] Yiannopoulos, A.N. Ocean Bills of Lading: Traditional Forms, Substitutes, and EDI Systems Kluwer Law International 1995
- [13] Chandler G.F. "Maritime Electronic Commerce for the Twenty-First Century" Paper presented to CMI Panel on EDI June 10th 1997 at Antwerp, Belgium
- [14] Debatista C. "Incoterms in Practice" ICC Publication 1995
- [15] Eiselen G.T.S. "Elektroniese Dataverwisseling en die Bewysreg" THRHR 1992(5)
- [16] Eiselen S. "The Electronic Data Interchange Agreement" SA Mercantile Law Journal 7 1995