

# Articles

## Incoterms, Electronic Data Interchange, and the Electronic Communications and Transactions Act

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Electronic commerce makes it possible for parties to trade electronically without using paper. Time means money. Electronic trading means that the process can be speeded up and that money can be saved.<sup>1</sup>

The past years have seen an explosion of interest in electronic data interchange (EDI) between national and international trade participants. In this article I shall investigate the impact of EDI on trade terms, and the use of transport documents associated with these terms. I shall mainly focus on how various international instruments deal with the legal issues relating to e-commerce and specifically transport documents. The Electronic Communications and Transactions Act<sup>2</sup> regulates the South African legal position relating to electronic transactions, and hence also paperless trading.

### 1 EDI in the Context of International Trade Terms

Time is a factor of high priority in the context of international trade. As the costs of handling the paper flow became disproportionate to the costs of physical transportation, communicating partners started to use electronic messages to replace conventional transport documentation and to simplify international trade procedures. EDI can be applied to most paper-based documentation, which is why the term 'paperless trading' is often used to describe EDI.

So it was only natural that EDI had to be reflected in updated rules to interpret trade terms.<sup>3</sup> When a trade term refers to a notification or a

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<sup>1</sup> Direct cost savings include savings on paper, postage, and fax charges. Considerable time is saved by not sending documents back and forth. Mistakes can be reduced, greater security applied to the content of documents, and the number of transactions executed by a trading partner increased substantially.

<sup>2</sup> Act 25 of 2002 ('ECTA').

<sup>3</sup> Trade terms are acronyms that connote the various delivery obligations of the parties to a contract of sale, such as FOB (free on board) and CIF (cost, insurance, freight).

transport document, some additional text is needed to make sure that an equivalent EDI message is acceptable. The standard rules for the interpretation of international trade terms (Incoterms) of the International Chamber of Commerce (ICC) have followed these new developments. Incoterms are a codification of international commercial practices and customs, and so their development mirrors the developments in international trade practice.

In the late 1980s it was already anticipated that e-commerce would grow to such an extent that the traditional requirements regarding paper documentation under the Incoterms would have to be supplemented by options for the parties to provide electronic equivalents to paper documents.<sup>4</sup> The new transportation techniques and the changed documentary practices received special attention in the 1980 revision of the Incoterms. Incoterms 1990 formally recognized the replacement of paper documentation with EDI. These provisions were repeated in the 2000 revision.<sup>5</sup>

At the end of every A8 and B8 clause (except for EXW), Incoterms 1990 and 2000 both refer to situations where seller and buyer have agreed to communicate electronically (the so-called EDI agreement). If they have done so, the paper document can be replaced by 'an equivalent electronic data interchange (EDI) message'. But unless the parties have agreed otherwise, the buyer may still insist on paper documentation.

Incoterms do not go further than the above in explaining how the electronic communication should be implemented. That will, amongst other things, be governed by the agreement of the parties, or by legislation, whether national or international, that applies to the contract of sale. But any EDI system that replaces paper documentation should provide for true electronic equivalents to paper documents, and must for this purpose be sufficiently secure and well developed.

## 2 EDI and the International Instruments for the Regulation of Electronic Commerce

### 2.1 What is EDI?

EDI is the direct transfer or interchange of structured data according to agreed message standards between computer systems by electronic means.<sup>6</sup>

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<sup>4</sup> Jan Ramberg *Incoterms in the Era of Electronic Data Interchange* (1990) 10–13.

<sup>5</sup> International Chamber of Commerce *Incoterms 2000* (the official rules). For the preambles to the various terms, see <<http://www.iccwbo.org/incoterms/preambles.asp>>.

<sup>6</sup> Henry H Perritt Jr *Law and the Information Superhighway* (1996) 376. For a general discussion of EDI and how it works, see Kevin van Tonder 'The Mock Exchange' April 2001 *De Rebus* 20 at 21; *The ABC of EDI*, available at <<http://www.edi.wales.org/feature4.htm>>. The UNCITRAL Model Law on Electronic Commerce defines EDI as 'the electronic transfer from computer to computer of information using an agreed standard to structure the information' (art 2).

EDI opens up opportunities electronically to do business and transact with one's trading partners. Electronic contracting by means of EDI provides for the exchange of contractual offer and acceptance without conscious human intervention at the time of the exchange. The offering computer sends a message in a prearranged format (known as a transaction set) to another computer. The receiving computer is able to process the message through a program using the same format. If the communicated offer matches the terms, the receiving computer is programmed to accept, and sends an acceptance message in an acceptance transaction set. A contract is concluded.<sup>7</sup>

Although paperless trading has definite advantages, there are considerable legal implications. The need for the international regulation of e-commerce and related issues soon became apparent. The United Nations and the ICC were some of the key players under whose auspices various international documents and model laws were developed. These international efforts often followed national efforts to regulate aspects of e-commerce. In some countries,<sup>8</sup> like South Africa, national legislation came afterwards.

Here I shall discuss briefly some of the most important international instruments of regulation pertaining to e-commerce and EDI, with specific reference to electronic bills of lading. Finally, I shall analyse the position in South Africa as it appears in the ECTA.

## 2.2 The Uniform Rules of Conduct for Interchange of Trade Data by Teletransmission (UNCID)

The opportunities for paperless trading were recognized by the ICC in co-operation with the United Nations Commission on International Trade Law (UNCITRAL), the United Nations Economic Commission for Europe (ECE), and the Customs Co-operation Council (CCC). A joint Special Committee with participants from interested organizations and user groups was established to evaluate and formulate a set of agreed rules of conduct for parties engaged in the transmission of trade data.<sup>9</sup> The result of their work was the Uniform Rules of Conduct for Interchange of Trade Data by Teletransmission (UNCID)<sup>10</sup> that were launched in 1987.

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<sup>7</sup> Perritt op cit note 6 at 376.

<sup>8</sup> Prior to the Model Law, Malaysia, Argentina, Germany, and Italy formulated digital signature legislation. Some examples of legislation enacted after the Model Law: the Uniform Electronic Commerce Act of 1999 in Singapore; and the Uniform Electronic Commerce Act of 1999 and the Federal Electronic Signatures in Global and National Commerce Act of 2000 in the United States of America..

<sup>9</sup> The parties I mentioned as well as the UNCTAD Special Programme on Trade Facilitation (FALPRO), the Organization for Economic Co-operation and Development (OECD), the International Organization for Standardization (ISO), the Commission of the European Communities, the European Insurance Committee, and the Organization for Data Exchange by Teletransmission in Europe (ODETTE) were all represented on the Special Committee.

<sup>10</sup> Available at <[http://www.unec.org/trade/untcid/texts/d220\\_d.htm](http://www.unec.org/trade/untcid/texts/d220_d.htm)>.

By formulating these rules, UNCID created a common international standard on the basis of which EDI operates. The purpose of an EDI standard is for a trading company to send a document to another trading company in a manner such as that the other company's computer will immediately recognize the document as a specific and unique type of document. The EDI standard that is used ensures the correct interpretation of the information by the computer system. For such a standard to operate effectively, three 'building blocks' are required: common data elements equivalent to the vocabulary; a syntax that equates to the grammar in normal language; and standard messages that combine data elements and syntax into a structured business message similar in concept to a paper document.<sup>11</sup> A 'common language' for EDI has also been developed by the ECE. It is known as EDIFACT (Electronic Data Interchange for Administration, Commerce, and Transport).<sup>12</sup> In this way an acceptable degree of interchange security can be obtained. So the main goal of UNCID was to create tools that would make electronic interchange of data in international trade a secure, effective, and cheap alternative to slow, insecure, and complicated paper documentation.

The traditional paper document has always been accepted as evidence because of its physical characteristics — it is durable, and changes or additions are usually clearly visible. This is especially true of transport documents like the bill of lading. But an electronic document is quite different. It takes the form of a magnetic medium the data content of which can be changed at any time. Once this has been done, changes and additions do not appear as such. But it is important to remember that paper and data communication links are only media for carrying information. So the challenge was to establish techniques that give EDI characteristics that make it equal or superior to paper not only as a carrier of information but also in regard to its evidential functions.<sup>13</sup>

According to the UNCID rules, EDI in itself presupposes procedures that make this form of communication more secure. In addition to identification, it can provide for error detection and correction as well as authentication in the sense that the data content is correct. Privacy can be secured by several means built into the system, and authentication (in the sense that the correct authorized person has issued the message) can also be secured. So the ECE, UNCITRAL, and the CCC have recommended to governments and organizations responsible for determining documentary requirements that they undertake an update and overhaul of these requirements to allow for EDI. Whether the ECTA succeeds in doing so I shall discuss below.

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<sup>11</sup> UNCID Rules chapter 1 'Introductory Note' para II, available at <[http://www.enec.org/trade/unidid/texts/d210\\_d.htm](http://www.enec.org/trade/unidid/texts/d210_d.htm)>.

<sup>12</sup> For the syntax rules see <[http://www.unec.org/trade/unidid/texts/d422\\_d.htm](http://www.unec.org/trade/unidid/texts/d422_d.htm)>.

<sup>13</sup> UNCID Rules chapter 1 'Introductory Note' para III, available at <[http://www.enec.org/trade/unidid/texts/d210\\_d.htm](http://www.enec.org/trade/unidid/texts/d210_d.htm)>.

### 2.3 The Model Interchange Agreement for the International Commercial Use of EDI

The publication of the UNCID rules confirmed the importance to international trade of having certain agreements in place among commercial parties regarding the use of electronic means of communication. The UNCID rules expressly provide that their provisions, if relied upon, should be incorporated into definitive agreements among commercial trading partners. As a result, national organizations, associations, and public administrative bodies have developed a multiplicity of model interchange agreements. But these agreements originate within different cultural and legal environments, and often address only national or local business requirements, without any international focus that is required by EDI users who exchange messages across boundaries.<sup>14</sup>

In 1991, the Model Interchange Agreement for the International Commercial Use of Electronic Data Interchange<sup>15</sup> was developed as part of a project of the Action Programme on the Legal and Commercial Aspects of Electronic Data Interchange, adopted by the ECE Working Party on Facilitation of International Trade Procedure.<sup>16</sup> The development of a truly international model interchange agreement was one of the main objectives of the programme. More than twenty different existing model interchange agreements were considered in the course of the preparation of the model agreement, and close collaboration was ensured with the technical experts associated with the development of UN/EDIFACT.<sup>17</sup>

An interchange agreement sets out the rules that trading partners will adopt for using EDI. It details their individual roles and legal responsibilities for transmitting, receiving, and storing electronic messages. In the absence of clear governing legal rules and principles, an interchange agreement provides a readily available solution for formalizing the EDI relationship between trading partners. The terms of the model interchange agreement are recommended, not made mandatory. Trading parties are free to modify the terms of any interchange agreement to their mutual satisfaction, or not to enter into an interchange agreement at all.<sup>18</sup>

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<sup>14</sup> See UN/ECE Recommendation no 26 *The Commercial Use of Interchange Agreements for Electronic Data Interchange* (1995) part I 'Background', available at <[http://www.unec.org/trade/untidid/texts/d240\\_d.htm](http://www.unec.org/trade/untidid/texts/d240_d.htm)>.

<sup>15</sup> For the full text, see <[http://www.unec.org/trade/untidid/texts/d240\\_d.htm](http://www.unec.org/trade/untidid/texts/d240_d.htm)>.

<sup>16</sup> See the 'Preface' to the text of the Model Interchange Agreement.

<sup>17</sup> See part 2: 'Preparation of the Model Agreement'.

<sup>18</sup> See 'Introduction to Interchange Agreements', as part of the text of the Model Interchange Agreement.

## 2.4 The UNCITRAL Model Law on Electronic Commerce

The 1996 Model Law on Electronic Commerce<sup>19</sup> is a set of internationally accepted rules as to how legal obstacles to e-commerce may be removed, and how a more secure legal environment may be created. The law was created in response to the fact that in a number of countries the existing legislation governing the communication and storage of information was inadequate or outdated, as such legislation did not contemplate e-commerce. Legislation that uses terms such as 'writing', 'signature', or 'original documents' also impose restrictions on the use of modern means of communication. Although a few countries adopted specific provisions to deal with certain aspects of e-commerce, there was no legislation on e-commerce as a whole. UNCITRAL realized that this may yield uncertainty as to the legal nature and validity of information presented in a form other than a traditional paper document, which, in turn, may create obstacles to international trade and limit the extent to which businesses may access international markets.<sup>20</sup>

The Model Law relies on a 'functional equivalent approach'<sup>21</sup> that is based on an analysis of the purposes and functions of the traditional paper-based requirements with a view to determining how those purposes can be achieved or functions performed by e-commerce techniques. These functions include providing for the legibility of a document, and that it remains unaltered over time; allowing for the reproduction of a document for the purpose of having copies for each party, and for the authentication of data by means of a signature; and providing that a document is in a form acceptable to public authorities and the courts. The compilers of the Model Law argue that electronic records can provide the same level of security as paper, and, in most cases, an even higher degree of reliability and speed, provided that a number of technical and legal requirements are met.<sup>22</sup>

The Model Law can be used both on an international level as a tool for interpreting existing international conventions and instruments that create legal obstacles to the use of electronic commerce, and at a national level, where it may serve as a model for national legislators.

## 2.5 The General Usage for Internationally Digitally Ensured Commerce (GUIDEC)

In November 1995, it was proposed to the ICC to develop international guidelines on the legal aspects of e-commerce and on the

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<sup>19</sup> For the full text, see <<http://www.uncitral.org/english/texts/electcom/ml-comm.htm>>.

<sup>20</sup> For their objectives, see the *Guide to Enactment* (1996) paras 2-6.

<sup>21</sup> The 'functional equivalent' approach is used in arts 6-8 of the Model Law regarding 'writing', 'signature', and 'original'. See also 3.2 below for a discussion in relation to arts 16 and 17.

<sup>22</sup> See the *Guide to Enactment* paras 15-18.

establishment of an international chain of registration and certification authorities. The General Usage for Internationally Digitally Ensured Commerce (GUIDEC)<sup>23</sup> was published in 1997 by the ICC Information Security Working Party, under the auspices of the ICC Electronic Commerce Project. The GUIDEC addresses one of the key problems of electronically signed messages — they are not signed physically but require the intervention of an electronic medium. The second version of the GUIDEC was published in October 2001.<sup>24</sup>

The principal objective of the GUIDEC is to establish a general legal framework for securing and certifying digital messages by means of digital signatures, based upon the existing law and practice in different legal systems. So the GUIDEC provides a detailed explanation of security and certification principles, particularly in relation to issues relating to information system security, and public key cryptographic techniques. It also contains standard practices or recommendations relating to securing the authentication of digital information. The second version builds on this foundation and expands the field of application.

## 2.6 UNCITRAL Model Law on Electronic Signatures

This Model Law,<sup>25</sup> adopted in 2001, intends to bring additional legal certainty regarding the use of electronic signatures. It builds on article 7 of the Model Law on Electronic Commerce and establishes a presumption that where electronic signatures meet certain criteria of technical reliability, they are treated as being equivalent to hand-written signatures.<sup>26</sup> In establishing this presumption, the Model Law follows a technology neutral approach. Also, the Model Law establishes basic rules of conduct for the signatory, the certification service provider, and the relying party.<sup>27</sup>

## 3 Adapting Electronic Bills of Lading to e-Commerce

Although trade terms were adapted to the needs of paperless trading and made compatible with EDI practice, quite a few legal impediments still had to be overcome.

Take, for example, the bill of lading as a paper document. Traditionally, the bill of lading has been the only acceptable document to be presented by the seller under the CFR and CIF terms. The bill of lading fulfils three important functions:<sup>28</sup> it is proof of delivery of the

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<sup>23</sup> For the full text, see <<http://www.iccwbo.org/home/guidec/guidec.asp>>. The GUIDEC was designed to build upon and extend the UNCITRAL Model Law on Electronic Commerce.

<sup>24</sup> See <[http://www.iccwbo.org/home/guidec/guidec\\_two/foreword.asp](http://www.iccwbo.org/home/guidec/guidec_two/foreword.asp)>.

<sup>25</sup> For a summary, see <<http://www.mbc.com/eco.../unisummary.asp?Uniform=Enacted&PubID=20017118563>>.

<sup>26</sup> Article 6.

<sup>27</sup> Articles 8, 9, and 11.

<sup>28</sup> ICC *Incoterms 2000* (the official rules) para 19; Jan Ramberg *International Commercial Transactions* (1997) 64–65.

goods on board the vessel, evidence of the contract of carriage, and a means of transferring rights to the goods in transit to another party by the transfer of the paper document to him. Transport documents other than the bill of lading<sup>29</sup> fulfil the first two functions but do not control the delivery of the goods at their destination, or enable a buyer to sell the goods in transit by surrendering the paper document to his buyer. In other words, they do not function as a document of title. Possession of the bill of lading is required for obtaining the goods from the carrier at their destination. That makes this type of document particularly difficult to replace by electronic means of communication. It is also an old practice that several original bills of lading are required.<sup>30</sup>

Safety requirements are surely of the most important considerations when parties decide to transact electronically:<sup>31</sup> (a) one has to make sure that the message is sent by somebody who is authorized to do so; (b) the system must make sure that the message cannot be changed by an unauthorized person who gains access to the computer; and (c) it is necessary, before the EDI message is relied upon by somebody other than the receiver, that it retains its original content.

International instruments and documents aimed at providing a secure environment for electronic commerce do not always cater specifically for the problems associated with electronic transport documents. I shall now give a brief exposition on the legal position relating to electronic bills of lading.

### 3.1 The CMI Uniform Rules for Sea Waybills and Electronic Bills of Lading

At its 1990 World Conference, the Comité Maritime International (CMI) adopted the Uniform Rules for Sea Waybills and Electronic Bills of Lading. The CMI Rules provide a mechanism to enable those who wish to communicate electronically to do so, while they keep the existing contractual obligation of the carrier intact. These developments took place at the same time as the development of the Incoterms 1990.<sup>32</sup>

Under these Rules, holding a 'private key' is deemed to be equal to holding a paper bill of lading. The private key is construed in any technically appropriate form that the parties can agree upon for securing the authenticity and integrity of an electronic transmission, such as a combination of numbers and/or letters. This private key is unique to each successive holder and cannot be transferred by him or her to somebody else. Transfer to a subsequent party is effected by a notification to the carrier that the current holder intends to transfer his right of control and

<sup>29</sup> For example, the sea waybill.

<sup>30</sup> Because of the risks involved, the banks require a full set, in accordance with UCP 500. For the risks inherent in the bill of lading system, see Ramberg *op cit* note 28 at 65–68. eUCP came into force on 31 March 2002. This is the first electronic supplement to UCP 500 issued by the ICC.

<sup>31</sup> Ramberg *op cit* note 28 at 71.

<sup>32</sup> Jan Ramberg *Guide to Incoterms 1990* (1989) 9.

transfer to a new holder. If the latter accepts, the carrier should cancel the current private key and issue a new one to him. If a proposed new holder does not wish to participate in the electronic system, the Rules give the current holder the option to demand a paper bill of lading from the carrier, which can then be transferred to the new holder. Such a paper bill of lading would then have to contain a statement to the effect that the paper bill of lading was issued upon the termination of the EDI procedures. Upon issuance of the paper bill of lading, the private key is cancelled and the EDI procedures terminate.<sup>33</sup> Under the CMI Rules there are three players involved in the process — the carrier, the shipper (as the first holder), and the consignee (as the second or subsequent holder).

The market, however, was not prepared to accept this system. Instead, the CMI Rules inspired further moves by international bodies.

### 3.2 UNCITRAL Model Law on Electronic Commerce

The 1996 Model Law on Electronic Commerce<sup>34</sup> contains two important articles relating to transport documents.<sup>35</sup> The Model Law was based mainly on the system under the CMI Rules for Electronic Bills of Lading. Generally, the Model Law recognizes that a paper document is no more than a medium that performs certain functions<sup>36</sup> — to evidence an agreement, to confer on a party the legal right to claim the goods from the carrier at destination, and to transfer rights to the goods in transit. If these functions of a paper document can be obtained by another medium, such as an electronic exchange of messages, this should, according to the Model Law, be recognized worldwide.<sup>37</sup>

In preparing the Model law, the compilers noted that the carriage of goods was the context in which electronic communications were most likely to be used and in which a legal framework that facilitates the use of such communications was most urgently needed. Chapter 1 of Part 2 of the Model Law deals with e-commerce as it applies to the carriage of goods. Articles 16 and 17 contain provisions that apply equally to non-negotiable transport documents and to the transfer of the rights in goods by way of transferable bills of lading. The principles embodied in these two articles apply not only to maritime transport but also to the transport of goods by other means, such as road, rail, and air, as well as multimodal carriage.<sup>38</sup>

Article 16 covers actions relating to contracts of carriage of goods. The article is broadly drafted, is illustrative by nature, and can be excluded

<sup>33</sup> Ramberg op cit note 28 at 72; Jan Ramberg *ICC Guide to Incoterms 2000* (1999) 30-31.

<sup>34</sup> See 2.4 above.

<sup>35</sup> Articles 16 and 17.

<sup>36</sup> As to the 'functional equivalent' approach, see the text at note 21 above.

<sup>37</sup> Ramberg op cit note 28 at 72-73; *Guide to Enactment* 'Introduction to the Model Law' para A.

<sup>38</sup> *Guide to Enactment* paras 110-112.

from any document or contract.<sup>39</sup> It covers issues such as receipts for goods,<sup>40</sup> notifying a person of the terms and conditions of the contract,<sup>41</sup> claiming delivery of the goods,<sup>42</sup> and acquiring or transferring the rights and obligations under the contract.<sup>43</sup> In the context of transport documents, however, it is necessary to establish functional equivalents not only of the written information about the actions referred to in article 16 but also of the performance of such actions through the use of paper documents. Functional equivalents are particularly needed for the transfer of rights and obligations by the transfer of written documents.

Article 17 deals with transport documents. Paragraphs (1) and (2) are intended to replace the requirement of a written contract of carriage, and the requirements for endorsement and transfer of possession of a bill of lading, respectively.<sup>44</sup> Where rights or obligations are to be transferred by means of a paper document, as in the case of a bill of lading, the same effect can be reached by means of one or more data messages, 'provided that a reliable method is used to render such data message or messages unique'.<sup>45</sup> Such standard of reliability shall be assessed in view of the purpose for which the right or obligation was to be conveyed as well as all the circumstances, such as the relevant agreement.<sup>46</sup> Paragraph (3) in combination with paragraph (4) introduce the 'guarantee of singularity'. Paragraph (5) is a necessary complement to this guarantee. It addresses the fundamental need to avoid the risk of duplicate transport documents. It is essential for the operation of any system that relies on electronic equivalents of bills of lading to avoid the possibility that the same rights can at any given time be embodied in both data messages and a paper document. Paragraph (5) also envisages the situation where a party who initially agreed to engage in electronic communications has to switch to paper-based communications where it later becomes unable to sustain electronic communications. In such a case, it is necessary for the use of electronic messages to terminate and for a paper document issued in these circumstances to contain a statement to such effect.<sup>47</sup> Paragraph (6) is to deal directly with the application of certain laws to contracts for the carriage of goods by sea. Rules that apply to traditional paper documents apply also to electronic messages, such as the Hague and Hague-Visby Rules pertaining to bills of lading.<sup>48</sup>

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<sup>39</sup> Article 17(7).

<sup>40</sup> Article 16(a)(iii).

<sup>41</sup> Article 16(b)(i).

<sup>42</sup> Article 16(c)(i).

<sup>43</sup> Article 16(g).

<sup>44</sup> *Guide to Enactment* para 113.

<sup>45</sup> Article 17(3).

<sup>46</sup> Article 17(4).

<sup>47</sup> *Guide to Enactment* para 118.

<sup>48</sup> *Idem* para 121.

### 3.3 BOLERO

Despite all these attempts the general use of electronic communication in international trade progressed rather slowly. The market still considered a paper document to be the most reliable method in international trade, despite the fact that for more than twenty years money moved electronically through the banking system on a daily basis. This was partly due to the difficulties of transferring rights to goods as compared to the transfer of rights to money.

Successful e-business requires more than just applying new technology to established processes. It means a radical change in the way business communication and transactions are initiated and executed. It is not enough to create a closed system between a few traders, as this will create difficulties in relation to those who cannot communicate with the closed system. So the ultimate goal is to develop an open system in which everyone interested in international trade can participate.

A system called BOLERO (Bills of Lading for Europe),<sup>49</sup> sponsored by the Society for Worldwide Interbank Financial Telecommunication (SWIFT) and the Through Transport Club (TTC) was consequently developed to bring international trade in line with e-commerce. These two organizations represent the most powerful players in international trade, including some of the world's largest banks, shipping companies, and telecommunication companies. The BOLERO project aims at replacing paper-based shipping documents with an online computerized registry.<sup>50</sup> BOLERO's initial focus was the use of EDI systems as negotiable bills of lading, which until now have been hampered by incompatible computer systems and bureaucrats. BOLERO went online on 27 September 1999.

The process used in the project is based on the CMI Rules for Electronic Bills of Lading. BOLERO differs from the system under the CMI Rules in that the electronic messages are received and sent back through a Trusted Third Party (TTP). The authenticity and integrity of the electronic message is secured by digital signatures which identify the senders and receivers and exclude the possibility that the parties will change the contents of the message once it has been sent. So the party managing the system can guarantee the correct delivery of the EDI message.

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<sup>49</sup> See <<http://www.bolero.com>>.

<sup>50</sup> This project meant meeting two challenges — generating new Web-based applications, and integrating them into existing structures. The result is BOLERO.net (see <<http://www.bolero.net>>). The network enables companies worldwide to make dramatic savings in trading costs and radically speeds up the international trade process. But the interoperability of the system was still a problem. This was solved by introducing BOLEROXML. The objective of BOLEROXML is to enable users of BOLERO.net to take full advantage of electronic commerce by providing a set of standard electronic documents that will facilitate interoperability amongst the members of the community. Their goal is to eliminate the need for bilateral data interchange agreements that describe the structure and contents of the electronic data being exchanged between two parties. In addition to BOLERO, there is SURF (Settlement Utility for Risk and Finance), which is an Internet-based compliance engine that checks document contents against details in an established agreement. It has great advantages for banks, especially in the context of payment guarantees and letters of credit.

As with the CMI Rules, the BOLERO system is contractual by nature, and is binding and effective only as between parties who agree to use it. The contractual framework is embodied in the Rule Book. All those participating in the system are required to subscribe to the Rule Book, which provides the 'electronic agreement' referred to in the A8 clauses of Incoterms. The system is not limited for participation to carriers, shippers, and consignees, but is also open to other parties such as freight forwarders, insurers, customs authorities, banks, and governmental bodies that issue licences, or certificates of origin.

The BOLERO system uses the EDIFACT standard syntax, a central register, and a security system to pass title to electronic documents. The key to BOLERO is that all messages are digitally signed. The title registry functions as follows: a BOLERO carrier sends a message to a BOLERO shipper that confirms receipt of goods by the carrier and provides all the data normally found on the bill of lading. The carrier also directs the message to the Title Registrar, where the BOLERO shipper is logged as holder of the 'document'. If the shipper wishes to transfer the ownership of the goods covered by the message, it gives instructions in a BOLERO format that identifies the new owner, who must also be a BOLERO user, to the Title Registry. On receipt of this message, the Title Registry sends a message that confirms the new owner as the holder with rights to the goods. Digital signatures authenticate all messages, and all are effectively binding according to the Rule Book.<sup>51</sup>

Together with further support in the form of appropriate legal norms and principles by means of the CMI Rules for Electronic Bills of Lading and UNCITRAL's Model Law on Electronic Commerce, BOLERO provides a secure legal environment for international trade transactions conducted through the medium of e-commerce.

## 4 South Africa

### 4.1 The Electronic Communications and Transactions Act

The ECTA came into operation on 30 August 2002.<sup>52</sup> According to its preamble, the Act is aimed, amongst other things, at facilitating and regulating electronic<sup>53</sup> communications and transactions, as well as at promoting universal access to such communications and transactions. Two of the objects of the Act are to create legal certainty and to address key issues such as security.<sup>54</sup> Section 4 sets out the sphere of application of the Act: it states that the Act applies to any electronic transaction or data message.<sup>55</sup>

<sup>51</sup> Ramberg op cit note 28 at 73; Ramberg op cit note 33 at 31.

<sup>52</sup> Proclamation R68 GG 23809 of 30 August 2002 (*Reg Gaz* 7449).

<sup>53</sup> According to s 1, 'electronic' connotes 'digital or other intangible form'.

<sup>54</sup> Section 2.

<sup>55</sup> Certain transactions are not covered by the Act: see s 4(3) and (4), and scheds 1 and 2.

Chapter 3 deals specifically with facilitating electronic transactions. Part 1 of this chapter sets out the legal requirements for data messages.<sup>56</sup> The formality of writing, as a requirement for the validity of a document, is met 'if the document is . . . in the form of a data message; and . . . accessible in a manner usable for subsequent reference'.<sup>57</sup> Sections 16 and 17, on the retention and production of a document or information, can be read together with section 12 to supplement its provisions. Section 19(1) provides specifically for instances where the law requires more than one copy of a document to be delivered to a single person: this requirement is satisfied if a single data message that is capable of reproduction by that addressee is submitted. Section 15 also provides for the admissibility and evidential weight of data messages in legal proceedings.

Section 13 provides for a digital signature in the form of an 'advanced electronic signature',<sup>58</sup> which is deemed to be a valid signature.<sup>59</sup> Section 13(3) provides even for situations in which the parties to an electronic transaction have not agreed on the type of electronic signature. In regard to the requirement of an original document, section 14 requires, amongst other things, that the integrity of the data message has to pass assessment in terms of subsection (2). Such assessment takes place by 'considering whether the information has remained complete and unaltered, except for the addition of any endorsement and any change which arises in the normal course of communication, storage and display',<sup>60</sup> as well as by having regard to 'the purpose for which the information was generated',<sup>61</sup> and 'all other circumstances'.<sup>62</sup>

The formation of an agreement by means of an automated transaction is regulated by section 22 read with section 23.<sup>63</sup> Automated transactions use 'electronic agents' that are computer programs or other electronic or automated means that are used independently to initiate an action or respond to a data message.<sup>64</sup>

So it is that the ECTA covers EDI transactions. But what is the legal position relating to electronic transport documents?

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<sup>56</sup> Section 1 defines the term 'data message' to connote 'data generated, sent, received or stored by electronic means and includes . . . voice, where the voice is used in an automated transaction; and . . . a stored record'.

<sup>57</sup> Section 12.

<sup>58</sup> Section 1 defines an 'electronic signature' as 'data attached to, incorporated in, or logically associated with other data and which is intended by the user to serve as a signature'. An 'advanced electronic signature', in turn, is 'an electronic signature which results from a process which has been accredited by the Authority as provided for in section 37' (ibid).

<sup>59</sup> Section 13(4).

<sup>60</sup> Section 14(2)(a).

<sup>61</sup> Section 14(2)(b).

<sup>62</sup> Section 14(2)(c).

<sup>63</sup> Section 1 defines an 'automated transaction' as 'an electronic transaction conducted or performed, in whole or in part, by means of data message in which the conduct or data messages of one or both parties are not reviewed by a natural person in the ordinary course of such natural person's business or employment'.

<sup>64</sup> For the definition, see s 1.

## 4.2 The Sea Transport Documents Act

According to the Sea Transport Documents Act,<sup>65</sup> a bill of lading can, subject to section 9(1)(b),<sup>66</sup> be transferred through the use of a telecommunication system, or an electronic or other information technology system.<sup>67</sup> But the Act applies only to sea transport documents issued in South Africa, and to goods consigned or delivered to a destination in South Africa.<sup>68</sup> The Act is not yet in force, as its commencement date still has to be proclaimed by the President. So in the meantime, the legal position regarding electronic bills of lading is still determined by existing law.

One possible solution is to argue that if the parties have agreed on Incoterms, the A8 and B8 clauses require an EDI agreement.<sup>69</sup> Such an interchange agreement<sup>70</sup> can provide for a well-developed system that follows international standards, and the replacement of paper bills of lading through electronic means by a notification system such as BOLERO.<sup>71</sup>

Another important consideration is the ECTA that will also have a direct bearing on the legal position of electronic sales contracts, and issues directly related to them.

## 4.3 Conclusion

The issues that face EDI, generally, flow from the concepts 'writing', 'document', 'signature', 'authentication', 'original', 'copies', and 'delivery'. As such, they do not seem to pose a problem. These issues are addressed by chapter 3 of the ECTA and the accreditation provisions in its chapter 6.<sup>72</sup> But the main problem remains with the concepts 'transferability' and 'negotiability'.

Unlike the Model Law on Electronic Commerce, the South African legislation does not provide specifically for transport documents and the transfer of rights contained in a bill of lading. The compilers of the Model Law thought it best to insert a separate chapter to deal with rules of a more specific nature, such as the actions related to the carriage of goods, and transport documents. According to them, these issues should be addressed expressly and clearly, especially in view of the potential difficulties in certain countries with recognizing the transmission of a

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<sup>65</sup> Act 65 of 2000.

<sup>66</sup> Section 9(1)(b) authorizes the Minister of Transport to prescribe by regulation the circumstances in which and the conditions subject to which an electronic document can be regarded as a sea transport document.

<sup>67</sup> Section 3(b).

<sup>68</sup> Section 2(a) and (b).

<sup>69</sup> Unlike s 21 that suggests that an agreement can be formed when either of the parties uses an electronic agent.

<sup>70</sup> See 2.3 above.

<sup>71</sup> Ramberg op cit note 33 at 58. But in practice this is not always a viable solution. BOLERO charges start at \$20 000 and are often way beyond the reach of third world countries.

<sup>72</sup> I do not propose here to investigate the efficacy of these provisions.

data message as functionally equivalent to the physical transfer of goods, or to a document of title that represents the goods.<sup>73</sup>

Parliament did not think it necessary to do that, probably because of the possibilities provided for by the Sea Transport Documents Act. I have mentioned the limitations of this Act, and that it has not yet come into force. However, although the ECTA is not very clear on this, its general provisions can be interpreted broadly to cover also the transferability of rights. I believe, then, that where Parliament attempts to legislate on a subject that is revolutionary to legal systems worldwide, it is necessary for the promotion of legal certainty and confidence in respect of electronic transactions<sup>74</sup> that the legislation be as specific as possible. If it is not, the objects of the ECTA to enable and facilitate electronic transactions in the public interest,<sup>75</sup> and to create functional equivalents to paper-based transactions<sup>76</sup> may well be denied.

It is also necessary that the Sea Transport Documents Acts come into operation, and that its scope of application be expanded to include international sales. It will also be wise to link the provisions of this Act, and especially the regulations referred to in section 9, to the ECTA. The latter provides the legal framework within which e-commerce, and so also electronic transport documents, can function.

But until Parliament has provided more clarity, the only way in which parties to an international sales contract can address these issues effectively and securely remains by means of a properly drafted interchange agreement.

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<sup>73</sup> *Guide to Enactment* paras 108–113.

<sup>74</sup> Section 2(e).

<sup>75</sup> Section 2.

<sup>76</sup> See the Memorandum on the Objects of the Act.