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WORLD MARITIME UNIVERSITY

Malmö, Sweden

ELECTRONIC BILLS OF LADING

**Implications and Benefits for
Maritime Transport in Senegal**

By

**IBRAHIMA SY
SENEGAL**

A dissertation submitted to the World Maritime University in partial
fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE

in

**SHIPPING MANAGEMENT
(Commercial Stream)**

1999

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DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

These contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University

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ABSTRACT

Title of dissertation: **Electronics Bills of Lading
Implications and Benefits for
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The current international trade is characterised by the rapid and radical development of EDI, and other means of communications such as E-mail and Internet. Modern technological development has resulted in the arrival of the ship at the port of destination before the arrival of the Bills of Lading to enable delivery of the goods.

In addition to that, there is the cost of paper documentation, which does not allow a competitive edge for different companies yet seeking for ways to reduce their operating costs. Finally, different cases of fraud and even corruption complete this list.

In response to that situation, those concerned with maritime documentation have been working during the last decades on ways to replicate paper Bills of Lading by electronic messages.

This dissertation is a study of these initiatives. A brief look is taken at present attempts being developed, such as the CMI Rules for Electronic Bills of Lading, the Bolero project, and the International Chamber of Commerce and the United Nations through the UN/ECE in order to create electronic Bills of Lading.

In addition, issues relating to the implementation of electronic Bills of Lading and the legal considerations involved are studied. In particular, focus has been centred on

the legal obstacles and the different solutions proposed both at local and international levels.

Moreover, it outlines the implications and advantages maritime transport in Senegal will face once electronic Bills of Lading are implemented.

The concluding chapter gives the summary and conclusions of the paper. Proposals and recommendations have also been made in order to implement and promote the use of electronic Bills of Lading to enable Senegal to fully benefit from them.

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LIST OF ABBREVIATIONS

BIMCO	THE Baltic and International Maritime Council
B/L	Bill of Lading
CMI	Comité Maritime International
ECE	Economic European Commission
EDI	Electronic Data Interchange
GTP NET	Global Trade Point Network
ICC	International Chamber of Commerce
JIT	Just in Time
SONATEL	Société Nationale des Telecommunications du Senegal
SWIFT	Society for worldwide Interbank Telecommunication
TTC	Through Transport Club
UNACOIS	Union Nationale des Commerçants et Industriels du Senegal
UNCITRAL	United Nations Commission on International Trade Law
UNCTAD	United Nations Conference for Trade and Development
VAN	Value Added Network
WAEMU	West African Economic and Monetary Union
WMU	World Maritime University

Chapter 1

INTRODUCTION

Electronic Bills of Lading can be seen as the effective replacement of paper Bills of Lading with a series of electronic messages.

During the past few years, the international business community has been working on ways to enable trade transactions to benefit from the revolution in electronic communications the world has witnessed.

The main reason for trying to achieve such an objective could be explained by two series of factors impinging on the shipping business. First, the present situation in international trade is remarkable. Goods arrive faster at their port of destination than their associated documentation thanks to the modern technological development. Second, it was estimated at an UNCTAD Trade and Efficiency Symposium held in Columbus, Ohio in 1994 that customs procedures, including paper work and delays, add seven to ten percent to the cost of imported goods. On top of that, there are sometimes risks of fraud and corruption occurring during the process of releasing cargo in port.

This is why, since the early 1980s those concerned with maritime documentation have been reflecting on different ways toward replicating the paper Bill of Lading in an electronic environment.

Progress towards achieving such an objective has been painstakingly slow at times. "Everybody involved in trade shares the same degree of frustration, everybody wants to get rid of the paper, but can find no effective way of doing it other than by specific suppliers", (Scott, 1998, p.14).

The first important step was, however, taken by the Comité Maritime International (CMI), which has set out rules relating to electronic Bs/L. These rules do not have the force of law but may be adopted by agreement. The aim of these rules was to set out minimum requirements for the creation of electronic Bs/L. An essential element is the replacement of the paper B/L by a private key. This system has not become successful because, there was no neutrality in this system since the carrier was assuming at the same time the function of clearing house for the private key. Another reason was the fact that the paper work was still present since the shipper or his representative was often obliged to request a paper B/L when clearing his goods before the Customs services.

But the first true commercial attempt at creating an electronic Bill of Lading is the Bolero project. Based on a project set up in the early 1990s by BIMCO, Bolero has over the past few years developed from a pilot project sponsored by the European Commission, whose goal was to achieve electronic Bs/L. The partners involved in the Bolero commercial venture are the TTC (the Through Transport Club) and S.W.I.F.T (Society for Worldwide Inter-bank Financial Telecommunications). Between them, they represent over 10,000 organisations that have a direct interest in the way world trade evolves. This is why, there is today a real hope that a real electronic Bill of Lading, which the international business has been waiting for, may soon be a reality.

Yet, many people could agree that technology was not the challenge but "the legal profession, which has stuck to the legal principle that a document of title can only be issued and transferred by an original signature in handwriting", (Donner, 1999). The emergence of new technological innovations, however, has not yet found an appropriate national and international legislation. The existing regulations in many

countries act as barriers to electronic commerce because they require written documents, signatures and many provisions clearly envisage paper documentation.

In order to overcome these obstacles, there was a need to create such a legal framework for all potential users of electronic Bs/L until all laws will fully recognise electronic Bills of Lading as equivalents of paper Bs/L. Trading parties in EDI for instance have been, through the use of a communication agreement, able to minimise the risks and uncertainties of operations that have not been addressed by law. However, these agreements are of contractual nature and therefore they can not supersede legal obligations arising from mandatory law.

Another obstacle is the fact that contractual provisions are only binding between contracting parties and can not regulate the rights and obligations of third parties. Here also contractual arrangements will not overcome the legal obstacle arising from communication in an open network. There was, therefore, a strong need to find a solution at an international level such as changing regulations of states, which still stick to old traditions and trade practises.

The United Nations Commission on International Trade Law (UNCITRAL) has been involved in that direction. It adopted in 1996 the Model Law on Electronic Commerce and a Guide to Enactment of the Model Law. The principle of the Model Law is to facilitate electronic commerce by providing equal treatment to paper documents and computer- based documentation. (Faghouri, (1998).

Within the Bolero, the solution that has been adopted consists of a rule book, service contracts and a 'responsibility and liability policy'. The main objective is to achieve the same protection for the user in the same way as if a paper system was used.

By completing this dissertation, the author was not aiming at only focussing on electronic Bs/L as simply a revolution in shipping documentation. Two principal motivations have justified the choice of this topic. First, Senegal being a developing country has in recent years also been looking for ways to simplify trade processes

and to gain a competitive edge necessary to face globalisation and its fierce competition. Paper documentation and telecommunications services represent important parts of the total costs of different companies. Therefore, any new system aiming at reducing these costs should be interesting to look into. Second, the author has identified many opportunities that make this country a favourable place for a successful implementation of electronic Bills of Lading. In fact, in Africa, Senegal has an advanced telecommunications network system, the second after the Republic of South Africa. In addition to that, it does have a Trade Point Foundation, which enables all local participants in the trade system to be electronically linked and at the same time allows electronic commerce worldwide. However, there is no legal foundation to cover this electronic commerce environment. This study was an attempt to contribute to the necessary changes to fully benefit from the use of electronic Bills of Lading.

However, it is worth pointing out some obstacles encountered in conducting this dissertation. The main obstacle was the collecting of appropriate material to deal with this research paper. Apart from information available on Internet, it was quite impossible to find a book particularly dealing with electronic Bills of Lading. The reason is obvious since the Bolero project, which is considered as the first true commercial initiative of creating an electronic B/L, has not officially been launched yet so that people are waiting in order to see what will happen. Another explanation for these difficulties could be commercial. Since competition is not absent with regard to setting up similar projects, it was very difficult to get access to some documents, yet crucial for the success of this study. As an illustration of that, it was not possible for the author to get the final version of the Bolero rule book, which is the key legal document of the Bolero B/L.

This is to point out that the author is fully conscious of the limits of his study. The main objective was to understand what is going on in the field of electronic Bill of Lading projects, which the different actors are and how Senegal could benefit from these initiatives. The author does hope, however that his following colleagues will very soon improve the contents of this dissertation.

Finally, the most important thing is that electronic Bills of Lading after many attempts without real success are becoming reality today. Once this system is up and running, it will affect the whole international business sector by changing the way trade is conducted.

As far as maritime transport in Senegal is concerned, the benefits will be tremendous. The whole sector of transport will gain a competitive edge by saving paper handling costs, by streamlining processes within shipping companies, by fighting against fraud and corruption and so on.

However, since the technical factor is not the key factor but the legal aspects, therefore, it is interesting to question what should be done in this country in order to successfully implement electronic Bs/L. Knowing what to do is not sufficient, however, but how to do it in the right way so that all potential risks likely to happen could be avoided.

Chapter 2

THE CONCEPTS OF ELECTRONIC BILLS OF LADING

2-1 The CMI Rules for Electronic Bill of Lading

The Comité Maritime International (CMI), a non-governmental organisation working toward the unification of maritime law, adopted in 1990 the Rules for Electronic Bill of Lading. The main objective of CMI was to develop a mechanism by which the traditional paper bill of lading will be replicated in electronic form taking profit from the development of new information technology, which is effective today.

2-1-1 Basic Principles of CMI Rules

The CMI Rules, as mentioned earlier, attempt to replace the function of a negotiable B/L in an electronic environment. Under the system the parties upon common agreement exclude the issuance of a bill of lading by the carrier. Once the shipper put his goods at the disposal of the carrier for shipment, the latter sends a notice of receipt (a "receipt message") of the goods to the shipper at his electronic address, containing information as usually mentioned in a paper B/L. This information is related to a description of the goods with any reservation, the date and place of receipt of the goods, a reference to the carrier's terms and conditions of carriage and a secret code or what is called a "private key" to be used in subsequent transmissions.

The "private key" consists in any technically form. So, it can be a combination of numbers or letters, which the parties accept to use with a view to securing the authenticity and integrity of a transmission. In order to be considered as the "holder" of the private key, the shipper has to confirm the receipt message to the carrier. This key gives the holder the exclusive right to claim the delivery of the goods, nominate the consignee or substitute a nominated consignee for any other party. He is also the only one entitled to transfer the right of control and transfer to another party, and to instruct the carrier on any other subject concerning the goods as if he were the holder of the traditional paper B/L.

The transfer of the right of control and transfer under these Rules is effected in the following way: The actual holder of the private key, informs the carrier that he would like to transfer to a third person the right of control and transfer. The carrier after confirming that notification, hands over to the designated new holder the right and control and transfer by issuing to him a new "key" and at the same time, cancelling the old key. The same procedure is followed in respect of subsequent transfers.

2-1-2 Obligations of the Carrier under the CMI Rules:

According to the CMI Rules, the carrier has a certain number of obligations to assume. Thus he must accept instructions from, and deliver the goods only to the party who holds the private key. This private key is unique to each successive holder and is such that his position is the same as it would be if he had possession of the original paper B/L. In order to prevent the private key from being used by unauthorised persons, the holder is not allowed to transfer it. In addition, the private key must be kept secret.

The carrier is also under obligation to notify the holder of the private key of the time and place of delivery. Then the holder has to nominate a consignee if other than himself, and to give delivery instructions. Once the goods are delivered, the private key is then cancelled.

Under the CMI Rules too, the carrier is obliged to exercise reasonable care when identifying the party that claims to be the consignee. If he fails in doing so, he will be liable for misdelivery of the goods.

The carrier assumes liability for any financial loss incurred by shipper, transferor or transferee resulting from a breach of any of his afore-mentioned obligations and according to the same rules which would have applied if a bill of lading had been issued and unauthorised instructions had been followed or cargo delivered to the wrong party.

The CMI Rules also recognise the possibility for parties to opt out the electronic system. In this case the procedure under the rules will not be used any more. Then the private key will be cancelled as soon as a bill of lading is issued. This possibility is in conformity with international rules (such as The Hague, Hague-Visby and Hamburg Rules) or their corresponding national enactment applicable to B/L, which allow the shipper to demand a paper B/L.

Some problems can arise from a requirement under national law that the contract of carriage should be evidenced in writing. In this case, provisions, which stipulate that electronic recording address these problems or a computer print out, would satisfy that requirement.

In case of a dispute, the parties concerned have to agree not to raise the defence that the contract is not in writing. Only the applicable law will determine the legal effect and validity of such contractual provisions.

2-1-3 The Limits of the CMI Rules

The CMI Rules have been criticised for many reasons:

First of all, this system has not been over popular because the shipper has had to ask for the paper bill of lading in order to present it for customs clearance.

Second, the private key is in the hands of its holder and is issued only for one transaction. This private key only verifies the message sent by the holder: It does not provide any security for the transaction. In addition, there is no innovation regarding the carrier's liability for misdelivery, which is the same as that under a paper bill of lading.

Despite these limits, the CMI Rules provide useful mechanisms for achieving negotiability with regard to electronic transport documents; and in addition an appropriate legislative framework will ensure the validity of such transactions. Indeed, the legal effect and validity of these Rules in producing electronic negotiable B/L will depend only on the applicable law.

2-2 The Bolero Electronic Bill of Lading

2-2-1 Presentation of the Bolero Project

Based on the CMI project discussed earlier, Bolero started as a pilot project funded by the European Union and partners in 1994. Bolero like the BIMCO project is aiming at replicating the functions of the traditional paper bill of lading in an electronic form, offering all guaranties of security and to be widely used by different participants in the international trade. This project is scheduled to start being effectively used at the end of April 1999.

The partners involved in the Bolero commercial venture are the TTC (the Through Transport Club) and S.W.I.F.T (Society for Worldwide Interbank Financial Telecommunications). Together they represent over 10,000 logistics and financial service organisations. Therefore, the first advantage of this Bolero lies in the power of these partners.

The TT club provides liability and equipment insurance to ship operators, stevedores, terminal and depot operators, port authorities, freight forwarders and other transport operators in more than 80 countries. The Club insures over 2/3 of the world container fleet, 1,725 ports and terminals worldwide as well as 5900 inter-modal operators around the globe. Since 1992, the TT club has regionalised its operations to three centres in London, New Jersey and Hong Kong. The club's directors are drawn largely from the membership and have significant experience with the transport industry. The Bolero project sees through TT club a suitable partner with enough neutrality to represent the transport sector in its adventure (<http://www.bolerold.com/> 14 April 1999).

S.W.I.F.T is the Society for world-wide Interbank telecommunication is the bank-owned co-operative supplying secure messaging services and interface software to cover 6,000 financial institutions in 175 countries. S.W.I.F.T's global network carried over 800 million messages in 1997. The average daily value of payment messages on the S.W.I.F.T helps its customers reduce costs, improve automation, and manage risk. 3,000 member bank, brokers, investment managers, securities deposit and clearing organisations, and stock exchanges form (<http://www.bolero ltd.com>)

The TT club and S.W.I.F.T are thereby in a strong position to promote the electronic B/L. This will also ensure that this project will be well received by all parties concerned because it will enjoy their trust and confidence.

As a partner of this project, the Bolero Association Limited should be mentioned. In fact, the Bolero Association Limited is a group of users of international trade documentation from all industry sectors who have a great interest in the success of the Bolero initiative.

2-2-2 How does this system work?

In brief, the Bolero system will put at the disposal of its different users an infrastructure platform that will enable them to send messages to other users. Users are guaranteed to evolve in a confidential and uncorrupted manner. The system will work by affixing a user's digital signature to each message, which is sent to Bolero; Bolero will forward this message to its intended recipient. The users will also be in a position to transfer rights. In fact, there are different types of messages, combined with a guarantee that the messages are original. The electronic terms used to designate that are "singular" or "unique".

Bolero will be in a central position of a vast international trade chain and will link all participants of this chain by serving as an interface and working in partnership with established networks and software suppliers.

A user's digital signature will work on a public/private key basis. Each user, when registering to use the system will receive a computer generated algorithmic private

key that only the user knows. Receivers of messages from a user will be able to verify that the user is who he says he is by using his public key.

With regard to the technology itself "it will consist in a core messaging service offering guaranteed and secure delivery of trade documentation via the Internet and approved private I/P net works around the world." (Nilson, 1999,p.46)

Within the Bolero initiative, there will be a title registry whose function will be to facilitate communication of messages representing Bs/L among different users and to provide uniqueness of ownership that is needed for the success of electronic bills of lading. The Title Registry Application provides a serie of functions for a Bolero B/L. Certain functions will be performed based on a strictly defined set of rules.

Initially the Bolero system will be targeted towards container shipping but it is already envisaged to extend this service to oil trading and to the road, rail and air transport sectors (<http://www.bolero ltd.com> 14 April 1999)

Thirteen countries will be involved in the launching programme: Belgium, Brazil, Japan, France, Germany, China (Hong Kong) Italy, Norway, Singapore, Spain, Taiwan (ROC), the UK and the USA. There is also a project to open this service to other regions.

The Bolero Association LTD represents interested potential users of a Bolero service and consists of importers, exporters, carriers, freight forwarders, banks, port authorities, terminal operators and insurance companies. This makes the Bolero project

the first true commercial attempt at a global, fully electronic system for maritime documentation, and the commitment being shown by the investing organisations and the users themselves offers every indication that the Bolero service will provide a means by which the administration of international trade documentation can become more efficient and streamlined, (Nilson, 1999,p.46)

2-3-Other Initiatives

2-2-3-1 Initiatives of the International Chamber of Commerce

This project is dealing with electronic commerce in general. The B/L being the most important transport document in the shipping industry, it occupies an important place in this initiative.

In order to replace paper documentation by an electronic means, the ICC has been developing its so-called E-100 project. This included working parties on electronic credit, electronic transport documents, open account trading, legal and regulatory matters, e-terms and digital authentication. The E-100 project has been replaced by the electronic commerce project (ECP) which includes three working groups: Electronic Trade Practices, Information Security and E-terms.

The working group on Information Security produced a set of guidelines "to enhance the ability of the international business community to execute secure digital transactions" known as General Usage in International Digitally ensured commerce (GUIDEC) (<http://www.iccwbo.org> 12 June 1999).

The GUIDEC establishes "a general framework for the ensuring and certification of digital messages, based upon existing law and practice in different legal systems". The use of public key, cryptography for digital signatures and the role of trusted third parties are concerned by the application of the GUIDEC. Instead of using the terms known elsewhere as "digital signature" or "authentication", the GUIDEC adopts the terms "ensure".

2-2-3-2 The Project of the United Nations Economic Commission for Europe

The United Nations are also active working in this field through the UN/ECE. In 1991 its programme of work adopted by the working Party on Facilitation of International Trade Procedures focused on the legal issues resulting from the use of EDI in international trade. This organisation is responsible for the development of

UN/EDIFACT (Electronic Data Interchange for Administration, Commerce and Trade).

Within the framework of the western European EDIFACT boards one working group is dealing exclusively with the development of messages for transportation and forwarding: the EDIFACT Transport Message Group. This group has provided a framework for message handling, the International Forwarding and Transport Message Framework (IFTMFR). The IFTMFR was built upon preparatory work that was done for the UN project COST 306(ITMS, International Transport Message Scenario) and upon the UN/ECE Recommendation No.22, Layout Key for Standard Consignment Instructions. IFTMFR led to the message structures IFTMIN ("Instruction") and IFTMCS ("Contract Status") as well as to various other messages required in the transportation business. In September 1991, they received the status of UN/ECE Recommendation and are therefore standard worldwide.

The functional messages "instruction"(forwarder to shipbroker/shipping company agent) and "contract status"(the B/L as a document) make up the foundation of the "Electronic B/L" and are identical in structure.

The message "Electronic B/L is a realisation (subset) of the UN/ECE-Recommendation that has been given due to conditions in this particular trade. (Manual for the transmission of B/L data according to EDIFACT).

Chapter III

LEGAL ASPECTS OF ELECTRONIC BILLS OF LADING

3-1 Legal obstacles towards electronic Bills of Lading

3-1-1 Document of title/negotiability

Despite all initiatives taken in the past and aiming at replacing paper documentation by an electronic method, progress has been painstakingly slow at times.

The reason for the slow progress, in all fairness, has not been customs or the developing countries, but the legal profession, which has stuck to the legal principle that a document of title can only be issued and transferred by an original signature in handwriting, (Donner, 1998).

In fact, one of the most difficult hurdles to overcome is the replacement of the traditional negotiable B/L with electronic equivalents. The kind of legal problem presented by the absence of documents can be illustrated by the familiar rule that the shipper may opt for a paper B/L issued by the carrier and the cargo owner must present the properly negotiated B/L to obtain delivery. Therefore, the traditional paper B/L performs three main functions: It is a receipt for the goods, evidence of the carriage contract, and negotiation of the title to the cargo. This system is quite clear because it has been used for centuries and got a secure legal basis, (Nilson, 1999, p.45). What will happen when suddenly this system is transferred into an electronic environment?

Many uncertainties arise regarding the allocation of liability for erroneous messages, communication failure and system breakdowns, confidentiality, security and authenticity of data message

3-1-2 Risk conflicts involved in electronic Bills of Lading

The electronic B/L will become a modern form of maritime transport document during the next century. As is known, any new way of doing business will also include new risks and uncertainties. The whole issue is how to ensure the whole shipping community that the Electronic B/L will be legally enforceable. There is a considerable risk a failure occurs during the transmission of data using electronic means. A computable system, regardless of how efficient or secure it is, can and will break down and many questions about the consequences may be expected to follow.

Since it is not possible to avoid such a risk to occur, it is a good practice for any business to be successful to reduce the frequency of exposure to the risk. In the case of Electronic Bs/L, problems could arise from operator error or computer malfunction in the sender's offices, or in the value added network (VAN or VANs) if employed, or in the receiver's offices.

Another conflict could also arise when the shipper did not receive a certain message sent by the carrier. This eventuality can be seen when for instance the message arrived, but the shipper did not read it in time. Alternatively, maybe the message was already into the system but never transmitted by the carrier, or it was sent but was incorrectly addressed or formatted. Sometimes the electronic system may have carried the message but its contents were incomplete or inaccurate, and so on.

3-1-3 Allocation of Responsibilities

As mentioned earlier, electronic means like any other form of equipment will break down. It is easy to imagine seeing many cases when Tele-transmissions do not

work as they should. When they do break down, the problem is to determine who should bear the legal liability?

Most of the time the electronic way of doing business uses the system of VANs. VANs are both carriers of messages, like the postal service and providers of added value by collecting, collating and distributing data and passing it through a network of connections. This network system will thus manipulate it in the course of making it available to the intended receiver. It is obvious that the longer the network of communications becomes, the greater is the chance of message corruption. More over, VANs typically accept only very limited liability for their activities. In particular, their service contracts usually exempt them from responsibility for all consequential damage, such as the breakdown of the underlying engagement for carriage. The risk of contract failure as result of message corruption is therefore passed back to the shipper and the carrier, (Kindred,1992, p.1393)

On many occasions, the corruption of the contents of a message will be obvious, so the parties will have to communicate further, but there are many situations where the error may not be obvious, leading to a result different from the one the parties were expecting. For instance, the terms of carriage resulting from a corrupted message can make the shipper and the carrier hold different views with many bad consequences.

The ordinary legal approach to communication allows the parties to an Electronic B/L to agree that the responsibility for a lost or corrupted message will be placed on the sender. Nothing, however, can prevent them choosing the receiver as the one who should bear these risks. Even if it is agreed that the sender should be liable for errors in communication, the receiver may still be expected to exercise care in handling incoming messages.

3-1-4 Requirement for a "written document"

It has long been recognised that in number of jurisdictions, legislation has not kept pace with technical advancement. In other words, legislation acts as a barrier to

electronic commerce because it requires written documents; signatures and many provisions clearly envisage paper documentation. The speed of legislation is relatively slow as can be seen from the fact that many jurisdictions do not have specific legislation dealing with telex or facsimile messages, which have been in use on a widespread basis for many years.

Provisions included in most national laws and international conventions require certain transactions to be concluded or evidenced in writing or certain information to be presented in the same form.

This requirement of writing can be explained as being a condition of validity of the contract. Indeed, failure to comply with the requirement would render the transaction null and void. If on the other hand, writing is required by law for evidentiary purposes, the absence of writing will not generally affect the validity of the contract but its enforceability in the event of litigation (Faghouri, 1997, p.8.) During recent years there were international conventions adopted which did not contain provisions imposing form requirements, such as requirement for writing or signed paper documents. If considering the United Nations Convention on Contracts for International Sale of Goods, 1980, there is no specific requirement as to form. For instance, "a contract of sale need not to be concluded in or evidenced by writing and is not subject to any other requirement as to form. It may be proved by any means including witnesses". (Faghouri, 1997,p.8) Other conventions like the Hamburg Rules and the Multimodal Transport Convention provide an extended and non-exhaustive definition of "writing" to include telegram and telex.

Sometimes, national or international legislation, however, refer to "writing" or "document" but do not give any specific definition of these terms. When this situation happens, it is assumed that the drafter envisaged a written document, as that was the only format then available. Faghouri, 1997, p8)

3-1-5- Requirement for "signature"

One of the most traditional principles used in any kind of transaction is the necessity to identify the different partners. Signature or other forms of authentication is normally required to establish the identity of the signatory and his intention to accept to be part of the contract, or to be bound by its contents. The most accepted form of authentication required by law is manual signature.

In order to take into consideration the fast growing use of new technology, recent national laws or international conventions, make it possible to require signature to be made by other forms of authentication, such as stamp, perforation, facsimile or by electronic means. If taking the case of the Hamburg Rules for instance, it is specified that

The signature on the B/L may be in handwriting, printed in facsimile, perforated, stamped, in symbols, or made by any other mechanical or electronic means, if not inconsistent with the law of the country where the B/L is issued". In the convention on Liability of Operators of Transport Terminals, there is another approach to dealing with this issue. Indeed, provisions in this convention allow the required signature, its facsimile or an equivalent authentication effected by any other means.

The legal requirement for a signature has been pointed out by many studies carried out by a number of organisations, as being a hindrance to the development of Electronic Commerce. (Faghouri, 1997, p.35)

3-1-6 Requirement for an "original"

Usually the law requires information to be presented or retained in its original form. This requirement can also be considered as an obstacle to the growth of electronic commerce. Indeed, since the concepts of "writing", "signature" and "original" go hand in hand, requiring an original in writing is generally to ensure that information presented in a document has not been altered. Therefore, the integrity of such a document is fully guaranteed. (Faghouri, 1997 p.8), If considering the specific case of B/L, which has among others a function of title and negotiable document, rights are attached to the physical possession of the document. Therefore, it is important

for any person claiming rights on it to hold an original document in order to obtain release of his cargo from the carrier.

However, one problem can arise when this paper document is replicated in an electronic environment. How to establish the difference between an original and a copy? "If a message is transmitted from one computer to another, the bit string which might be called the original, and the one which is the copy can not be distinguished" (Faghouri, 1997 p.39). With the lack of an original signed document, when using electronic Bs/L, various forms of electronic authentication of messages are being used as will be seen later on. What is essential in the context of electronic commerce is to ensure that the integrity and authenticity of the data message will be preserved.

3-1-7 Evidential Value of Data Transmission

When a conflict arises regarding transmission of data, is the electronic mean admissible as evidence in judicial and administrative proceedings? In many jurisdictions the answer is no. The consequence of such an exclusion of any electronic means as evidence of a transaction is that it constitutes an obstacle to the use of electronic Bs/L

3-1-8 Storage of Data Messages

In order to ensure an effective record of certain documents or information, most of the national legislation still requires paper form, for instance a mandatory rule of statutory law that demands a paper document, such as persisting requirements for documentary records for customs, taxation or exchange control purposes. The importing country can sometimes demand the ship's manifest to be shown containing all the bills of lading for goods on board. This requirement could impinge on the development of electronic Bs/L.

3-1-9 Incorporation of General Terms and Conditions

The traditional paper B/L contains on its reverse side the general terms and conditions under which a certain carrier on behalf of a certain shipper will perform the carriage of goods. Electronic B/L will not have such a reverse side to incorporate this information, so a good system must be found to reach an acceptable solution in order to achieve electronic Bs/L.

3-2 Solutions Adopted

3-2-1 The UNCITRAL Model Law on Electronic Commerce

3-2-1-1 Presentation

The United Nations Commission on International Trade Law (UNCITRAL) is the organ within the United Nations system responsible for promoting the harmonisation and unification of international trade law. This structure has provided a lot of work in the legal field of electronic commerce. Its most important achievement in this area was the adoption of the Model Law on Electronic Commerce known as the Model Law in June 1996.

The Model Law is aiming at facilitating electronic trading by providing a set of internationally accepted rules and by helping states in enacting legislation to overcome legal obstacles that can impinge on the use of electronic means of communication in international trade.

From 26 February until 8 March 1996, the UNCITRAL Working Group on electronic Data Interchange (EDI) held its 30th session in Vienna. In its earlier sessions the Working Group had made a draft "UNCITRAL Model Law on Legal Aspects of Electronic Data Interchange and Related means of Communication".

This draft model law deals with general legal issues relating to EDI, mainly of a non-substantive law nature. It includes provisions on the application of certain specific

legal requirements of a signature and of an original, the admissibility and weight of data messages in evidence, as well as the requirements that certain information be retained. Further, the draft Model Law entails general provisions on the communication of data messages, which may be varied by agreement. These provisions relate to the following subjects: the attribution of data messages, the acknowledgement of receipt of data messages, the formation of contracts by means of data messages, as well as the time and place of dispatch and receipt of data messages. This work also includes a "Guide to Enactment of the Model Law".

The adoption of this Model Law in June 1996 was justified by the development of technology, which affects the trade sector. With the use of EDI, Internet, Electronic Mail and other means, concerns have been raised about their legal effect, validity and enforceability. As mentioned earlier in this paper, in most national legislation, there are still requirements that constitute hindrances to the growth of electronic commerce. On the other hand, at the end of this century it is no longer possible or even acceptable to deny the progress of electronics. In order to prepare for this change by putting in place the necessary legal environment, a "Guide to Enactment" is also edited alongside the Model Law. This document has as its main objective to help legislators and users of electronic means of communication by providing them with all explanations and clarifications about its purpose and the goals it is pursuing. In addition, all issues not covered by the Model Law are addressed in the Guide.

The Model Law is presented under the title of "UNICITRAL Model Law on Electronic Commerce. However, no definition of Electronic Commerce is provided in this text. Only EDI is defined. The reason is the fact that during the elaboration of this document, the title of the draft referred to "Legal Aspects of the Electronic Data Interchange (EDI) and Related Means of Communication." However, it is worth noting that today the development of new forms of electronic means of doing business makes EDI a single electronic means among others. Therefore, in order to cover all these electronic means, it was considered more appropriate to use the term "Electronic Commerce", Faghouri, (1997), p.8. This is why Article 1 of this text which deals with the scope of application, states that it "applies to any kind of

information in the form of a data message used in the context of commercial activities". Thereby, Electronic Bs/L fall under the scope of application of this text.

3-2-1-2 Contents of the Model Law

The Model Law comprises two parts: Part one deals with provisions applicable to electronic commerce in general while part two deals with electronic commerce in specific areas, such as carriage of goods.

3-2-1-2-1 General Provisions

In chapter II of the general provisions of the Model Law, there is the application of legal requirements to data messages. The whole issue is to find a legal environment for electronic commerce like for a paper system. This part includes solutions to different legal obstacles, which have already been reviewed.

Article 5 mentions clearly that the form used when trading should not condition the validity and enforceability of information. Thus, the way is traced, leading to the overcoming of what has been considered as hindrances, which could impinge on the development of electronic Bs/L.

For instance, articles 6, 7 and 8 set out requirements which a data message should meet to be treated as in "writing", "signature" and "original". According to article 7(1)" when the law requires a signature of a person, that requirement is met in relation to a data message if

- (a) a method is used to identify that person (and to indicate that person) and to indicate that person's approval of the information contained in the data message; and
- (b) that method is as reliable as was appropriate for the purpose for which the data message was generated or communicated, in the light of all the circumstances, including any relevant agreement.

The issue of "original" requirement is dealt by article 8 that provides:

- (1) Where the law requires information to be presented or retained in its original form, that requirement is met by a data message if:
 - (a) There exists a reliable assurance as to the integrity of the information from the time when it was first generated in its final form, as a data message or otherwise, and
 - (b) Where it is required that information be presented, that information is capable of being displayed to the person to whom it is to be presented.

Paragraph 3 continues by setting out the criteria for assessing the integrity and reliability of a data message. It provides:

- (3) For the purposes of subparagraph (a) of paragraph (1)
 - (a) The criteria for assessing integrity shall be whether the information has remained complete and unaltered, apart from the addition of any endorsement and change which arises in the normal course of communication, storage and display; and
 - (b) The standard of reliability required shall be assessed in the light of the purpose for which the information was generated and in the light of all the relevant circumstances.

The Model Law has also laid down provisions in order to overcome the legal obstacle of the admissibility and the evidential value of data messages in legal proceedings. Article 9 provides that:

- (1) In any legal proceedings, nothing in the application of the rules of evidence shall apply so as to deny the admissibility of a data message in evidence:
 - (a) on the sole ground that it is a data message, or
 - (b) If it is the best evidence that the person adducing it could reasonably be expected to obtain on the grounds that it not in its original form.
- (2) Information in the form of a data message shall be given due evidential weight. In assessing the evidential weight of a data message, regard shall be had to the reliability of the manner in which the integrity of the information was maintained, to the manner in which its originator was identified, and to any other relevant factor.

Finally, the Model Law has also given a solution to the issue of the requirement of storage of data messages issue. Article 10 provides that:

- (1) Where the law requires that certain documents, records or information be retained, that requirement is met by retaining data messages, provided that the following conditions are satisfied:"

The law requires that certain documents, retaining data messages retain records or information, provided that the following conditions are satisfied:

- (a) The information contained therein is accessible so as to be usable for subsequent reference; and
- (b) The data message is retained in the format in which it was generated, sent or received, or in a format which can be demonstrated to represent accurately the information generated, sent or received; and
- (c) Such information, if any, is retained as enables the identification of the origin and destination of a data message and the date and time when it was sent or received

3-2-1-2-2 Electronic Commerce in Specific areas

This part of the Model Law consists of one chapter only covering carriage of goods. Issues and uncertainties arising from the replacement of negotiable paper B/L by an electronic means and transfer of rights in goods resulting from this are dealt within articles 16 and 17 of this chapter.

Article 16 sets out the activities that fall under the scope of provisions of this chapter. This includes a list of actions that could be carried out in the context of carriage of goods, delivery, notice of loss or damage to goods, transferring or negotiating rights and obligations under the contract.

Article 17(3) of the Model Law provides that:

If a right is to be granted to, or an obligation is to be acquired by, one person and no other person, and if the law requires that, in order to effect this, the right or obligation must be conveyed to that person by the transfer, or use of, a paper document, that requirement is met if the right or obligation is conveyed by using one or more data messages, provided that a reliable method is used to render such data message or messages unique.

In addition, there are provisions aiming at avoiding the use of both an electronic message and a paper document when transferring rights and obligations to goods. Therefore, a paper document can not be used if a data message is already used for

the same purpose. Furthermore, article 17 contains provisions that make compulsory the application of certain laws to contracts of carriage of goods in a paper environment, such as Hague, Hague-Visby or Hamburg Rules. In other words, the use of data messages will not exclude these texts.

3-2-2 The Bolero Legal Framework

In order to create this necessary legal framework for exchanging electronic documentation in a secure manner, Bolero has adopted a solution, which consists of a rule book, service contracts and a responsibility and liability policy.

3-2-2-1 The Rulebook

3-2-2-1-1 Description

The "rule book" has been described by Peter E.M. Scoh, Bolero's commercial director as " a unique, binding, multilateral floating agreement between all of the parties involved in the Project. (Scott, 1998,p.14) In fact, everyone who joins Bolero signs this contract, which binds them into a relationship with the current users of the system and all of the future users who sign the agreement after them. The only exception is likely to be government bodies, Scott said. Bolero's rule book is not an exclusive commitment. It applies only to communication over the Bolero system and to the way the Bolero system is used. It does not relate to anything else. It will provide a set of rules that binds them and aim at replicating the same environment and protection for users, as they will find when using paper documentation.

The rule book fulfils the same function as an interchange agreement for parties using EDI. In this document the functions of all parties, the conditions of validity and enforceability of the contract between Bolero and its users can be found.

The rule book also deals with the admissibility of electronic messages as evidence before courts or other tribunals, security, data protection and applicable law. In fact,

there is an attempt from Bolero through its rule book to overcome legal obstacles already reviewed in the first part of this chapter.

The key elements of the rule book are the clauses specifying that the various parties to the transactions have to agree to a set of rules, which have the effect of treating the electronic bill legally the same as a paper one. This overcomes the potential nightmare of having to change local laws in each participating country, since the law surrounding bills of lading was set long before anybody had heard of EDI.

3-2-2-2-2 The Rule Book Approach to the Legal Obstacles to Electronic Bills of Lading

A report based on the findings of a legal survey carried out in 18 countries has been commissioned by Bolero. This survey was a kind of legal feasibility study of the Bolero B/L. "This report highlights the legal issues by examining the legal functions of documentary processes and outlines the method by which the rule book overcomes apparent obstacles by providing a contractual solution," (<http://www.boleroltd.com> April 1999).

Carriage contracts

The central contract in international sales is being the contract of carriage by sea. The cited report identified "few barriers to replacing the traditional paper B/L or waybill" with an electronic form. "The rights and obligations tied up in the Bolero B/L will be in principle easily transferred from seller to buyer". An important aspect that needs to be noted is that international maritime conventions will not apply automatically to a Bolero B/L as they do to a paper B/L. Therefore, it is necessary to ensure that the appropriate terms of the applicable convention are incorporated into carriage contracts. A paramount clause intending to solve this problem is included in the rule book and will be supported by appropriate provisions in individual contracts of carriage.

Letters of Credit

As far as letters of credit are concerned, there were no legal feasibility issues connected with electronic Bs/L found during the legal survey carried out by Bolero. In fact, a provision in the Rulebook will contain a variation to UCP 500 permitting the tender of Bolero messages instead of paper documents if permitted under the terms of the credit.

The Insurance Contracts

Bolero claims to be "neutral on the issues of cargo insurance. There are no significant barriers to recording cargo insurance certificates in electronic form". The action of transferring "rights and obligations under the insurance contract will be independent of the transfer of Bolero B/L". Such solutions, which "are necessary can take place at the formation of that contract or otherwise outside the Bolero system".

Evidence

The report has mentioned that "few problems concerning electronic evidence and the position of evidence in the event that a dispute will be governed by the rulebook provisions".

Applicable Law

The report mentioned that,

save for the United Arab Emirates, it will be possible to fix the applicable law of the rule book contract as English law. In line with Bolero's neutral position, the rulebook will not mandate a forum for the resolution of disputes. It will provide the facility for Bolero users to choose to submit to the non-exclusive jurisdiction of the English courts.

Computer Law Issues

It is said that data protection regulation will not apply to Bolero. In fact, provisions in the rulebook will limit Bolero's use to commercial data and require users to comply with any national regulations. The report recommends, however that cryptography that is a rapidly evolving area of the law, needs to be monitored closely. Finally, at the moment, there would not appear to be any major difficulty in complying with the regulation that exists ([Http://www.boleroltd.com/legaloverview](http://www.boleroltd.com/legaloverview))

It is worth noting that the rule book, currently in draft form is based on this international legal feasibility study. In brief, the study has shown that there is a legal platform from which Bolero can be launched. The draft rule book is being discussed with potential users and other key players in international trade, (<http://www.boleroltd.com> 14 April 1999)

It is probable that the current draft of the rule book will have at least some changes prior to the implementation of the Bolero System. The rule book itself contains procedures for changing its provisions. The intent is that the users will play a key role in this process, although there is provision for immediate changes should a defect be discovered or if legislation is enacted which would undermine the System (<http://www.boleroltd.com>)

3-2-2-2 The Service Contracts

The service contracts are aiming at covering issues arising with the use of the Bolero service, governing levels of service, security, confidentiality, responsibility and liability. There are also provisions dealing with the relationship between the Bolero service and third-party suppliers.

Services Domains

The Bolero service will be separated into the following three domains:

The Core Messaging Platform, the backbone of the service, providing secure messaging, communications and user integration tools.

- The core-messaging platform allows the exchange of secure information between counterparties. This platform will be created using widely available tools, rather than relying on bespoke, customised development. Bolero will contract with a supplier to deliver these services based upon its specifications and service level requirements.

- **Security and Confidentiality**

Bolero will rely on Registration Authorities (RAs) to register users and generate security keys. In the initial phase, Bolero will have a single RA to register users, which will be controlled by Bolero. In subsequent phases, Bolero will contract with regional RAs to provide this service. In discussions with users to date, regional RAs will likely be government entities, banks, or certain types of service bureaux.

The registration process is performed procedurally and may require person-to-person between the RA administrator and the user. The RA generates the public/private key pair(s) on behalf of the user. The key generation mechanism ensures that the private key is not revealed to the RA administrators. When required, users may register their own public keys. In this case, evidence that the users possess their private key will be required. This evidence is produced by digitally signing and verifying a document.

Any updates due, for instance, to change in a company 's User Identification or a change in the key validity period, follow a procedure, which is similar to the registration process.

The removal of a user is performed through the RA. Bolero may also remove users through its own RA. Withdrawal Notifications are sent to the users concerned.

The initial registration process ensures that an entity 's public key and its validity period are registered (i.e., securely stored) at the Bolero server(s).

After a company has registered at the RA, it may register its own sub-entities for Bolero (e.g. users, departments). If required, the Register Company may allow its

own sub-entities to sign Bolero messages. Service Bureaux can also use this scheme when registering their users. ([Http://www.boleroltd.com](http://www.boleroltd.com), 14April 1999)

The Bolero concept is dedicated on providing one common infrastructure and architecture for the exchange and processing of trade information while it will allow vendors to develop third-party applications on the back of the core messaging platform. Bolero will work closely with vendors to define and develop services that can be targeted to industries or geographic regions to meet their specific needs. While no detailed work has been completed in this area to date, Bolero plans to begin the development of these activities during the piloting of the service.

3-2-2-2 Responsibility and liability

During a survey carried out by Bolero, potential users have pointed out that the acceptance by Bolero Ltd of some degree of liability will be an attractive added service. While the details will not be developed until complete product specifications and architecture are developed, the primary responsibilities of Bolero Ltd are:

- a) To ensure that all information acknowledged as received from a user is managed according to the user's instructions.
- b) To ensure that an audit trail is maintained of all actions on the Bolero Server or Title Registry Application
- c) To ensure the availability of the primary and redundant system on a seven multiply by twenty-four basis with the exceptions of 1) planned downtime and 2) unplanned downtime not to exceed an amount of time to be specified.
- d) To ensure that no internal fraud will occur and that information received remains confidential.
- e) To ensure the proper specification of the network and interface Application Programming interfaces and proper functioning of the toolkit.

The primary responsibilities of Registration Authorities can be characterised as:

- a) To ensure that all companies registered are authentic and have signed the rule-book.

- b) To ensure that only the entitled user will have access to its private key.
- c) To ensure that, keys are produced and revoked according to the established procedures,(<http://www.bolero1td.com>,14April1999)

As Bolero Ltd will act its own Registration Authority for the initial period, Bolero will be initially responsible for these tasks.

Bolero 's total liability will be capped each year by a figure to be determined. If claims exceed the cap, they will be pro rated at the end of the year. Bolero will purchase insurance to cover these liabilities. Users can request higher limits for an additional fee. The proposed liability for Bolero Limited and the Registration Authorities, categorised by type of loss, are presented in the figures below. These amounts may change based upon additional consultation with potential users.
<http://www.bolero.com>

Liability coverage

Reason for loss (caused by Bolero Ltd or RA)	Liability
Failure to execute messaging functionality properly: . Sending a message. .Sending a message to the wrong party Validation Delivery monitoring	US\$100 without proof of loss to a maximum of US\$1000 if user can prove loss as a result of execution failure.
Failure to execute security functionality properly	US\$100 without proof of loss to a maximum of US\$10,000 if user can prove loss as a result of security failure
Failure to operate logging and audit functionality properly, including loss of log	US\$ 100 without proof of loss to a maximum of US\$10,000 if user can prove loss as a result of loss of log
Failure to execute Title Registry Application functionality properly	US\$100 without proof of loss to a maximum of US\$10,000 if user can prove loss as a result of Title Registry Application failure.
Component or system failure	Multiplier to be determined of user's charges per day (24hours) in excess of agreed component and disaster down figure

Internal fraud	On proof of loss up to US\$1,000,000
Deliberate Breach of confidentiality (other than message going to the wrong place by accident). Exclusion if instructed by competent authority	On proof of loss up to US\$100,000
Specification failure APLs.	On proof of loss up to US\$10,000
Acceptance of user who has failed to meet registration criteria & failure to issue/revoke keys	On proof of loss up to US\$10,000
Use of key by unauthorised user.	On proof of loss up to US\$10,000 per unauthorised user unless by fraud or deliberate breach of confidentiality in which case above figures applies.

Source (<http://boleroitd.com>, 10Jun 1999)

CHAPTER 4

IMPLICATIONS AND BENEFITS OF ELECTRONIC BILLS OF LADING FOR MARITIME TRANSPORT IN SENEGAL

4-1 Senegal's Trumphs in Electronic Commerce

4-1-1 A Good Telecommunications Network

With its capital city located on the westernmost point of Africa, Senegal gives excellent access to the continent. According to a 1996 ITU (International Telecommunications Union) report, Senegal is one of the best performing sub-Saharan countries in terms of telecommunications. It has registered one of the highest improvements in main telephone line penetration-number of lines per 100 inhabitants.in the period 1999-1999, with an increase from 0.60 to 0.98.

Average penetration across the region was 0.40.

The fault rate (meaning the frequency of line faults) per telephone was 132.3 percent, i.e. each telephone was liable to be out of order every nine months. Today the rate is 39.56 pct or a likelihood of a fault occurring every two and a half years. The regional average is 115 percent.

Senegal is now well on its way to providing Africa 's first fully digital telephone network. Switching equipment is 100 percent digital. The transmission network is today 69 percent digital and will be 100 percent before the end of the decade. The network consists of microwave links and a 2, 000-km fibre optic cable that links the capital city and the northern part of the country.

A GSM digital cellular network came into operation in September 1996. After one year of existence and despite high subscriber costs, the cellular network has been a tremendous success. This sector has been opened to competition.

Senegal implemented full Internet connectivity in March 1996. As a result of that, services and companies using Internet have been growing exponentially. Cybercafes and private cybercenters are booming in the capital city, Dakar. Teleservices companies still in their early stages are becoming more popular. Dynamic private entrepreneurs have successfully implemented teleservices companies operating mainly with French contractors.

The access operator SONATEL has selected the American Company MCI as the international provider of access to the Internet via a 64 kb/s link. The Internet market's massive growth requires greater capacity. In response to that situation, telecommunications authorities have increased the Internet capacity from T1 to T3 line.

Since July 1999, Senegal after the republic of South Africa is the second country in Africa equipped with an IP Network over ATM. This is the latest technology that fits more to electronic commerce. The Bolero B/L of Lading will require such a system, (<http://www.dakarcom.com>, 27 July 1999)

Canadian co-operation has connected the Presidency and all ministerial offices. There are currently seven service providers. Individual accounts with local providers average \$19 per month for unlimited access, not including the cost of the local telephone connection.

Certain service providers have initiated projects to ensure an African presence on Internet.

4-1-2 The Trade Point Foundation

The Trade Point Senegal is member of the worldwide network of Trade Points initiated by the 8th UNCTAD held in Carthagena in Colombia in February 1992. The symposium on Trade efficiency held in January 1994 in Columbus, Ohio was the launch of the Global Trade Point Network. (GTP NET). Senegal has been designated as a pilot country during this congress. The Trade Point links all participants in trade (Customs, importers, banks, insurance, shippers, administrations, etc)

To describe the Trade Point Senegal, three elements can be mentioned.

- 1- An access point to worldwide networks through links to all trade centres into a worldwide electronic network.
- 2- A commercial information system including a source of information, exchange opportunities network and an index of Senegalese firms.
- 3- An external Trade Facilitation Center which is a potential gathering of all groups participating in external trade using new information technology in order to speed up the international trade procedures.

The electronic transmission of documents will enable customs and other administrations to gain time in their treatment. Such a circuit will allow the achievement of a container clearance within a few hours (instead of three weeks in the current system.) (Trade Point Senegal Foundation, 1999).

4-2 Benefits of Electronic Bills of Lading for Senegalese Maritime Transport

4-2-1 Faster Clearance of Goods and Reduction of Fraud

Due to fewer delays that will result from the use of an electronic B/L, the cargo can be released quickly from the carrier. In fact, at present, the physical delivery of cargo can be delayed because of missing paperwork, for instance. In particular, if a paper B/L of lading has been issued, the original document must be presented before the carrier can complete risk free delivery to the consignee. The carrier is bound to deliver the cargo at the port of destination to the first legitimate holder of

even a single original B/L (consignee or other person who presents a properly endorsed B/L) provided that the master has no notice or knowledge of anything except that there are other originals of the B/L. A carrier is not entitled to deliver goods to the consignee without production of a B/L.

The B/L is often issued in three originals. In earlier times, the unreliability of the postal system made it wise to send original documents by several modes of transport to the destination. The B/L is just a key to receiving the goods; a minimum requirement for receiving the goods from the carrier is the presentation of the B/L. However, even if the situation of the postal service has improved a lot since this time, there are still a lot of delays and even risks of not receiving at all documents expedited from developing countries such as Senegal. So it is common to see many situations where delays of physical delivery of cargo happen due to missing paperwork or to the arrival of the cargo before the B/L document.

If the B/L is delayed, either the cargo is held in the port warehouses of the carrier who will release the cargo against the importer's letter of indemnity, typically guaranteed by its bank. The former causes congestion in the overall system and the latter incurs bank charges and reduced credit availability for the importer. There is also increased risk for the carrier since miss-delivery of cargo under these circumstances is not normally covered by the carrier's liability's insurance.

Equally, the exporter will experience delay in settlement under a letter of credit process because of the time required for delivery of the paper B/L after shipment has been effected.

It was estimated at an UNCTAD Trade and Efficiency symposium held in Columbus, Ohio in 1994 that customs procedures, including paperwork and delays, adds 7-10 % to the cost of imported goods.

Trade documentation is prone to fraud because the documents used are relatively easy to forge despite all efforts to the contrary.

Today, as anyone can notice, the technology to produce forgeries is becoming better, cheaper and more widely available and the documentary process, with its in-built delay and complexity, gives fraudsters opportunities to exploit the system.

Fraudsters put pressure on intermediaries to cut corners, by for instance, persuading carriers to release cargo or produce antedated Bs/L. It is difficult and time consuming to establish where the fraud has taken place.

The Bolero project will reduce the documentary fraud by:

- a) Reducing forgery. Messages sent by the system will be digitally signed. It will be impossible to amend a message, and the identity of the sender will be verifiable.
- b) Simplifying procedures: As the transmission of messages will be quick, there will be less need for procedures that cope with the delay of document, e.g. letters of indemnity.
- c) Maintaining accurate audit tracks. The service will identify when and who sent information. This will act as a disincentive to fraud by increasing the chance of being caught. ([http: www.boleroLTD.com](http://www.boleroLTD.com)).

4-2-2 Elimination of corruption

The potential for corruption in the trade sector is a significant factor obstructing economic development and competitiveness in Senegal. In spite of laws, regulations, penalties, and agencies to combat it, credible allegations of corruption have been made concerning government procurement, dispute settlement regarding clearance of goods in port, and regulatory and enforcement agencies. Corruption can range from large-scale customs fraud, including invoice under-valuation, to bribes taken by inspectors and public safety officials.

Nevertheless, giving or accepting bribes is a criminal act, and penalties may range from 5 to 10 years in imprisonment under Senegalese law. However, low pay and lack of professionalism among many public servants (police, customs agents, and some bureaucrats, among others) have led to predatory bribe taking, particularly from small business operators, traders, (private sector), shippers, and other soft

targets. Some wealthier merchants have been accused of using bribes to persuade customs agents to undervalue the quality or volume of their own imported goods and / or to launch harassment investigations against competitors. At the writing of this paper, a large fraud of this kind regarding undervalued statements of rice imports is being investigated. Many big traders belonging to the Senegalese National Unions of Traders and Importers (UNACOIS) have been found denounced by customs services of the port of Dakar for undervaluing the quantity of their goods in order to enjoy better customs rates in clearing them. The guilty parties were severely fined and had to pay compensation since it was established that they had been doing this practise for a long time. As a response to this, the importers 's union called their members to stop any operations of clearing goods in the port of Dakar, which was withdrawn after three days. At present, the conflict is pending under legal proceedings.

Yet, there are several government agencies to tackle corruption and fraud. These include "L'inspection Generale d'Etat", a cabinet level office, the "Societe Generale de Surveillance" a Swaziland multinational pre-shipment inspection contractors whose services, however, are not appreciated either by shippers or by customs services.

Once the electronic bill of lading is implemented into the Senegalese maritime transport, it will help the government authorities considerably in fighting this corruption. With the neutral service Bolero (for instance) claims to offer, it will be very difficult to undervalue the quality or volume of imported goods. Customs services will be at the same level of information as importers and buyers from the starting point of the transaction till the clearance of goods in the port of destination through the electronic system.

4-2-3 Better Management of Shipping Structures

Electronic Bs/L will offer Senegalese companies better administration, reduction of costs, better inventory control and customer service

- **Better administration and cost savings**

Electronic trade environments are typically less costly than paper systems, with most companies seeing a reduction in administrative costs including telephone, postage and courier costs. There is no need to point out why these services are expensive in Senegal. Therefore, they impinge on the competitiveness of shipping structures and finally, they will be charged to the customer. Many shipowners are used to stress the fact that fee agencies, for instance, are expensive and can often discourage them from calling the Port of Dakar. Today, the Port of Abidjan constitutes a serious threat to the Port of Dakar. In order to regain its leading port role, efforts should be made in the sense of cutting costs and offering better services. The electronic B/L could reduce these costs and allow more competitiveness. Use of electronic Bs/L allows companies to change their cost structure.

A paper environment normally has a variable costs structure. As more documents are processed, more personnel are required. Through Bolero, companies can expect to achieve economies of scale in processing their documents. The number of document processed can increase with only a step increase in costs associated with greater computer capacity. Because the cost performance ratio of computing has improved drastically, companies enjoy significant processing advantages in an electronic environment.

Electronic Bs/L have indirect effects on a company' s costs. A Company can reduce the payment cycle improving cash flow and reducing interest charges by linking electronically with its suppliers, and bank through the Bolero service.

([http://: www. boleroltd.com](http://www.boleroltd.com), 14 July 1999)

Electronic documents are also subject to fewer errors because the incoming documents can be routed to in-house applications without re-keying. Productivity improvements are likely among administrative functions since these are trivial problems for them to resolve.

Firms relying on documentary credits will be major beneficiaries of the reduction in re-keying requirements. Today, many initial requests for payment under documentary credit processes are rejected because of document discrepancies. When this situation arises, there will be a need for re-issuing documents, and occasionally, this will lead to an expiration of a letter of credit before an amended document can be arranged. With the use of the Bolero service, it is said that all parties in the chain will be able to make use of the same data in all documents, with fewer discrepancies and inconsistencies. Companies will achieve quick turn around because incoming documents can be reconciled more quickly with in-house records while outgoing documents will be created with minimal re-keying.

To some extent, the need to countersign documents physically may be eliminated by using digital signatures. (<http://www.boleroLtd.com>, 14 July 1999))

• **Better customer service and inventory control**

Customer service will be improved if the different claims are settled quickly or their frequency of arising reduced. By reducing the number of problems per customer, and more efficiency in the handling of the problems that do occur the quality in the service will be assured. Electronic Bs/L when used, can lead to fewer paperwork errors, better document reconciliation and faster document turn -around time. On top of that, the number of billing, payment, and delivery problems could also be reduced. In shipping agencies it is very common to see many disputes regarding delivery problems and loss of paper work leading to complaints from frustrated customers. This situation affects the general productivity of the company because of the time lost and sometimes even the cost of judicial procedures.

Just-in time (JIT) programmes seek to reduce working capital requirements by controlling inventory. JIT is virtually impossible in a paper world. As an example, if a company decides to adopt a daily ordering of goods instead of its usual monthly ordering, there is a twenty-fold increase in the number of documents, assuming a twenty-day working month. It is easy to imagine how difficult it will be for a small company in Senegal to hire, as many people as are needed to handle the increased paper flow of that magnitude, even in the situation in which the handling of paper

has reached efficiency. Documents such as advance shipping notices, is crucial to such JIT programmes, and while fax communication is possible, post certainly is not, and EDI is preferable. (<http://www.bolerold.com>, 14 July 1999)

4-2-4 The Streamlining of Processes within a Company

The use of electronic Bs/L should allow for streamlining processes within Senegalese companies. As is known, many documents used in a trade transaction usually contain the same data. Instead of producing many different electronic documents corresponding to the B/L, insurance certificate, pro forma invoice and so on, all the core data elements that are needed can be stored as one electronic document. When for example an insurance certificate is required, those elements can be selected from the record and sent to the party requesting the information. (Nilson, 1999, p.47)

Another opportunity Senegalese companies will be faced with will be the possibility of seeing one day accomplished the different functions, till now fulfilled by the single paper B/L separately handled by electronic messages. An illustration of that could be a B/L document where the title and control functions will be handled by a title registry in much the same way as a dematerialised share -trading system operates, which is one of Bolero ´s functions.

Following the same idea, the contract of carriage functions will work better with a web- based registry of terms and conditions. The ICC is working, within its' E-terms' project, to create such a registry. Finally, the receipt function can be handled by a simple message to be authenticated by the carrier by using a digital signature, (Nilson, 1999,P.47).

Nilson continues by saying that the reasons for the B/L handling all functions do no longer exist. It could be possible to split these functions into different electronic functions. Once these functions have been separated in terms of their data handling, Nilson envisages a next step by considering whether they all have to be carried out at the same time, or some of them could usefully be combined with

similar functions within other trade contracts. To support his argument he has given the example of the marine insurance certificate, which is invariably traded together with the maritime transport document, and its title function. However, he said this is rather a conditional title, which tends to follow the title function of the B/L. Therefore, he questioned why not combine them? However, he points out that the terms and conditions of the insurance contract are different from those of the contract of carriage, but the basic data about the consignment and the condition registry are the same.

4-2-5 Benefits for the Whole Senegalese Trade Sectors

The use of electronic Bs/L will benefit carriers, freight forwarders, bank and physical providers.

- **Benefits for carriers**

By using electronic Bs/L, carriers will be able to satisfy the main requirements from customers. Electronic data will allow for speed and accuracy in documentation and other administrative services. They will also be able to improve their internal operations, increase financial control, reduce their labour cost for processing and decrease administrative costs.

Furthermore, faster release of cargo resulting from electronic Bs/L at the port of destination may also mean better utilisation of the container fleet. Better information flows may also lead to fewer containers having to be repositioned empty. For bulk ship operators, the improved speed of the documentation could lead to quicker port turn-around times with consequent falls in charter costs or more voyages per ship.

- **Freight Forwarders**

With the use of electronic Bs/L, freight forwarders will be able to improve their competitiveness. Staff productivity will be enhanced and better access to carrier information and improved accuracy in administrative information processing

allowed. Together, these benefits should improve gross margins. The freight forwarder might also be able to extend the range of its services to customers wishing to outsource their logistics.

Today, Freight forwarders are faced fierce competition and increasing competitive pressure from integrated air freight companies, which are moving into the smaller end of groupage cargo. These integrated carriers can offer very short transit times and highly effective administrative arrangements. By using the Bolero B/L, for instance, freight forwarders may be able to offer similar benefits without making the huge infrastructure investment, on which the success of the integrated carriers rests, (<http://www.boleroltd.com>, and 14July1999).

• Banks and financing

For this particular sector the following advantages can be seen:

- Reduction in processing errors
- Improved service quality
- Reduced fraud and risk
- Reduced transcription errors
- Better communication and security

The Bolero messaging infrastructure may also have important implications for cross borders financial EDI. Currently, schemes have investigated carrying 'dollars and data' together through national and international payment systems.

The concept of document against payment is a familiar term involving simultaneous title exchange and settlement finality in the securities sector. Bankers within the framework of the Bolero Project are currently exploring similar concepts. Longer-term opportunities are also being explored including the securitisation of goods in transit and the management of cross border collateral. (<http://www.boleroltd.com>)

• Benefits for Physical Infrastructure Provider

Ports, terminal operators and customs in Senegal rely on accurate information from their customers to perform their commercial and statutory duties. Their objective in using electronic Bs/L will be to get this information earlier, thereby improving utilisation of the infrastructure. Automated processing is becoming a necessity for infrastructure providers, since the cost of labour makes increased trade volumes difficult within budgetary constraints.

Customs face the problem of increased costs and fraud. In Senegal like many developing countries, the role and place of the paper B/L occupies is very important. If considering the operating budget, the first of three basic components of Senegal 's fiscal plan, projects total general revenues of USD 817 million in 1999, an increase of 2.2 percent over the previous year. The government estimates it can reach this goal by increasing tax revenues by 7.4 percent (to USD 790 m). This would be accomplished through more effective collection of existing taxes and continued fiscal policy. This is just an idea about the role assigned by national authorities to customs services in the economic development of Senegal. However, the budget shows a continued decline in Senegal 's dependence on trade taxes which are expected to fall 16.2 percent in 1999, dropping from 45 to 35 percent of total tax revenues.

Then, it becomes quite clear why the customs clearance of goods in port are carefully handled by customs authorities. However, it should be kept in mind that there are costs associated with these procedures. At an UNCTAD Trade and Efficiency Symposium held in Columbus, Ohio in 1994, it was estimated that customs procedures, including paperwork and delays, add 7-10% to the cost of imported goods.

Today the tendency in developed countries is the conclusion of agreements by which countries undertake to simplify customs procedures when doing transactions.

Within the West African Economic and Monetary Union (W.A.E.M.U), efforts are currently being made toward uniformity in customs rates to apply to products from outside the Union. Senegal lowered tariff rates in 1998 and plans to take further steps in 1999 toward realising a common external tariff with its partners in the W.A.E.M.U

Since customs procedures will always be necessary, being part of the natural prerogatives of sovereigns States, efforts should, however be made toward the streamlining of these procedures. Therefore, shippers, customs and authorities will gain efficiency in their operations such as a faster clearance of goods in transit. Time and costs will be saved. "This will have many positive effects in terms of less wastage of goods by spoiling and pilferage, more efficient trade and saving. And it may be, that customs revenues at the present level may not be possible to sustain..." (Donner,1998).

According to Bolero, this situation could be considerably alleviated with the availability of a universal electronic platform and reliable consignment data in a trusted third-party registry like it will provide to its users, (<http://www.boleroltd.com>). Improved turn-round times of ship, containers and other equipment should reduce port congestion and increase harbour fee earnings. Planning of port movements improve radically with earlier availability of information about the goods expected. This applies especially to information regarding dangerous goods.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

As has been seen, electronic Bs/L have been talked about for decades, and many attempts have been made in the past without real success.

The first important step toward developing an electronic B/L was the CMI Rules for Electronic Bills of Lading. If this system was not particularly successful, it was mainly because of its lack of neutrality and confidence from its potential users.

Today the Bolero B/L has created a big hope to see at last a real electronic B/L system up and running, leading to an effective replication of the paper B/L in an electronic form. With this project, one can say that its success is already guaranteed for two main reasons:

-First, the Bolero B/L has the chance to draw on all lessons from the failure of previous attempts of the same kind. Second, the interest being shown by the investing organisations and the users themselves is a clear indication that the Bolero project can effectively contribute to the efficiency and simplification of international trade by providing an adapted means for this purpose through its electronic B/L.

However, electronic Bs/L, like any means of electronic commerce, do not recognise the notion of national boundary. Parties in this particular form of trade will enter into commercial and financial transactions without seeing or knowing each other and escaping from any kind of national or even international real control. Therefore, it is

of paramount importance that the Senegalese government should act carefully when adopting such a system into its national regulatory framework. This should not only be the responsibility of the government, but also a joint effort of all partners such as non-governmental bodies, and the private sector, who have an interest in seeing electronic Bs/L carefully implemented.

As has been seen, if electronic Bs/L took time to become reality in the international trade, it was mainly because technology was not the main obstacle to overcome, but the necessary legal framework, which needed to be put in place to ensure its validity and enforceability.

Efforts have been continuing at both national and international levels aiming at providing electronic Bs/L with a suitable legal and technical environment in which they could evolve in the same way as a paper system. International organisations have been working toward harmonisation of international trade law and trade efficiency, which has led to the preparation of model rules and guidelines, opening the way to future legislative changes. Thereby, national governments have been invited to enact legislation and establish a regulatory framework that would overcome any kind of legal obstacle electronic Bs/L might present in international trade. In the meantime, private sector organisations have done a lot in order to demonstrate, technically and legally, that it was possible to replicate the traditional paper Bs/L in an electronic environment, which offers all conditions of security and reliability.

However, it is worth repeating that an electronic B/L does not only require these pre-cited elements. In order to allow its full success, efforts should be made towards developing the trust and confidence of all those concerned with electronic maritime documentation. Security in the system will also be a key factor of its success since the identity of all traders will not be obviously established due to the fact that parties will trade in an open- network system. The government of Senegal should also ensure the integrity of transaction mechanisms and the possibility of recourse, in case of any damage resulting from error or negligence, would be fully guaranteed.

Furthermore, the rights of third parties regarding the impact of electronic Bs/L must be assured.

The solutions to all these problems arising from the use of electronic Bs/L in an open network such as Internet exceed the scope of competence of traditional contractual arrangements. The existing legal framework is not adequate for electronic commerce. Therefore, there is a need to create such a legal framework.

Senegal, being a developing country, should ensure that its national laws and regulations pertaining to international trade issues would help electronic Bs/Ls develop and not hamper it. To achieve such a goal, efforts should be made painstakingly toward identifying all trade areas that might generate uncertainties in the use of electronic Bs/L. By doing so, the necessary reforms to meet the requirements for a successful implementation of electronic Bs/L should be prepared carefully. In addition to that, the government should also avoid any risk of creating an incoherent legal system, which would hamper rather than facilitate electronic commerce.

To achieve such a goal, the guidelines presented by the Uncitral Model Law on Electronic Commerce and any other existing international rules and standards should help the government to change its national regulations in order to take into consideration the reality of electronic commerce. However, if there is one mistake that should be avoided, it is the temptation of copying or replicating automatically all these rules and standards into the national trade system without taking into consideration local realities. Each country has its own traditions that need to be dealt with by the legislator in order to enact good, clear and readable rules that could be understood by traders in a country with one of the higher levels of illiteracy all around the world.

The government should also make sure that it would always be represented in international fora and discussions on latest developments regarding electronic commerce in general. This will allow a continuing updating of its national trade legislation with the international practise in this field.

The electronic signature system is another area the authorities should look at carefully when regulating. Digital signatures, like other electronic authentication means when used in an open-network, are considerable potential sources of problems. On top of that, the value of transactions calls for the use of a secure electronic signature system like a digital signature.

Instead of focussing on other ways of authentication, the government should adopt the digital signature when enacting laws on electronic commerce since this technique of authentication is today well welcomed by the international business community as well as by many national regulations. The recognition of the legal validity of a digital signature will enhance trust and confidence in its use. Furthermore, the status of certification authorities as well as the establishment of the appropriate infrastructure should be clearly dealt with in the laws to be enacted. The UNICITRAL is currently working on the preparation of uniform rules for electronic signatures, including digital signatures. Once this work is finished, the government could be provided with a useful guidance in this respect.

When legal aspects of electronic Bs/L have been solved, there is another requirement that needs to be considered on a priority basis. The author wants to point out the importance of education and awareness of all those concerned with electronic Bs/L.

Senegal has opportunities to grasp regarding the development of electronic Bs/L. So what should be done is at two levels; the government level and company level.

At a governmental level, efforts should be made in encouraging companies to invest in advanced computer systems by lowering taxes applied to all products related to them. In 1998, considerable efforts have been made in this direction in Senegal.

The government should provide incentives to all computer centers in order to enable them to lower their tuition fees, which people usually can not afford. These incentives could take the form of fiscal facilities or direct subsidies. This would encourage computer training in the country.

The government should also train professionals of trade, magistrates and all civil servants involved in electronic commerce in order to better understand all aspects of electronic commerce.

At the company level, efforts should also be made toward investing in adequate computer systems, training sessions for staff and so on. Efforts to inform should be developed toward convincing customers about the benefits that electronic Bs/L are likely to provide them and to request their patience and understanding regarding all difficulties they will encounter during the implementation stage of electronic Bs/L. Indeed, companies must be aware that implementing such a system implies also organisational issues. In other words, full management support is required. Trying to minimize organisational change while implementing electronic Bs/L in order to eliminate most resistance against their use, will deprive the company of the full benefits it might expect.

At national and company levels, seminars, conferences and workshops should continuously be held in order to update the training of all participants in the system.

Obstacles to electronic Bs/L are not merely legal or technical, but there are the necessary investments in high quality computer systems and the training aspects. However, one most important aspect will be to ensure that all parties involved will use standard equipment: customs, shippers, carriers, insurance companies and banks.

The way leading to an implementation of electronic Bs/L could be long, but the main obstacle will only be a lack of imagination and sense of anticipation. There is no reason today to keep lagging far behind progress. The next generations will never forgive inertia from previous governments. Globalisation is already here and everywhere competition is the main challenge. A developing country does not have so many alternatives. Therefore, it must grasp any opportunity synonymous with innovation, cost effectiveness and efficiency. At a time where all companies worldwide are seeking appropriate ways to cope with this globalisation, electronic Bs/L could just be one of them.

Bibliography

- American Shipper. (1997). Bolero: EDI Clearinghouse. *American shipper*, January p.42
- American Shipper (1998). Forwarding-Nations Try to Simplify Customs Rules. *American Shipper*, September pp.58-59
- Bolero Operations (1999) *The benefits Bolero*. London: Bolero Operations Ltd <http://www.bolerold.com/Library/public.htm> (2 January 1999)
- Bolero Operations. (1999). *Business Requirements Specification*. London: Bolero Operations Ltd <http://www.bolerold.com/Library/public.htm>. (2January 1999)
- Bolero Operations (1999) *Bolero legal feasibility overview*.London: Bolero Operations Ltd: <http://www.bolero.com/Library/public.htm> (2January 1999)
- Bolero Operations (1999). Product overview. <http://www.bolerold.com/Library/public.htm> (2 January 1999)
- Boyd, M (1997) Showing Shipowners How EDI Can Save Them Big Money. *SA Shipping News & Fishing Industry Review*, March/April, 1997, p.6
- Chandler.G.F, III "*Maritime Electronic Commerce for the twenty-first Century*", paper presented at the CMI Centenary Conference, Antwerp, June 1997, p.23
- CMI (1996). Model Law on electronic data interchange and means of communication: rules concerning maritime transport. *CMI Newsletter*,vol.1,pp 13-16
- Donner, P (1999) *Electronic Bill of Lading*. Lecture notes. World Maritime University, Malmö, Sweden
- Eller, David. (1995). Documentation: the hidden cost. *Containerisation International*, pp 81-83
- Faghouri, M (1997). *Electronic Trading-The Legal Issues*. Geneva: UNCTAD
- Harris, G (1994). EDI and bills of Lading. *The Baltic*, January, pp80-82
- Hone, J (1999). The Future of Freight Forwarding, *Lloyd's Shipping Economist*, pp.14-15
- Kindred, Hugh M (1992), Lading Oceans Bills of and EDI: legal precautions in processing a shipping transaction without paper. *Dalhousie University Discussions Papers on International Business*, pp.1387-1394, Dalhousie: Dalhousie University
- Marshall,J (1998) No Paper, No Problem?, *Cargo Systems*, July, p.52
- Mottley,R (1998), Bolero, *American Shipper*, August pp13-16