

guidance to EDI users as well as to national legislators and regulatory authorities. It was also agreed that the Commission, while it should aim at providing the greatest possible degree of certainty and harmonization, should not, at this stage, make a decision as to the final form in which those norms and rules would be expressed.

132. As regards the possible preparation of a standard communication agreement for worldwide use in international trade, the Working Group was agreed that, at least currently, it was not necessary for the Commission to develop a standard communication agreement (see above, paragraph 27). However, it was noted that in line with the flexible approach recommended to the Commission concerning the form of the final instrument, situations might arise where the preparation of model contractual clauses would be regarded as an appropriate way of addressing specific issues.

133. The Working Group reaffirmed the need for close cooperation between all international organizations active in the field. It was agreed that the Commission, in view of its universal membership and general mandate as the core legal body of the United Nations system in the field of international trade law, should play a particularly active role in that respect. In that connection, it was recalled that the mandate conferred on the Commission by the General Assembly was to "further the progressive harmonization and unification of the law of international trade by:

(a) Coordinating the work of organizations active in this field and encouraging cooperation among them;

(b) Promoting wider participation in existing international conventions and wider acceptance of existing model and uniform laws;

(c) Preparing or promoting the adoption of new international conventions, model laws and uniform laws and promoting the codification and wider acceptance of international trade terms, provisions, customs and practices, in collaboration, where appropriate, with the organizations operating in this field;

(d) Promoting ways and means of ensuring a uniform interpretation and application of international conventions and uniform laws in the field of the law of international trade;

(e) Collecting and disseminating information on national legislation and modern legal developments, including case law, in the field of the law of international trade;

(f) Establishing and maintaining a close collaboration with the United Nations Conference on Trade and Development;

(g) Maintaining liaison with other United Nations organs and specialized agencies concerned with international trade;

(h) Taking any other action it may deem useful to fulfil its functions.¹⁴

134. It was also agreed that the Secretariat should continue to monitor legal developments in other organizations such as the Economic Commission for Europe, the European Communities and the International Chamber of Commerce, facilitate the exchange of relevant documents between the Commission and those organizations and report to the Commission and its relevant Working Groups on the work accomplished within those organizations.

¹⁴General Assembly resolution 2205 (XXI), sect. II, para. 8 [*Yearbook 1968-1970*, part one, chap. II, sect. E].

**B. Working paper submitted to the Working Group on International Payments at its twenty-fourth session: possible issues to be included in the programme of future work on the legal aspects of EDI:
note by the Secretariat**

(A/CN.9/WG.IV/WP.53) [Original: English]

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INTRODUCTION

1. At its twenty-first session (1988), the Commission considered a proposal to examine the need to provide for the legal principles that would apply to the formation of international commercial contracts by electronic means. It was noted that there existed no refined legal structure for the important and rapidly growing field of formation of contracts by electronic means and that future work in that area could help to fill a legal vacuum and to reduce uncertainties and difficulties encountered in practice. The Commission requested the Secretariat to prepare a preliminary study on the topic.¹

2. At its twenty-third session (1990), the Commission had before it a report entitled "Preliminary study of legal issues related to the formation of contracts by electronic means" (A/CN.9/333). The report summarized work that had been undertaken in the European Communities and in the United States of America on the requirement of a writing as well as other issues that had been identified as arising in the formation of contracts by electronic means. The efforts to overcome some of those problems by the use of model communication agreements were also discussed. The Commission requested the Secretariat to continue its examination of the legal issues related to the formation of contracts by electronic means and to prepare for the Commission at its twenty-fourth session a report that would analyse existing and proposed model communication agreements with a

view to recommending whether a model agreement should be available for worldwide use and, if so, whether the Commission should undertake its preparation. The Commission expressed the wish that the report would give it the basis on which to decide what work might be undertaken by the Commission in the field.²

3. At its twenty-fourth session (1991), the Commission had before it the report it had requested, entitled "Electronic Data Interchange" (A/CN.9/350). The report described the current activities in the various organizations involved in the legal issues of electronic data interchange (EDI) and analysed the contents of a number of standard interchange agreements already developed or being currently developed. It also pointed out that such documents varied considerably according to the various needs of the different categories of users they were intended to serve and that the variety of contractual arrangements had sometimes been described as hindering the development of a satisfactory legal framework for the business use of EDI. It suggested that there was a need for a general framework that would identify the issues and provide a set of legal principles and basic legal rules governing communication through EDI. It concluded that such a basic framework could, to a certain extent, be created by contractual arrangements between parties to an EDI relationship and that the existing contractual frameworks that were proposed to the community of EDI users were often incomplete, mutually incompatible, and inappropriate for international use since they relied to a large extent upon the structures of local law.

¹Official Records of the General Assembly, Forty-third Session, Supplement No. 17 (A/43/17), paras. 46 and 47, and *ibid.*, Forty-fourth Session, Supplement No. 17 (A/44/17), para. 289.

²*Ibid.*, Forty-fifth Session, Supplement No. 17 (A/45/17), paras. 38-40.

4. The report noted that, although many efforts were currently being undertaken by different technical bodies, standardization institutions and international organizations with a view to clarifying the issues of EDI, none of the organizations that were primarily concerned with worldwide unification and harmonization of legal rules had, as yet, started working on the subject of a communication agreement. With a view to achieving the harmonization of basic EDI rules for the promotion of EDI in international trade, the report suggested that the Commission might wish to consider the desirability of preparing a standard communication agreement for use in international trade. It pointed out that work by the Commission in this field would be of particular importance since it would involve participation of all legal systems, including those of developing countries that were already or would soon be confronted with the issues of EDI.

5. The report also suggested that possible future work for the Commission on the legal issues of EDI might concern the subject of the replacement of negotiable documents of title, and more particularly transport documents, by EDI messages. That was the area where the need for statutory provisions seemed to be developing most urgently with the increased use of EDI. The report suggested that the Secretariat might be requested to submit a report to a further session of the Commission on the desirability and feasibility of preparing such a text.

6. The Commission was agreed that the legal issues of EDI would become increasingly important as the use of EDI developed and that the Commission should undertake work in that field.

7. As regards the suggestions reflected above, there was wide support for the suggestion that the Commission should undertake the preparation of a general framework identifying the legal issues and providing a set of legal principles and basic legal rules governing communication through EDI. The Commission was agreed that, given the number of issues involved, the matter needed detailed consideration by a Working Group.

8. As regards the preparation of a standard communication agreement for worldwide use in international trade, support was given to the idea that such a project might be appropriate for the Commission. However, divergent views were expressed as to whether the preparation of such a standard communication agreement should be undertaken as a priority item. Under one view, work on a standard agreement should be undertaken immediately for the reasons expressed in the report, namely that no such document existed or seemed to be prepared by any of the organizations that were primarily concerned with worldwide unification and harmonization of legal rules and that the Commission would be a particularly good forum since it involved participation of all legal systems, including those of developing countries that were already or would soon be confronted with the issues of EDI. The prevailing view, however, was that it was premature to engage immediately in the preparation of a standard communication agreement and that it might be preferable, until the next session of the Commission, to monitor developments in other organizations, particularly the Commission of the European Com-

munities and the Economic Commission for Europe. It was pointed out that high-speed electronic commerce required a new examination of basic contract issues such as offer and acceptance, and that consideration should be given to legal implications of the role of central data managers in international commercial law.

9. After deliberation, the Commission decided that a session of the Working Group on International Payments would be devoted to identifying the legal issues involved and to considering possible statutory provisions, and that the Working Group would report to the Commission at its next session on the desirability and feasibility of undertaking further work such as the preparation of a standard communication agreement. The Commission also took note of the suggestion by the Secretariat to prepare a uniform law on the replacement of negotiable documents of title, and more particularly transport documents, by EDI messages.³

10. The present note has been prepared to help the Working Group in structuring its deliberations. The note serves three purposes: the first is to review previous work undertaken by the Commission in relation to EDI and computer records and to suggest possible follow-up; the second is to provide the Working Group with an annotated tentative list of legal issues that might warrant future work by the Commission; the third is to consider possible legal instruments that might be prepared at an international level to facilitate the increased use of EDI in international trade.

I. PREVIOUS WORK AND POSSIBLE FOLLOW-UP

A. Recommendation on the legal value of computer records

11. The Commission, at its seventeenth session (1984), decided to place the subject of the legal implications of automatic data processing to the flow of international trade on its programme of work as a priority item.⁴ It did so after considering a report of the Secretary-General entitled "Legal aspects of automatic data processing" (A/CN.9/254), which identified several legal issues, relating to the legal value of computer records, the requirement of a writing, authentication, general conditions, liability and bills of lading. The decision of the Commission was made after taking note of a report of the Working Party on Facilitation of International Trade Procedures (hereinafter referred to as "WP.4"), which is jointly sponsored by the Economic Commission for Europe and the United Nations Conference on Trade and Development. The report suggested that, since the legal problems arising in this field were essentially those of international trade law, the Commission as the core legal body in the field of international trade law appeared to be the appropriate central forum to undertake and coordinate the necessary action.⁵

12. At its eighteenth session (1985), the Commission had before it a report by the Secretariat entitled "Legal value of

³Ibid., *Forty-sixth Session, Supplement No. 17 (A/46/17)*, paras. 311-317.

⁴Ibid., *Thirty-ninth Session, Supplement No. 17 (A/39/17)*, para. 136.

⁵"Legal aspects of automatic trade data interchange" (TRADE/WP.4/R.185/Rev.1). The report submitted to the Working Party is reproduced in A/CN.9/238, annex.

computer records" (A/CN.9/265). That report came to the conclusion that, on a global level, there were fewer problems in the use of data stored in computers as evidence in litigation than might have been expected. It noted that a more serious legal obstacle to the use of computers and computer-to-computer telecommunications in international trade arose out of requirements that documents had to be signed or be in paper form. After discussion of the report, the Commission adopted the following recommendation:

"The United Nations Commission on International Trade Law,

"Noting that the use of automatic data processing (ADP) is about to become firmly established throughout the world in many phases of domestic and international trade as well as in administrative services,

"Noting also that legal rules based upon pre-ADP paper-based means of documenting international trade may create an obstacle to such use of ADP in that they lead to legal insecurity or impede the efficient use of ADP where its use is otherwise justified,

"Noting further with appreciation the efforts of the Council of Europe, the Customs Co-operation Council and the United Nations Economic Commission for Europe to overcome obstacles to the use of ADP in international trade arising out of these legal rules,

"Considering at the same time that there is no need for a unification of the rules of evidence regarding the use of computer records in international trade, in view of the experience showing that substantial differences in the rules of evidence as they apply to the paper-based system of documentation have caused so far no noticeable harm to the development of international trade,

"Considering also that the developments in the use of ADP are creating a desirability in a number of legal systems for an adaptation of existing legal rules to these developments, having due regard, however, to the need to encourage the employment of such ADP means that would provide the same or greater reliability as paper-based documentation,

"1. Recommends to Governments:

(a) To review the legal rules affecting the use of computer records as evidence in litigation in order to eliminate unnecessary obstacles to their admission, to be assured that the rules are consistent with developments in technology, and to provide appropriate means for a court to evaluate the credibility of the data contained in those records;

(b) To review legal requirements that certain trade transactions or trade related documents be in writing, whether the written form is a condition to the enforceability or to the validity of the transaction or document, with a view to permitting, where appropriate, the transaction or document to be recorded and transmitted in computer-readable form;

(c) To review legal requirements of a handwritten signature or other paper-based method of authentication on trade related documents with a view to permitting, where appropriate, the use of electronic means of authentication;

(d) To review legal requirements that documents for submission to Governments be in writing and manually signed with a view to permitting, where appropriate, such documents to be submitted in computer-readable form to those administrative services which have acquired the necessary equipment and established the necessary procedures;

*"2. Recommends to international organizations elaborating legal texts related to trade to take account of the present Recommendation in adopting such texts and, where appropriate, to consider modifying existing legal texts in line with the present Recommendation."*⁶

13. That recommendation (hereinafter referred to as the "1985 UNCITRAL Recommendation") was endorsed by the General Assembly in resolution 40/71, paragraph 5(b), of 11 December 1985 as follows:

"The General Assembly,

*"... Calls upon Governments and international organizations to take action, where appropriate, in conformity with the Commission's recommendation so as to ensure legal security in the context of the widest possible use of automated data processing in international trade; ..."*⁷

14. Since 1985, a number of surveys of national legislation have been undertaken by international organizations by way of questionnaires, with a view to updating available information on the legal obstacles to the increased use of EDI. For example, such a survey was recently prepared by the Customs Co-operation Council (CCC).⁸ It may also be recalled that WP.4 has decided to develop a questionnaire on the legal barriers to the use of EDI in different legal systems (see A/CN.9/350, para. 112). That questionnaire seems unlikely to be issued before 1993. The Secretariat intends to monitor that survey and to report its results to the Commission or the Working Group.

15. As was recently pointed out in several documents and meetings involving the international EDI community, e.g. in meetings of WP.4, there is a general feeling that, in spite of the efforts made through the 1985 UNCITRAL Recommendation and the 1979 ECE Recommendation (see A/CN.9/333, para. 51), little progress has been made to achieve the removal of the mandatory requirements in national legislation regarding the use of paper and handwritten signatures. It has been suggested by the Norwegian Committee on Trade Procedures (NORPRO) in a letter to the Secretariat that "one reason for this could be that the 1985 UNCITRAL Recommendation advises on the need for legal update, but does not give any indication of how it could be done". In this vein, the Working Group may wish to consider what follow-up action to the 1985 UNCITRAL Recommendation the Commission could usefully take so as to enhance the needed modernization of legislation.

⁶Official Records of the General Assembly, Fortieth Session, Supplement No. 17 (A/40/17), para. 360.

⁷Resolution 40/71 was reproduced in United Nations Commission on International Trade Law, Yearbook 1985, vol. XVI, part one, sect. D. (United Nations publication, Sales No. E.87.V.4).

⁸See Customs Co-operation Council, document No. 36.548 E (Brussels, 9 March 1991).

B. Coordination of work

16. At its nineteenth session (1986), the Commission had before it a report of the Secretary-General describing the work of international organizations active in the field of automatic data processing (A/CN.9/279). The Commission approved the suggestion contained in the report that it might undertake leadership in the coordination of activities in this field by requesting the Secretariat to organize a meeting in late 1986 or early 1987 to which all interested intergovernmental and non-governmental international organizations might be invited.⁹

17. The meeting was held at Vienna on 12-13 March 1987. The following organizations attended: Central Office for International Rail Transport; Council of Europe; Economic Commission for Europe; Commission of the European Communities; Hague Conference on Private International Law; International Maritime Organization; Organization for Economic Co-operation and Development; United Nations Commission on International Trade Law.

18. It was recognized at that meeting that cooperation was both important and, in some respects, difficult. It was important because the introduction of automatic data processing in international trade, through the use of computers and their interconnection by telecommunications, created legal problems that could seldom be solved by any one organization. Therefore, cooperation was necessary, not only to ensure that organizations were not working in conflict with one another, but because certain problems can be solved only through efforts taken from several points of view. It was, however, acknowledged that cooperation was sometimes difficult to achieve because of the differences between the organizations as reflected in their fundamental concerns, approach to legal problems, membership and working methods (see A/CN.9/292, paras. 2-8).

19. At its further sessions, the Commission was informed of the progress made in the work of other interested organizations (see A/CN.9/292; A/CN.9/333; A/CN.9/350). It is submitted that while cooperation regarding the legal issues of EDI has become increasingly difficult, it has also become more necessary, given the number of organizations involved, their often technical nature and the number of projects currently undertaken or being considered in connection with the legal implications of EDI. The Working Group may wish to reaffirm the coordinating role of UNCITRAL and to discuss whether it would be appropriate to recommend that a new meeting be convened to which all interested intergovernmental and non-governmental organizations might be invited, as was the case in 1987.

C. Participation in the drafting of the UNCID Rules

20. The first effort accomplished by the international EDI community to harmonize and unify EDI practices resulted in the adoption of the Uniform Rules of Conduct for Interchange of Trade Data by Teletransmission (UNCID) by the International Chamber of Commerce (ICC) in 1987 (ICC

Publication No. 452, 1988). UNCID was prepared by a special joint committee of the ICC in which the following organizations were represented: the United Nations Economic Commission for Europe (ECE); the Customs Cooperation Council (CCC); the UNCTAD Special Programme on Trade Facilitation (FALPRO); the Organisation for Economic Co-operation and Development (OECD); the International Organization for Standardization (ISO); the Commission of the EEC; the European Insurance Committee; the Organization for Data Exchange via Teletransmission in Europe (ODETTE) and the secretariat of UNCITRAL.

21. Although the first draft of UNCID was based on the idea of creating a model communication agreement, it was found that, due to the differing requirements of various user groups, the creation of a model communication agreement was an impracticable objective at such an early stage of the development of EDI techniques. It was therefore decided to create a small set of non-mandatory rules on which EDI users and suppliers of network services would be able to base their communication agreements. UNCID was also incorporated into United Nations Rules for Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT) as part of the United Nations Trade Data Interchange Directory. Although UNCID constituted a limited achievement, it also represented a major step in the development of a legal framework for EDI, both because it furnished a basis for preparing individual communication agreements and because it served as a first effort that could later be used to reach a higher level of refinement (see A/CN.9/333, paras. 82-86).

22. The Working Group may wish to consider reviewing the substance of the UNCID Rules and use the results of that examination as a basis for its further deliberations on the legal issues of EDI (see below, chapter III). It is also submitted that such a review of the UNCID Rules might help the Working Group in its consideration of possible statutory provisions and of the desirability and feasibility of undertaking further work such as the preparation of a standard communication agreement (see below, chapter IV, B and C). The text of the UNCID Rules and an introductory note prepared by ICC (ICC Publication No. 452) are reproduced in the annex.

23. The following issues are covered by UNCID: definitions; use of interchange standards; standard of care to be applied by the parties when communicating through EDI; identification and authentication of messages and transfers; acknowledgement of a transfer; confirmation of content of messages; protection of trade data; storage of data. In addition, the introductory note to UNCID outlines the following issues to be considered when drafting a communication agreement: liability; situation of third parties; insurance; time within which a receiver should process the data; secrecy or other rules regarding the substance of the data exchanged; rules of a professional nature; encryption and other security measures; rules on signature; applicable law and dispute resolution.

24. Most of the issues covered by UNCID and the introductory note are discussed below in chapter III. Of those issues addressed by UNCID or the introductory note but

⁹Official Records of the General Assembly, Forty-first Session, Supplement No. 17 (A/41/17), para. 261.

not addressed in this note, some are of a technical nature or have legal implications mainly outside the area of trade law: use of interchange standards; protection and storage of data; insurance; secrecy or other rules regarding the substance of the data exchanged. Some other issues have legal implications mainly in the area of trade law and would need to be discussed in detail if the preparation of a legal instrument on EDI were to be undertaken: standard of care to be applied by the parties when communicating through EDI; time within which a receiver should process the data; implications of rules of a professional nature such as the rules of the Society for Worldwide Interbank Financial Telecommunication (SWIFT); applicable law and dispute resolution.

II. DEFINITION OF EDI

25. With a view to getting a clearer idea as to what the modern term "EDI" encompasses, the Working Group may wish to consider existing definitions of EDI. In recent years, the term "Electronic Data Interchange" or its acronym "EDI" has become widely used in practice to describe the use of computers for business applications. However, it must be noted that there currently exists no unified definition of EDI and that the use of the term in the legal field may create some confusion.

26. No statutory or case law definition of EDI has, as yet, come to the knowledge of the Secretariat. However, it may be noted that a number of definitions of EDI can be found in working documents from international organizations and are used as a basis for the work of these organizations. For example, the United Nations Trade Data Interchange Directory (UNTDID) published by the United Nations Economic Commission for Europe (TRADE/WP.4/R.721) contains the following definition:

"Electronic Data Interchange: the computer-to-computer transmission of business data in a standard format."

27. Definitions of EDI are also contained in communication agreements, other contractual stipulations and commentaries thereto. Although they differ slightly as to their wording, most definitions of EDI contained in existing model interchange agreements seem to rely on a combination of two or more of the following elements: the transmission of trade data; between computers; operated by different trading partners; by reference to a standardized syntax or format; through the use of electronic means. Examples of such definitions of EDI in model communication agreements include the following: "the interchange of trade data effected by teletransmission";¹⁰ "the transmission of data structured according to agreed message standards, between information systems, by electronic means";¹¹ "the transmission of structured data via electronic communication links between the parties".¹² Wording to the same effect can be found in other model communication agree-

ments¹³ and commentaries. For example, the commentary developed by the American Bar Association (ABA) reads as follows:

"Electronic data interchange ('EDI') is the method by which business data may be communicated electronically between computers in standardized formats (such as purchase orders, invoices, shipping notices and remittance advices) in substitution for conventional paper documents. . . . Technically stated, EDI is the transmission, in a standard syntax, of unambiguous information between computers of independent organizations."¹⁴

28. However, some differences may exist as to the extent to which commercial uses of computers should be covered by the term "EDI". For example, the preliminary report entitled "DOCIMEL Rapport de base droit" (March 1991), published by the International Rail Transport Committee (CIT), contains the following indication:

"It seems that [the term 'EDI'] strictly covers the interchange of data but not the processing of these data, which is independent from their actual transmission."

29. Another distinction is drawn in a report prepared for the Organization for Simplification of International Trade Procedures in South Africa (SITPROSA), which reads as follows:

"Electronic Data Interchange is usually defined as the electronic exchange of machine processable, structured data, formatted to agreed standards and transmitted across telecommunications interfaces directly between different applications running on separate computers. Thus defined, it is clear that EDI does not include facsimile transmissions, electronic mail or other forms of free formatted text or images."¹⁵

30. Such distinctions are not necessarily adopted by legal writers; instead a broader definition of EDI has been suggested, such as the following:

"It is generally admitted that EDI only covers the communication of trade documents (such as purchase orders, invoices, customs declarations or other documents capable of being formatted by reference to international standards) between trading partners or to a public administration. [. . .] However, the increased use of new information technologies in modern economy makes it clear that the implications of EDI are broader and cannot be limited to certain relationships between trading partners and public authorities. Thus, one must consider as a component of an EDI relationship the use of such automatic processing devices as computer-aided design, for example in the automotive industry, or the use of statistical data banks in the insurance trade. . . .

¹⁰Article 2(b) of the "CMI Rules for Electronic Bills of Lading" adopted by the International Maritime Committee (CMI) in June 1990.

¹¹Article 1 of the "TEDIS European Model EDI Agreement" prepared by the Commission of the European Communities (May 1991).

¹²Article 1.1 of the draft "Model Interchange Agreement" prepared by the Organization for Simplification of International Trade Procedures in South Africa (SITPROSA, March 1991).

¹³Article 1.f. of the "Standard Interchange Agreement" prepared by the Ministry of Communications of the Province of Quebec (Canada, 1990); article 0.a. of the model EDI interchange agreement prepared by the Centre international de recherches et d'études du droit de l'informatique et des télécommunications (CIREDIT) (France, 1990).

¹⁴Introduction to "The commercial use of electronic data interchange—a report" (Chicago, Illinois, American Bar Association, 1990), p. 1. Also published in *The Business Lawyer*, vol. 45, No. S, June 1990, p. 1661.

¹⁵G. T. S. Eiselen, "Legal issues of the change to electronic data interchange—report of a preliminary investigation", document prepared for SITPROSA in 1989.

Extremely varied relationships between professionals are to be considered when analysing the legal issues of EDI, despite the fact that those relationships do not involve standardized documents only."¹⁶

31. The two most recent studies prepared for the Commission on the subject (A/CN.9/333 and A/CN.9/350) make use of the term "EDI". It may be noted that in prior reports to the Commission and in the reports of the Commission the subject had been considered under the general heading of "automatic data processing" (ADP), which was the term generally used to describe the use of computers for business applications (see A/CN.9/333, para. 7). The change in terminology from ADP to EDI was not intended to introduce a distinction between the transmission and the processing of data or to exclude consideration of the issues raised by the transmission of any form of free formatted text or image for commercial purposes. It may be noted, however, that communication of data through EDI inherently supposes a degree of standardization in the form of a predefined syntax used in common by all parties to the EDI relationship so that the data can be read and processed by the computers of both the sender and the recipient of the data.

32. References to the legal issues of EDI made in prior reports to the Commission and in the reports of the Commission were meant to cover the legal issues that may arise out of the use of new information technologies involving the interchange of data for commercial or regulatory purposes (to the exclusion of consumer transactions), thus producing legal effects such as the creation of rights and obligations traditionally produced or evidenced by the interchange of paper-based documents. In that connection, the Working Group may wish to consider the emerging concept of "Open-EDI" recently developed by the International Organization for Standardization (ISO) within its Special Working Group on EDI. Open-EDI is defined as follows:

"Electronic data interchange among autonomous parties using public and non-proprietary standards aiming towards global interoperability over time, business sectors, information technology systems and data types."

That definition of Open-EDI relies on the following definition of EDI:

"The automated exchange of predefined and structured data for some 'business' purpose among information systems of two or more parties their number being determined by the 'business operation' or equivalent concerned."¹⁷

33. The Working Group may wish to consider whether new terminology might be adopted that would reflect more

accurately the scope of the issues currently considered under the term "EDI". It is submitted that wording mentioning "paperless trade" might be more appropriate, although the current practice of EDI seems unlikely to result in complete disappearance of paper-based documents.

III. POSSIBLE ISSUES OF FUTURE WORK

34. At the outset, the Secretariat wishes to emphasize that the considerations and suggestions set forth in this annotated list of possible issues are of a very tentative nature, due to the early stage of the deliberations. The annotated list summarizes and updates some of the information contained in previous documents with a view to assisting the Working Group in its review of previous work and, in particular, in its consideration of appropriate recommendations to the Commission as to the scope and contents of possible future work on the legal aspects of EDI.

35. Most legal issues presented in this chapter arise from statutory obstacles to the increased use of EDI in international trade and most of these issues are dealt with in communication agreements with a view to overcoming those statutory obstacles by purely contractual means.

36. However, it must be pointed out that not all issues may be dealt with in a satisfactory manner by contractual means. The development of the contractual approach, while helping to better understand the legal issues of EDI, mainly reflects a conception under which the use of EDI for commercial purposes is envisaged essentially, if not exclusively, in the context of closed networks established between individual users or by third-party service providers.

A. The requirement of a writing

1. General remarks

37. Legal rules in many States require certain transactions to be concluded or evidenced in writing. In the report that led to the adoption of the 1985 UNCITRAL Recommendation, the requirement of a writing in national statutes as well as in certain international conventions on international trade law was identified as one major obstacle to the increased use of EDI (A/CN.9/265, paras. 59-72).

38. In general, it can be noted that a requirement that contracts be in writing under national legislation may have one of three consequences. In one situation, a writing is required as a condition of validity and, consequently, the non-existence of a writing entails the nullity of the legal act. In a second situation, a writing is required by law for evidentiary purposes. A contract of that kind can be validly concluded by the parties without a writing being required but the enforceability of the contract is limited by a general rule that requires the existence and contents of the contract to be evidenced by a writing in case of litigation. Some exceptions to that rule may exist (see below, paragraph 40). In a third situation, a writing is needed to produce some specific legal result beyond that of merely evidencing the contract. This is for example the case with the air cargo carriage contract

¹⁶J. Huet, *Aspects juridiques de l'EDI, Echange de Données Informatisées (Electronic Data Interchange)* (Paris, Recueil Dalloz, Chron. pp. 182-183, 1991). The author also suggests to broaden the definition of EDI so as to extend it to transmissions involving third parties such as end consumers.

¹⁷See J. V. Th. Knoppers, "Results of the work of the International Organization for Standardization (ISO) [& International Electrotechnical Commission (IEC)] on the 'Open-EDI conceptual model' and its importance for EDI developments", text of a presentation made at the World EDI Forum (Brussels, September 1991).

under the 1929 Warsaw Convention.¹⁸ Under this text, the issuance of an air waybill is not required as a condition for entering into a contract for the carriage of goods, but it is required to give the carrier the benefit of the provisions of the Convention providing for limitation of liability of the carrier (see A/CN.9/333, para. 11).

39. Among the reasons for the requirement of a writing are a desire to reduce disputes by ensuring that there would be tangible evidence of the existence and contents of the contract; to help the parties be aware of the consequences of their entering into a contract; to permit third-party reliance on the document; and to facilitate subsequent audit for accounting, tax or regulatory purposes.

40. In those countries where a general rule of civil law (as distinguished from commercial law) is that economic transactions can be proven in litigation only by a writing, there are many exceptions to the rule. For example, a writing is generally not required for transactions of a small amount, or a written document that is not the contract itself but contains some material relating to the substance of the contract may generally be admitted as evidence. Yet another exception may exist where it is impossible for a party to obtain written evidence of the contract.¹⁹ Moreover, the general requirement of a writing is generally considered as an evidentiary requirement of civil law and not of commercial law, where evidence of contracts may be presented to a court in any form.

2. Statutory definitions of "writing"

41. What constitutes a "writing" is itself a matter of debate. The word has been defined in some countries, though normally by reference to the mode of imposition on the medium rather than by reference to the nature of the medium itself. For example, under the Interpretation Act 1978 of the United Kingdom, "writing" includes typing, printing, lithography, photography and other modes of representing or reproducing words in a visible form, whilst section 1-201(46) of the Uniform Commercial Code of the United States of America provides that "written" or "writing" includes printing, typewriting or any other intentional reduction to tangible form. It is probably the case that whenever a statute uses the word "writing" without a definition, the legislator originally expected the writing to be on a traditional piece of paper or some other physical medium permitting the words to be read directly by humans.

42. The definition of a writing has often been extended to include a telegram or telex, as in article 13 of the United Nations Convention on Contracts for the International Sale of Goods. In article 7(2) of the UNCITRAL Model Law on International Commercial Arbitration, the definition of a writing has been further extended to encompass "telex, telegrams, or other means of telecommunication which provide a record of the agreement". Article 4(3) of the Convention on the Liability of Operators of Transport Ter-

minals in International Trade provides that "a document . . . may be issued in any form which preserves a record of the information contained therein". A similar idea is expressed in the definition of "notice in writing" in article 1(4)(b) of the 1988 Convention on International Factoring prepared by the International Institute for the Unification of Private Law (UNIDROIT), in which a writing "includes, but is not limited to, telegram, telex and any other telecommunication capable of being reproduced in tangible form".

43. A general study of legislation was conducted by the Commission of the European Communities in the context of the TEDIS (Trade Electronic Data Interchange Systems) programme,²⁰ which has as one of its purposes the development of an appropriate legal framework for the increased use of EDI. The purpose of the study, in line with the 1985 UNCITRAL Recommendation, was to identify the legal obstacles to the increased use of EDI in the 12 member States of the European Communities. The results of that study are summarized in A/CN.9/333, paras. 15-41. A similar analysis is currently being carried out concerning the national laws of the member States of the European Free Trade Association (EFTA) in the context of the TEDIS programme.

3. Contractual definitions of "writing"

44. Communication agreements often contain stipulations aimed at overcoming possible difficulties that might arise concerning the validity and enforceability of legal acts (particularly contracts) due to the fact that they are formed through an exchange of EDI messages instead of the usual written documents. Several communication agreements examined by the Secretariat adopt one or both of the two following approaches to establish the legally binding value of EDI messages. Under the first approach, EDI messages are defined as written documents by mutual agreement of the parties (see A/CN.9/350, paras. 68-76). The second approach relies upon a mutual renunciation by the parties of any rights or claims to contest the validity or enforceability of an EDI transaction under possible provisions of locally applicable law relating to whether certain agreements should be in writing or manually signed to be binding upon the parties (see A/CN.9/350, paras. 77-78).

45. It may be noted that no contractual stipulation attempts to address those categories of contracts which, under certain legal systems, are required to be made in a specific form, generally a written document authenticated by a public authority (see A/CN.9/333, paras. 23-25).

B. Evidential value of EDI messages

1. Statutory and case law on admissibility of evidence

46. A general overview of statutory and case law on evidence, based on the replies given by States and international organizations to a questionnaire circulated by the Secretariat in 1984, is contained in A/CN.9/265, paras.

¹⁸Convention for the Unification of Certain Rules Relating to International Carriage by Air, Warsaw, 12 October 1929, articles 5 to 9.

¹⁹For an example of such a rule and some exceptions, see articles 1341, 1347 and 1348 of the French Civil Code.

²⁰TEDIS—The legal position of the Member States with respect to Electronic Data Interchange (Brussels, Commission of the European Communities, 1989).

27-48. It indicates that there are three major variations on the general law of evidence which affect the evidential value of computer records. The variations are based on different legal traditions and practices in the fact-finding process in civil or commercial disputes.

47. In a number of legal systems the litigants are in principle allowed to submit to the court all information which is relevant to the dispute. If there is a question as to the accuracy of the information, the court must weigh the extent to which it can be relied upon. In these legal systems there is in principle no obstacle to the introduction of computer records as evidence in judicial or arbitral proceedings.

48. Another group of States establish an exhaustive list of acceptable evidence, which always includes written documents as one of the acceptable forms of evidence. In a few of those States computer records are not admissible as evidence in any court. In other States a computer record might be relied upon to furnish to the court a presumption as to the facts in the case. Moreover, in some of these States the restriction on the use of non-written evidence is found in the civil law governing non-commercial matters. In commercial matters, as well as in criminal trials, non-written evidence may be freely accepted. In those States a computer record may, therefore, be generally acceptable as evidence in all commercial matters.

49. In common law countries an oral and adversarial procedure is generally employed in litigation. As part of that dual tradition, a witness may testify only to what he or she knows personally so as to allow the opponent an opportunity to verify the statements by cross-examination. What he or she knows through a secondary source, e.g. another person, a book or a record of an event, is denominated "hearsay evidence", and, in principle, the tribunal cannot receive it as evidence.

50. Because of the difficulties which the hearsay evidence rule has caused, there are many exceptions to it. One of those exceptions is that a business record created in the ordinary course of commercial activity may be received as evidence even though there may be no individual who can testify from personal knowledge and memory as to the particular record in question. In some common law countries a proper foundation must be laid for the introduction of the record by oral testimony that the record is of a normal nature. In others, the record is automatically accepted subject to challenge, in which case the party relying upon the record must show that it is of the proper kind. Some common law countries have accepted computer print-outs as falling within the business records exception to the hearsay-evidence rule.

51. A more recent study of legal rules on admissibility of evidence was carried out by the Commission of the European Communities in the context of the TEDIS programme (see above, paragraph 43). A summary of the conclusions reached by the TEDIS study is contained in A/CN.9/333, paras. 29-41.

52. The general conclusion of the TEDIS study was that, while there were no major obstacles to the development of

EDI in civil law countries, and therefore no need for fundamental changes of the rules, the common law countries showed theoretical difficulties which made it necessary to adopt statutory law to meet the needs of EDI.

53. The conclusions of the TEDIS study also suggested that a number of obstacles remained as regards the requirement of a writing for accounting, tax or other regulatory purposes. It may be noted that in some States a reform of the law is being contemplated or implemented. This is, for example, the case in France where a recent statute modified the price control regulation under which invoices were to be delivered in written form.²¹ It may be expected that the project under consideration by WP.4 to issue a new questionnaire might help in identifying such non-commercial obstacles to the increased use of EDI and any changes currently envisaged by national authorities.

2. Contractual rules on admissibility of evidence

54. In earlier days, controversies arose about the validity of privately agreed standards on admissibility of evidence in case of litigation. It now seems to be widely accepted that, under both common law and civil law systems, such private commercial agreements on admissibility of evidence are valid or, at least, not generally prohibited.

55. An overview of contractual provisions on admissibility of EDI messages as evidence is contained in A/CN.9/350, paras. 79-83.

C. Requirement of an original

1. Statutory rules

56. It has been a general rule of evidence that documents and other records had to be presented to a court in their original form so as to ensure that the data presented to the court was the same as the original data. However, in recent years the large savings which can be realized by storing microfilms or computer recordings of original paper documents and destroying the originals has led many States to permit their use as evidence in place of the original. The issues of recording in computer form original paper documents and the question as to whether a computer print-out is to be considered as an original or as a copy of the computer record were discussed in the context of automatic data processing in A/CN.9/265, paras. 43-48.

57. The data as stored in a computer in electronic form cannot be read or interpreted by a human being. Therefore, it cannot be presented to a court unless it takes on a visual form, either on a print-out or on a visual display unit which the court can look at. According to the replies to the 1984 questionnaire, both means of presenting the data to the court are in use.

58. In a few States the question has arisen whether the print-out or the image on the visual display unit is the

²¹Loi de finances rectificative pour 1990 (No. 90-1169 du 29 décembre 1990), article 47 (Journal Officiel du 30 décembre 1990).

original computer record or is a copy of the record stored in computer-readable form. In most States this question either seems not to have arisen or the copy in human-readable form has been accepted on the ground that the original record was not available to the court. Where this question has threatened to preclude the acceptance of computer records as evidence, the rules of evidence sometimes tended to be amended to provide that a print-out could be considered to be an original record.

2. Contractual rules

59. Several model communication agreements set forth a contractual definition of an original document, following the "definition strategy" designed to do away with the requirement of a writing (see A/CN.9/350, para. 84). For example, the "Model Electronic Data Interchange Trading Partner Agreement" prepared by the American Bar Association (article 3.3.2.) reads as follows:

"('Signed Documents') shall be deemed for all purposes . . . to constitute an 'original' when printed from electronic files or records established and maintained in the normal course of business."²²

60. It may be noted that, at least in one civil law country, legal writers have expressed doubts as to whether a contractual definition of an "original" could validly deviate from a statutory provision listing a limited number of circumstances where a copy could be substituted for the normally required original with the same evidential value.²³

D. Signature and other authentication

61. The issue of authentication of EDI messages has been addressed in previous reports prepared by the Secretariat (see A/CN.9/265, paras. 49-58; A/CN.9/333, paras. 50-59; and A/CN.9/350, paras. 86-89). The contents of those reports are summarized below, in paragraphs 62 to 66.

62. Authentication of a transaction document serves to indicate to the recipient and to third parties the source of the document and the intention of the authenticating party to issue it in its current form. In case of dispute, authentication provides evidence of those matters. Although an authentication required by law must be in the form prescribed, an authentication required by the parties can consist of any mark or procedure they agree upon as sufficient to identify themselves to one another. The most common form of authentication required by law is a manual signature.

63. The 1985 UNCITRAL Recommendation identified the legal requirements of a handwritten signature or other paper-based method of authentication as an obstacle to EDI. In line with that Recommendation and the 1979 ECE Recommendation (see A/CN.9/333, para. 51), which had expressed a similar concern,²⁴ efforts are being made by the

TEDIS group within the EEC to encourage the removal of mandatory requirements for handwritten signatures in national legislation. Similar efforts are being made in a number of other countries. In spite of such efforts, the most common form of authentication required by national laws remains a signature, which is usually understood to mean the manual writing by an individual of his name or initials. Legal systems increasingly permit the required signatures of some or all documents to be made by stamps, symbol, facsimile, perforation or by other mechanical or electronic means. This trend is most evident in the law governing transport of goods, where all the recent principal multilateral conventions that require a signature on the transport document permit that signature to be made in some way other than by manual signature (see A/CN.9/225, para. 47). Another example of such a definition of "signature" is to be found in article 5(k) of the United Nations Convention on International Bills of Exchange and International Promissory Notes, which reads as follows:

"'Signature' means a handwritten signature, its facsimile or an equivalent authentication effected by any other means."

64. Although a manual signature, or its physical reproduction by mechanical or other means, is a familiar and inexpensive form of authentication and serves well for documents passing between parties that know each other, it is far from being the most efficient or the more secure method of authentication. The person relying on the document often has neither the names of the persons authorized to sign nor specimen signatures available for comparison. Even where a specimen of the authorized signature is available for comparison, only an expert may be able to detect a careful forgery. Where large numbers of documents are processed, signatures are often not even compared except for the most important transactions.

65. Various techniques have been developed to authenticate electronically transmitted documents. If the proper procedures are followed, some authentication techniques in current use for computer-to-computer messages are unlikely to be used successfully by unauthorized persons. Certain encryption techniques authenticate the source of a message, and also verify the integrity of the content of the message. Where such techniques are used, it seems reasonably certain that messages could not be deciphered by third parties in a commercially significant period of time. Previous reports prepared by the Secretariat contain a description of authentication techniques that may permit the verification of both the integrity of the message and the identity of the sender (see A/CN.9/333, paras. 48 and 54-56). When considering such authentication methods, it is submitted that attention needs to be paid to the costs involved, which may vary considerably according to the extent of computer processing needed to operate them. Such costs should be weighed against the presumed benefits in choosing the appropriate mode of authentication.

66. The extent to which such methods would receive legal recognition in States where signature is required by law for a particular document remains a matter of considerable uncertainty. Where the law has not been interpreted by the courts so as to consider an electronic form of authentication as a "signature", it is likely that this uncertainty will be

²²See note 13.

²³See A. Bensoussan in *La gazette de la télématique et de la communication inter-entreprises*, No. 11 (spring 1991), p. 20.

²⁴See TRADE/WP.4/INF.63; TD/B/FAL/INF.63.

overcome only by legislation. A question for consideration is how far such legislation, when specifically permitting authentication to be made by EDI, should require evidence of conformity with an applicable EDI protocol, at least as a condition of attracting a presumption of authenticity, the onus of proof being shifted to the party asserting the authenticity of the message in cases where the requirements of the protocol are not satisfied.

E. Formation of contracts

67. The issues of contract formation have been examined in previous reports (see A/CN.9/333, paras. 60-75 and A/CN.9/350, paras. 93-108). The contents of those reports are summarized below, in paragraphs 70 to 78.

68. In addition, it may be noted that a study entitled "La formation des contrats par échange de données informatisées" (hereinafter referred to as the TEDIS Study on the Formation of Contracts) has been recently prepared for the Commission of the European Communities within the TEDIS programme. The French original of that study is expected to be released soon and an English language version is expected to be published before the end of 1992. The content of the TEDIS Study on the Formation of Contracts was communicated to the Secretariat by the Commission of the European Communities and used for the preparation of the present note.

69. Furthermore, it may be noted that a draft "Computer Code" prepared by the Norwegian Research Center for Computers and Law (Oslo) was presented in the context of a recent meeting of the ICC Working Party on "Legal and Commercial Aspects of EDI" (see paragraphs 91 and 92 below). The introduction to that document²⁵ states that "the draft Computer Code should be regarded as standard terms which may be deviated from by way of contract". However, it must be pointed out that the proposals set out in the draft "Computer Code" are "adapted to open network solutions, where the parties are not involved in a contractual relationship beforehand". That document was also used for the preparation of the present note.

1. Consent, offer and acceptance in an EDI context

70. As a matter of principle, the questions of offer and acceptance may be of particular importance in an EDI context since EDI creates new opportunities for the automation of the decision-making process (see A/CN.9/333, paras. 60-64). Such automation may increase the possibility that, due to the lack of a direct control by the owners of the machines, a message will be sent, and a contract will be formed, that does not reflect the actual intent of one or more parties at the time when the contract is formed. Automation also increases the possibility that, where a message is generated that does not reflect the sender's intent, the error will remain unperceived both by the sender and by the receiver until the mistaken contract has been acted

upon. The consequences of such an error in the generation of a message might therefore be greater with EDI than with traditional means of communication.

71. The variety and complexity of national laws as regards the expression and validity of consent in the process of contract formation, as well as the possible revocability of an offer, illustrate the need for parties to conclude a communication agreement dealing with that issue prior to the establishment of an EDI relationship. An example of such a contractual clause is contained in A/CN.9/350, para. 93.

72. The issues of consent, offer and acceptance have been considered in the above stated TEDIS Study on the Formation of Contracts. That study concludes (see paragraphs 2.3.1.3 and 2.3.1.4) that the use of a computer application in the contract formation process can raise difficulties as to the validity of contracts concluded by EDI, particularly where the contract formation process does not involve any direct human control and does not require any human confirmation. The TEDIS Study on the Formation of Contracts indicates that computers do not benefit from legal recognition as "persons" and thus cannot validly express consent to enter a legally binding relationship. However, it is also suggested that a person having (or deemed to have) final control over the operation of the computer application might be deemed to have consented to all messages dispatched by that application.

73. The TEDIS Study on the Formation of Contracts recommends that a uniform law should be prepared for the use of the member States of the European Communities. As one of the effects of such a uniform law, no defence against the validity of contracts formed through EDI could be based on the means of communication used in the contract formation process. The TEDIS Study on the Formation of Contracts also recommends that the requirements of the law of evidence should be harmonized and that the uniform law should eliminate the mandatory requirements regarding the use of written documents and manual signatures. It is also suggested that the uniform law should contain rules regarding the issues of communication. It is suggested that such rules could be modelled on the UNCID Rules, particularly as regards the identification of the sender of a message and as regards back-up messages. The TEDIS Study on the Formation of Contracts further recommends that the person having (or deemed to have) final control over the operation of the computer system should be held liable for all decisions taken by the computer application. It is suggested that all consequences of the operation of a computer system should be borne by the person who took the risk of operating such a system.

2. Time and place of formation

74. Parties to a contract have a practical interest in knowing when and where a contract is formed. The time when a contract is formed may determine such issues as the moment when the offeror is no longer entitled to withdraw his offer and the offeree his acceptance; whether legislation that has come into force during the negotiations is applicable; the time of transfer of the title and the passage of the

²⁵J. Freese, "EDI and national legislation—Teresa (86)", International Chamber of Commerce, document No. 460-10/Int.38 (September 1991).

risk of loss or damage in the case of the sale of identified goods; the price, where it is to be determined by market price at the time of the formation of the contract. The place where the contract is formed may also be relevant for determining the competent court or the applicable law (see A/CN.9/333, para. 69).

75. When dealing with the issue of time and place of formation of contracts in the context of EDI relationships, the parties may in practice have an option between the dispatch rule and the reception rule, which are the two solutions most commonly found in legal systems (see A/CN.9/333, paras. 72-74). It may be recalled that according to the dispatch rule a contract is formed at the moment when the declaration of acceptance of an offer is sent by the offeree to the offeror. According to the reception rule, a contract is formed at the moment when the acceptance of the offeree is received by the offeror. That question is one of the important issues that may generally be settled in a communication agreement, in the absence of mandatory provisions of statutory law. As an example of such a contractual provision, article 9.2 of the "TEDIS European Model EDI Agreement" prepared by the Commission of the European Communities (May 1991) reads as follows:

"Unless otherwise agreed, a contract made by EDI will be considered to be concluded at the time and the place where the EDI message constituting the acceptance of an offer is made available to the information system of the receiver."²⁶

(Further examples of such contractual provisions are contained in A/CN.9/350, paras. 99-100.)

76. The TEDIS Study on the Formation of Contracts (see paragraph 68 above) contains a chapter on the issues of time and place of formation of contracts. The conclusions of that study are that the reception rule should be promoted as particularly suitable for EDI. The TEDIS Study on the Formation of Contracts also mentions that the reception rule is in line with article 18(2) of the United Nations Sales Convention and with national legislation in a number of European States.

3. General conditions

77. It may be recalled that the main problem regarding general conditions in a contract is to know to what extent they can be asserted against the other contracting party (see A/CN.9/333, paras. 65-68). In many countries, the courts will consider whether it can reasonably be inferred from the context that the party against whom general conditions are asserted has had an opportunity to be informed of their contents or whether it can be assumed that the party has expressly or implicitly agreed not to oppose all or part of their application.

78. EDI is not equipped, or even intended, to transmit all the legal terms of the general conditions that are printed on the back of purchase orders, acknowledgements and other paper documents traditionally used by trading partners. A solution to that difficulty is to incorporate the general conditions in the communication agreement concluded be-

tween the trading partners. An example of such a provision is contained in A/CN.9/350, para. 96. However, some model agreements have expressly excluded coverage of general conditions, based on the principle expressed in article 1 of the UNCID Rules (see annex) that the interchange agreement should relate only to the interchange of data, and not to the substance of the transfer, which might involve consideration of various underlying commercial or contractual obligations of the parties.²⁷ In that case, general conditions may be covered by a master agreement distinct from the communication agreement, for example a master supply agreement for the sale of goods.

F. Communication

79. The legal issues of communication have been addressed in the UNCID Rules (see above, paragraphs 23 to 24) and in most communication agreements or user manuals prepared for potential EDI users.

1. Use of functional acknowledgements

80. Several of the rules and model communication agreements recently developed include special provisions encouraging systematic use of "functional acknowledgements" and verification procedures. A functional acknowledgement is a device by which the sender of a message can be almost immediately notified that the message was received, and received without defects such as omissions or errors in format or syntax. Acknowledgement of receipt merely confirms that the original message is in the possession of the receiving party and is not to be confused with any decision on the part of the receiving party as to agreement with the content of the message. Nevertheless, an acknowledgement of receipt helps to eliminate a number of problems regarding ambiguities or misunderstandings, as well as errors in the communication process.

81. Communication agreements often differ concerning the characteristics of the functional acknowledgement they require. Furthermore, they differ concerning the consequences they attach to the sending of an acknowledgement or to the failure to acknowledge.²⁸

2. Liability for failure or error in communication

82. A question that is not directly related to the formation of contracts but that needs to be addressed within the contractual framework of an EDI relationship is the determination of which party is to bear the risk of a failure in communication of an offer, acceptance or other communication intended to have legal effect, such as an instruction to release goods to a third party. It may be noted that model agreements generally address cases both of failure to com-

²⁷For an example of an interchange agreement excluding coverage of the general conditions, see the "[United Kingdom] EDI Association standard electronic data interchange agreement", explanatory commentary, August 1990.

²⁸See A. H. Boss, "The proliferation of 'Model' interchange agreements", text of a presentation made at the Third International Congress of EDI users.

²⁶The final draft of the TEDIS agreement is reproduced in TRADE/WP.4/R.784.

municate and of error in communication under the same provision. Some agreements impose an obligation on the sender to assure the completeness or accuracy of the data transmitted. Other agreements impose on the recipient of the message the obligation to notify the sender if a message is unintelligible or garbled. Examples of such provisions are contained in A/CN.9/350, paras. 102-103.²⁹

83. Where parties to an EDI relationship communicate through a third-party service provider such as a value-added network, the contractual arrangements between the parties cannot bind the third party. Parties can only agree on the allocation of risks in the event of non-feasance or malfeasance by the service provider. Within a contractual framework, the rules applicable to the liability of the network operator might be limited to the rules agreed upon by the operator itself and included in the service contract concluded between the operator and its customers. Further difficulties might arise in the situation where a given communication would involve more than one network. In general, reliance on contractual arrangements regarding liability issues might result in an unbalanced situation. Although liability is probably provided for by general provisions of law, the Working Group may wish to consider that there exists a need for the preparation of specific statutory rules on the liability of parties to an EDI relationship.

G. Documents of title and securities

84. A general question concerning documents of title in an EDI environment is whether negotiability and other characteristics of documents of title can be accommodated in an electronic context. A subsidiary question is whether the issues of documents of title in an electronic context can be addressed within the framework of a contractual arrangement or whether statutory law is needed. In that connection, it may be recalled that the legal regime of documents of title must take into account the fact that title and other proprietary rights may have to be transferred for security purposes and that such rights and security interests need to be regulated with regard to the legal position of creditors and other third parties.

85. The specific issues of the negotiable bill of lading are addressed in the "CMI Rules for Electronic Bill of Lading" adopted by the International Maritime Committee (CMI) in 1990. The CMI Rules envisage a system administered by the carrier, which preserves the function of negotiability in the electronic bill of lading through the use of a secret code ("private key"). Discussions are also taking place within WP.4 with a view to defining some form of an "electronic bill of lading".

86. It may be noted that, prior to the CMI Rules, a private project known as the "Seadocs" system had attempted to achieve the electronic transfer of rights traditionally effected by transmission of a paper bill of lading. The project was intended to accommodate the particular needs of bulk cargo shipping, especially oil. This operated by creating a central authority, which would hold the bill of lading and register the various changes in ownership, so that when

delivery became due the master of the vessel could, by reference to that central register, ensure that a bill of lading was available and that delivery was made to the correct party.³⁰ It seems that among the reasons that led to the abandonment of the project was the difficulty to assess the risk run by the central authority and to provide appropriate insurance coverage of the liability possibly incurred by the central authority in case of malfunction of the system.

87. A project combining features of the Seadocs project, reliance on the CMI Rules and use of both UNCID and EDIFACT messages is under consideration by the Baltic and International Maritime Council (BIMCO). The main characteristic of the project is that the central register would be operated by BIMCO itself. As it currently stands, the project does not clearly state the rules that would govern the liability of BIMCO in case of a malfunction of the system. It may well be the case that, given the increasing confidence in the technical reliability of EDI, the probability of such a malfunction would be considered much smaller than it would have been only a few years ago. If this were the case, the above-mentioned risk might possibly be self-insured by BIMCO members participating in the system, at least up to a certain limit.

88. The Working Group may wish to consider the usefulness of elaborating statutory provisions that would enable parties to transfer, through an agreed upon electronic communication system, the title to goods while they are in the hands of a maritime carrier. Such an electronic transfer of title would present an alternative to transferring the title to goods by negotiating a traditional bill of lading. The Working Group may wish to bear in mind that the purpose of an electronic transfer of title may be to sell the goods or to establish a security interest in them. An example of an agreed upon electronic communication system designed for transferring the title to goods in transit is that envisaged in the CMI Rules for Electronic Bill of Lading, 1990.

89. Features of an electronic system designed to transfer the title to goods may be the following. Firstly, there would be an agreement between the consignor and the carrier that the carrier will, upon receipt of goods for carriage, establish an electronic record of the information that would normally be included in a bill of lading if one were issued. Secondly, the carrier would undertake to notify the person whom the consignor, i.e., the transferor of title, would identify as the transferee of title that the carrier holds the goods to the order of that transferee. Thirdly, the parties would agree that the carrier's notification concerning the transfer of title will be made only if the transferor and the transferee are in possession of the secret code that had been created by the carrier and given to the transferor of title. Fourthly, the parties would agree that upon effecting a transfer, the carrier will delete the secret code used to verify that transfer and will create another secret code; the new secret code would be given to the transferee, i.e., the current holder of title, in order to enable him to effect a further transfer of title. Fifthly, the carrier would undertake to deliver the goods at the place of destination only if the

²⁹For other examples, see A. H. Boss (above, note 28).

³⁰See J. Richardson, "Non-negotiable transport documentation", in *Trading with EDI—The legal issues*, H. B. Thomsen and B. S. Wheble, eds. (London, IBC Financial Books, 1989), p. 179.

goods are claimed by a transferee that identifies itself by the secret code given to that transferee.

90. A question to be borne in mind in considering any statutory provisions may be the risks and liabilities placed upon the parties involved for any failure in completing the notifications that are necessary for the transfer of title.

IV. POSSIBLE INSTRUMENTS OF HARMONIZATION

A. Uniform customs and practice

91. A number of suggestions concerning the possible preparation of non-mandatory rules on EDI were made in the context of a recent meeting of the ICC Working Party on Legal and Commercial Aspects of EDI. One suggestion was that there might be a need for the preparation of uniform rules that might possibly take the form of a revision of the UNCID Rules, with the aim of creating an instrument that would eventually acquire a legal value similar to that of the Uniform Customs and Practice for Documentary Credits (UCP). Another suggestion was that the ICC should undertake the preparation of contractual standard terminology ("EDITERMS") drafted along the pattern previously adopted for the INCOTERMS.

92. However, the general feeling expressed at that meeting was that it would be premature to attempt codifying commercial practice regarding EDI, since EDI was still at an early stage of its development and that no commonly admitted practice could, as yet, be identified and recommended for general use.

B. Model communication agreement

93. It may be recalled that, under the approach taken in recent years by EDI users in most countries, solutions to the legal difficulties raised by the use of EDI have been sought within contracts. One reason for the development of the contractual approach originates with a conception according to which the use of EDI for commercial purposes is to be envisaged essentially, if not exclusively, in the context of closed networks, created between a limited number of individual users or by third-party service providers (see above, paragraphs 35 to 36). A wider conception of EDI takes into account the possible development of open networks that would allow EDI users to communicate without their having previously adhered to a user group (see above, paragraphs 31 to 32). However, that wider conception of EDI does not preclude the use of closed networks and may envisage the development of contractual solutions to the legal issues of EDI as a first step that can help to resolve many of the present practical difficulties and to better understand the questions that will require the preparation of future statutory law (see A/CN.9/350, para. 66).

94. A number of public and private bodies have developed models for such contracts and thus determined what was described as "the proliferation of model interchange agreements".³¹ It may be foreseen that model communica-

tion agreements developed in the entire world are likely to provide, after some time, what has been referred to as "quasi-authoritative sanctioning of electronic trading and [serve] to reflect and unify, as well as suggest appropriate customs and practices".³²

95. A suggestion contained in earlier documents prepared by the Secretariat (A/CN.9/333 and A/CN.9/350) was to consider the preparation of a model communication agreement for worldwide use. The main reason for preparing such a text was that the existing texts were often incomplete, incompatible and inappropriate for international use since they relied to a large extent upon the structures of local law (see above, paragraphs 3 to 4). As requested by the Commission, the Working Group is to report to the Commission at its next session on the desirability and feasibility of undertaking the preparation of a standard communication agreement (see above, paragraphs 8 to 9). When discussing the issue, the Working Group may take into consideration the fact that WP.4 has entrusted its legal rapporteurs with the task of developing an interchange agreement to be recommended at the international level for optional use. According to the programme of work of the legal rapporteurs, that project should be completed by 1995 (see A/CN.9/350, paras. 32-34).

96. In that connection, two different views were expressed at the twenty-fourth session of the Commission regarding possible options on future work. One view was that the Commission should only monitor the work carried out within the United Nations Economic Commission for Europe and make its decision on future work after reviewing the text that would result from the work of WP.4. It was indicated that such an approach would help to avoid duplication of work and possible waste of United Nations resources. Another view was that the Commission would be a particularly appropriate forum for the preparation of a model communication agreement for worldwide use since it involved participation of all legal systems, including those of developing countries that were already or would soon be confronted with the issues of EDI. It was also pointed out that the preparation of a model communication agreement might serve a useful educational function in that it would help the Commission to decide what issues required the preparation of statutory law.

C. Statutory provisions

97. While practical solutions to the legal difficulties raised by the use of EDI are often sought within contracts (see above, paragraphs 35 to 36), it may be recalled that the contractual approach to EDI was developed not only because of its intrinsic advantages such as its flexibility, but also for lack of specific provisions of statutory or case law. The contractual approach is limited in that it cannot overcome any of the legal obstacles to the use of EDI that might result from mandatory provisions of applicable statutory or case law. In that respect, it is submitted that one difficulty inherent to the use of communication agreements results from uncertainty as to the weight that would be carried by some contractual stipulations in case of litiga-

³¹See note 28.

³²See M. S. Baum and H. H. Perritt Jr., *Electronic contracting, publishing, and EDI law* (New York, Wiley, 1991), p. 104.

tion. Another limitation to the contractual approach results from the fact that parties to a contract cannot effectively regulate the rights and obligations of third parties. At least for those parties absent from the contractual arrangement, statutory law based on a model law or an international convention seems to be needed (see A/CN.9/350, para. 107).

98. The Working Group may wish to consider the desirability and feasibility of preparing a uniform law with the aim of eliminating the legal obstacles and uncertainties discussed above where effective removal of such obstacles and uncertainties can only be achieved by statutory provisions. One purpose of the uniform law would be to enable potential EDI users to establish a secure EDI relationship by way of a communication agreement within a closed network. The second purpose of the uniform law would be to set forth a basic framework for the development of EDI outside such a closed network in an open environment, including a regulation of some of the issues concerning the situation of third parties. The uniform law might contain provisions on all or some of the following issues:

Definitions of such terms as: EDI; EDI message; acknowledgement of receipt; sender; receiver; receiving computer; reception date; third-party service provider; authentication; computer record;

"Writing" (see above, paragraphs 37 to 45);

"Original" (see above, paragraphs 56 to 58);

Admissibility of computer outputs as evidence (see above, paragraphs 46-55);

Signature and other authentication (see above, paragraphs 61 to 66);

Consent, offer, acceptance and revocability in an EDI context (see above, paragraphs 70 to 73);

Time and place of formation of contracts (see above, paragraphs 74 to 76);

Reference to general conditions (see above, paragraphs 77 to 78);

Minimum standard of care to be applied by parties communicating through EDI (see above, paragraphs 23 to 24);

Use of functional acknowledgements and confirmation of contents of EDI messages (see above, paragraphs 80 to 81);

Time within which a receiver should process the data (see above, paragraphs 23 to 24);

Liability for failure or error in communication (see above, paragraphs 82 to 83);

Implications of rules of a professional nature, such as the SWIFT Rules (see above, paragraphs 23 to 24);

Documents of title and security interests (see above, paragraphs 84 to 90);

Applicable law and dispute resolution (see above, paragraphs 23 to 24).

ANNEX

Uniform Rules of Conduct for Interchange of Trade Data by Teletransmission

[Text of ICC Publication No. 452, pp. 6-11 and 16-19]

Participants in the work of the Joint Committee

Intergovernmental and non-governmental international and national organizations having contributed to the preparation of the UNCID Rules of Conduct:

United Nations Commission on International Trade Law (UNCITRAL)

Special Programme on Trade Facilitation of the United Nations Conference on Trade and Development (UNCTAD/FALPRO)

Working Party on Facilitation of International Trade Procedures on the United Nations Economic Commission for Europe (UN/ECE)

Customs Co-operation Council (CCC)

Organisation for Economic Co-operation and Development (OECD)

Commission of the European Communities (EC)

International Organization for Standardisation (ISO)

European Insurance Committee (CEA)

European Council of Chemical Industries Federations (CEFIC)

Organization for Data Exchange via Teletransmission in Europe (ODETTE)

as well as a regional and several national trade facilitation organizations (NORDIPRO—the originators of the concept -, FINPRO, NCITD, SIMPROFRANCE, SITPRO).

Introductory note

I. The international trade transaction

The UNCID rules are meant to provide a background for users of EDIFACT (Electronic Data Interchange for Administration, Commerce and Transport) and other systems of Electronic Trade Data Interchange, hereafter for short EDI.

Users will have detailed knowledge of the cumbersome procedures involved in an international trade transaction, and the decisive advantages of electronic interchange. For illustration please see annex 1 which shows data flows and message functions. [Annex 1 is not reproduced in this note.]

II. The computer age—towards paperless trading

It is widely expected that the impact of computerization will be as great as that of the industrial revolution. Computers are already providing all sorts of services at rising speed and diminishing costs. International trade data communication, however, seems to be a missing link. Yet the need is great. Not only do paper documentation and procedures represent as much as 10 per cent of goods value; they are slow, insecure, complicated and growing. The possibilities of cost reduction are in the order of 50 per cent, to the benefit of not only the main parties, but everyone involved, not least the authorities.

This is why a major activity of the Trade Facilitation Working Party of the United Nations Economic Commission for Europe (ECE), over the last decade and a half, has been the creation of the tools that would make electronic interchange of data in international trade a secure, effective and cheap alternative.

EDI is the direct transfer of structured business data between computers by electronic means, i.e. the paperless transfer of business "documentation". (An illustration of this development is given in annex 2.) [Annex 2 is not reproduced in this note.]

The past years have seen an explosion of interest in EDI between national and international trade participants. The technology is available and the momentum is growing. It is estimated that within five years EDI will be commonplace between majors in international trade transactions. But EDI cannot operate to any great extent without a common international standard, and progress has been made in drawing together different standards. Three building blocks are required: common data elements equivalent to the vocabulary; a syntax, which equates to the grammar in a normal language; and standard messages which combine data elements and syntax into a structured business message similar in concept to the paper document. These instruments are being created in the work coordinated by the ECE.

Alongside these technical developments thought and attention has also been given to what may be described as the "legal" aspects of EDI.

III. The legal background

Because of its physical characteristics, the traditional paper document is accepted as evidence. It is durable, and changes or additions will normally be clearly visible. The electronic document is quite different. It takes the form of a magnetic medium whose data content can be changed at any time. Changes or additions will not appear as such.

The paper and the data communication links are only media for carrying information, however, and it is possible to establish techniques which give electronic data interchange characteristics that make it equal or superior to paper not only as carrier of information, but also as regards the evidential functions.

Firstly EDI in itself presupposes procedures that make this form of communication more secure. In addition to identification this technique can also provide for error detection and correction. Authentication in the sense that the data content is correct can also be established, and privacy can be secured by several means built into the system. Finally, authentication, in the sense that the correct authorized person has issued the message, can also be secured.

That is why ECE, the United Nations Commission on International Trade Law (UNCITRAL) and the Customs Co-operation Council (CCC) have recommended to Governments and organizations responsible for determining documentary requirements, that they undertake and update and overhaul of these requirements to allow for EDI. This will, however, take time. It is also dependent upon a general acceptance of a high level of security in data interchange.

That is why it has been felt desirable to develop a set of internationally accepted rules—UNCID. The first draft was based on the idea of creating a standard for communication agreements. It was found, however, that due to the differing requirements of various user groups this was impracticable. There was on the other hand general agreement on proposals for uniform rules as a code of conduct.

IV. UNCID

The International Chamber of Commerce (ICC) agreed to establish a Joint Special Committee with participation from other interested organizations and user groups to evaluate and formulate such a set of rules. UNCITRAL, ECE, CCC, the UNCTAD Special Programme on Trade Facilitation (FALPRO), the Organisa-

tion for Economic Co-operation and Development (OECD), the International Organization for Standardisation (ISO), the Commission of the European Communities, the European Insurance Committee and the Organization for Data Exchange via Teletransmission in Europe (ODETTE) were all represented in this Committee in addition to various Commissions of ICC.

In developing the rules the committee based its work on certain vital concepts, *inter alia*, that the rules should:

(a) aim at facilitating the use of EDI through the establishment of an agreed code of conduct between parties engaged in such electronic interchange;

(b) apply only to the interchange of data and not to the substance of trade data messages transmitted;

(c) incorporate the use of ISO and other internationally accepted standards—to avoid confusion;

(d) deal with questions of security, verification and confirmation, authentication of the communicating parties, logging and storage of data;

(e) establish a focal point for interpretation that might enhance a harmonized international understanding and therefore use of the code.

Acknowledgement and confirmation illustrate some of the problems found in developing useful rules. In some systems acknowledgement is a mandatory requirement. In others it is taken as good conduct. In others again the sender has to ask for it. UNCID opts for this last solution. In certain cases the sender will also want to know that the content of the transfer has been received in apparent good order and has been understood. The sender may then ask for confirmation. This of course touches on the material content—but only marginally. It should not be confused with the concept of legal acceptance—that is another (third) layer which is wholly outside the UNCID rules.

It was also foreseen that the rules could form part of, or be referred to, in any Trade Data Interchange Application Protocol (TDI-AP) or other specific communication agreement.

V. Need for specific communication agreements

User groups may be organized in several ways. But they all need some form of communication agreement, although requirements differ according to the groups in question and to what has been included in their "users manual" or "application level protocol", which is an agreement, but of a more technical nature.

Apparently there is a strong need for communication agreements where EDI is used by defined organizations. It is suggested that this need may be even more important in direct open communication.

Several user groups have stressed that the UNCID rules make a useful basis for their communication agreements. UNCID, agreed rules of conduct, give more than a mere starting point. Defining an accepted level of professional behaviour they also secure a common approach.

The details and form of communication agreements differ according to the size and type of the user groups. The agreement may be included in a protocol or form a separate document. It may contain additional rules, e.g. bearing on the substantive elements of the data exchanged, on the underlying agreement and on the professional approach. It is therefore not practical to formulate a standard model.

It may be useful, however, to outline certain elements that should be considered in addition to UNCID, when formulating an agreement:

(1) There is always a risk that something may go wrong—who should carry that risk? Should each party carry its own or would it seem possible to link risk to insurance or to the network operator?

(2) If damage is caused by a party failing to observe the rules, what should be the consequences? This is partly a question of

limitation of liability. It also has a bearing on the situation of third parties.

(3) Should the rules on risk and liability be covered by rules on insurance?

(4) Should there be rules on timing, e.g. the time within which the receivers should process the data etc.?

(5) Should there be rules on secrecy or other rules regarding the substance of the data exchanged?

(6) Should there be rules of a professional nature—such as the banking rules contained in SWIFT?

(7) Should there be rules on encryption or other security measures?

(8) Should there be rules on “signature”?

It would also seem important to have rules on applicable law and dispute resolution.

Uniform Rules of Conduct (UNCID)

As adopted by the ICC Executive Board at its fifty-first session
(Paris, 22 September 1987)

Article 1—Objective

These rules aim at facilitating the interchange of trade data effected by teletransmission, through the establishment of agreed rules of conduct between parties engaged in such transmission. Except as otherwise provided in these rules, they do not apply to the substance of trade data transfers.

Article 2—Definitions

For the purposes of these rules the following expressions used therein shall have the meaning set out below:

(a) Trade transaction: A specific contract for the purchase and sale or supply of goods and/or services and/or other performances between the parties concerned, identified as the transaction to which a trade data message refers;

(b) Trade data message: Trade data exchanged between parties concerned with the conclusion or performance of a trade transaction;

(c) Trade data transfer (hereinafter referred to as “transfer”): One or more trade data messages sent together as one unit of dispatch which includes heading and terminating data;

(d) Trade data interchange application protocol (TDI-AP): An accepted method for interchange of trade data messages, based on international standards for the presentation and structuring of trade data transfers conveyed by teletransmission;

(e) Trade data log: A collection of trade data transfers that provides a complete historical record of trade data interchanged.

Article 3—Application

These rules are intended to apply to trade data interchange between parties using a TDI-AP. They may also, as appropriate, be applied when other methods of trade data interchange by teletransmission are used.

Article 4—Interchange standards

The trade data elements, message structure and similar rules and communication standards used in the interchange should be those specified in the TDI-AP concerned.

Article 5—Care

(a) Parties applying a TDI-AP should ensure that their transfers are correct and complete in form, and secure, according to the TDI-AP concerned, and should take care to ensure their capability to receive such transfers.

(b) Intermediaries in transfers should be instructed to ensure that there is no unauthorized change in transfers required to be retransmitted and that the data content of such transfers is not disclosed to any unauthorized person.

Article 6—Messages and transfers

(a) A trade data message may relate to one or more trade transactions and should contain the appropriate identifier for each transaction and means of verifying that the message is complete and correct according to the TDI-AP concerned.

(b) A transfer should identify the sender and the recipient; it should include means of verifying, either through the technique used in the transfer itself or by some other manner provided by the TDI-AP concerned, the formal completeness and authenticity of the transfer.

Article 7—Acknowledgement of a transfer

(a) The sender of a transfer may stipulate that the recipient should acknowledge receipt thereof. Acknowledgement may be made through the teletransmission technique used or by other means provided through the TDI-AP concerned. A recipient is not authorized to act on such transfer until he has complied with the request of the sender.

(b) If the sender has not received the stipulated acknowledgement within a reasonable or stipulated time, he should take action to obtain it. If, despite such action, an acknowledgement is not received within a further period of reasonable time, the sender should advise the recipient accordingly by using the same means as in the first transfer or other means if necessary and, if he does so, he is authorized to assume that the original transfer has not been received.

(c) If a transfer received appears not to be in good order, correct and complete in form, the recipient should inform the sender thereof as soon as possible.

(d) If the recipient of a transfer understands that it is not intended for him, he should take reasonable action as soon as possible to inform the sender and should delete the information contained in such transfer from his system, apart from the trade data log.

Article 8—Confirmation of content

(a) The sender of a transfer may request the recipient to advise him whether the content of one or more identified messages in the transfer appears to be correct in substance, without prejudice to any subsequent consideration or action that the content may warrant. A recipient is not authorized to act on such transfer until he has complied with the request of the sender.

(b) If the sender has not received the requested advice within a reasonable time, he should take action to obtain it. If, despite such action, an advice is not received within a further period of reasonable time, the sender should advise the recipient accordingly and, if he does so, he is authorized to assume that the transfer has not been accepted as correct in substance.

Article 9—Protection of trade data

(a) The parties may agree to apply special protection, where permissible, by encryption or by other means, to some or all data exchanged between them.

(b) The recipient of a transfer so protected should assure that at least the same level of protection is applied for any further transfer.

Article 10—Storage of data

(a) Each party should ensure that a complete trade data log is maintained of all transfers as they were sent and received, without any modification.

(b) Such trade data log may be maintained on computer media provided that, if so required, the data can be retrieved and presented in readable form.

(c) The trade data log referred to in paragraph (a) of this article should be stored unchanged either for the period of time

required by national law in the country of the party maintaining such trade data log or for such longer period as may be agreed between the parties or, in the absence of any requirement of national law or agreement between the parties, for three years.

(d) Each party shall be responsible for making such arrangements as may be necessary for the data referred to in paragraph (b) of this article to be prepared as a correct record of the transfers as sent and received by that party in accordance with paragraph (a) of this article.

(e) Each party must see to it that the person responsible for the data processing system of the party concerned, or such third party as may be agreed by the parties or required by law, shall, where so required, certify that the trade data log and any reproduction made from it is correct.

Article 11—Interpretation

Queries regarding the correct meaning of the rules should be referred to the International Chamber of Commerce, Paris.