

V. AUTOMATIC DATA PROCESSING

Legal implications of automatic data processing: report of the Secretary-General (A/CN.9/279)

[Original: English]

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INTRODUCTION

1. The Commission at its seventeenth session in 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.¹ It was also decided that a decision would be made at a subsequent session whether to refer the subject to a Working Group for the purpose of identifying areas where solutions or the establishment of an international common understanding would be desirable. This report is submitted to the Commission pursuant to that decision.

2. The report discusses in chapter I the activities of organizations engaging in work relevant to the legal implications of automatic data processing to the flow of international trade, including the work of the Commission itself. In chapter II a short analytical summary is presented of the topics on which work has been undertaken and suggestions are made as to future actions the Commission may wish to take in this field.

I. International organizations active in the field

A. United Nations Commission on International Trade Law (UNCITRAL)

3. Without awaiting a decision whether to refer the subject of the legal implications of automatic data processing to a Working Group, the Commission has explored the implications of the new technology in several respects and has taken the new methods of communication and documentation into account in its other work.

1. Legal value of computer records

4. At its eighteenth session in 1985 the Commission had before it a report by the secretariat on the legal value of computer records (A/CN.9/265). As part of the preparation for the report, the secretariat had prepared a questionnaire on the use of computer-readable data as evidence in court proceedings. At the same time and in co-operation with the secretariat of the Commission, the Customs Co-operation Council prepared a questionnaire on the acceptability to customs authorities of a goods declaration in computer-readable form and the subsequent use of such a declaration in court proceedings. The information contained in the replies to both questionnaires was used in the preparation of the report.

5. The 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. Almost all of the countries that replied to the questionnaire appeared to have legal rules which were

at least adequate to permit the use of computer records as evidence and to permit the court to make the evaluation necessary to determine the proper weight to be given to the data or document.

6. The report 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 be signed or that documents be in paper-based form.

7. 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 and 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,

“(a) *Recommends* to Governments:

(i) 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;

(ii) 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

¹Report of the United Nations Commission on International Trade Law on the work of its seventeenth session, *Official Records of the General Assembly, Thirty-ninth Session, Supplement No. 17 (A/39/17)*, para. 136.

to permitting, where appropriate, the transaction or document to be recorded and transmitted in computer-readable form;

(iii) 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;

(iv) 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;

“(b) *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.”²

2. *Electronic funds transfers*

8. At its fifteenth session in 1982, on the basis of a report of the Secretary-General (A/CN.9/221), the Commission decided to prepare a legal guide on electronic funds transfers and requested the secretariat to begin its preparation in co-operation with the UNCITRAL Study Group on International Payments.³ The draft chapters of the legal guide were before the Commission at its seventeenth and eighteenth sessions in 1984 and 1985.

9. At its eighteenth session, the Commission requested the Secretary-General to send the draft legal guide on electronic funds transfers to Governments and interested international organizations for comment.⁴ It also requested the secretariat, in co-operation with the UNCITRAL Study Group on International Payments, to revise the draft in the light of the comments received for submission to the nineteenth session of the Commission in 1986 for consideration and possible adoption. The report of the Secretary-General to the nineteenth session contains proposed modifications to the draft based on the comments received. The report recommends that:

(a) The Commission adopt the legal guide on electronic funds transfers and request that it be published in an appropriate manner; and that

(b) The Commission decide to prepare model rules leading to the harmonization of the law governing domestic as well as international funds transfers (A/CN.9/277).

²Report of the United Nations Commission on International Trade Law on the work of its eighteenth session, *Official Records of the General Assembly, Fortieth Session, Supplement No. 17 (A/40/17)*, para. 360.

³Report of the United Nations Commission on International Trade Law on the work of its fifteenth session, *Official Records of the General Assembly, Thirty-seventh Session, Supplement No. 17 (A/37/17)*, para. 73.

⁴Report of the United Nations Commission on International Trade Law on the work of its eighteenth session, *Official Records of the General Assembly, Fortieth Session, Supplement No. 17 (A/40/17)*, para. 342.

3. *What constitutes “signature”*

10. Article 14(3) of the United Nations Convention on the Carriage of Goods by Sea, 1978 (Hamburg Rules) provides that

“The signature on the bill of lading may be in handwriting, printed in facsimile, perforated, stamped, in symbols, or made by any other mechanical or electronic means, if not inconsistent with the law of the country where the bill of lading is issued.”⁵

11. The model of the Hamburg Rules provision on signature is followed in article 5 of the United Nations Convention on International Multimodal Transport of Goods prepared by UNCTAD⁶, in the new amendments to the IMO Convention on Facilitation of International Maritime Traffic (see para. 29) and in article 4(10) of the draft Convention on International Bills of Exchange and International Promissory Notes (A/CN.9/274) which will be before UNCITRAL at its current session. It is also followed in draft article 4(4) of the draft articles of uniform rules on the liability of operators of transport terminals, as proposed by the UNCITRAL Working Group on International Contract Practices at its ninth session held in New York from 6 to 17 January 1986 (A/CN.9/275, para. 58). However, since no decision has yet been taken by the Working Group on whether the uniform rules should be cast in the form of a model law or a convention, the words “if not inconsistent with the law of the country where the [document] is issued” have not been included.

4. *What constitutes “writing”, “document”, “notice”*

12. Article 7(2) of the UNCITRAL Model Law on International Commercial Arbitration, adopted by the Commission at its eighteenth session in 1985, provides that an arbitration agreement is in writing if it is contained in a document signed by the parties or in an exchange of letters, telex, telegrams or of “other means of telecommunication which provide a record of the agreement, ...”⁷

13. The Working Group on International Contract Practices has used a simplified version of the formulation used in the Model Law in its version of article 4(3) of the draft articles on uniform rules on the liability of operators of transport terminals as follows:

“The document referred to in subparagraph (b) of paragraph (1) of this article may be issued in any form which preserves a record of the information contained therein” (A/CN.9/275, para. 58).

14. The comment to the draft article as previously submitted by the secretariat points out that this formulation would cover a document in paper-based form, a

⁵A/Conf.89/13, annex I.

⁶TD/MT/Conf.16

⁷Report of the United Nations Commission on International Trade Law on the work of its eighteenth session, *Official Records of the General Assembly, Fortieth session, Supplement No. 17 (A/40/17)*, annex I.

document created by teletransmission of data to the computer of the customer, as well as a document in the form of data recorded on a micro-circuit card accompanying the goods (A/CN.9/WG.II/WP.56).

15. Article 11(7)(a) of the same draft articles as submitted by the secretariat and considered by the Working Group provides that

“Notice required to be given by this article may be given in any form which provides a record of the information contained therein” (A/CN.9/WG.II/WP.56).

B. Work related to trade facilitation

1. Economic Commission for Europe

(a) Working Party on Facilitation of International Trade Procedures

16. Although the Working Party is institutionally a sub-organ of the Economic Commission for Europe, it has become the effective central organ for discussing trade facilitation policies and activities on a global basis. The Working Party began its activities in 1961 under another name to develop a standard layout key, now known as the United Nations Layout Key, which could be used to produce a range of fully-aligned international trade, transport and official documents. Following the development of the Layout Key, the Working Party turned its attention to the simplification of international trade procedures themselves. By the 1970's the Working Party was promoting the replacement of traditional paper-based documents by methods allowing a more rapid exchange of information through telex and more recently through computerized interchange of trade data. Its primary activities in this regard have been to foster the development of a Trade Data Elements Directory, a Trade Data Interchange Directory and the registration of technical application protocols.

17. As the Working Party became interested in facilitating the use of automatic data processing in international trade, it became concerned over legal impediments to that use. As a result, it has the subject of legal aspects of trade data interchange as a regular item on its agenda. The primary role of the Working Party in this area has been to identify legal problems and to urge other competent organizations to take the appropriate actions. In particular it has recommended that:

(a) Governments and international organizations study the possibility of permitting authentication of documents used in international trade by means other than signature so that information contained in the documents may be prepared and transmitted by electronic or other automatic means of data transfer;⁸

(b) Facilities should be developed for the preparation of bills of lading in the country of destination, using

automatic data processing and transmission so as to avoid delays and demurrage caused by the need to send documents by mail;⁹

(c) Montreal Protocol No. 4 of 1975 to the Warsaw Convention should be brought into effect as soon as possible through ratification by Governments, so that the air waybill requirement may be abolished, where desirable;¹⁰ and that

(d) Customs authorities in importing countries should implement the 16 June 1981 recommendation of the Customs Co-operation Council concerning the transmission and authentication of goods declarations which are processed by computer.¹¹

18. At its sixteenth session in September 1982, the Working Party considered a report which identified the main problems of a legal character regarding automatic data processing encountered in the work of the Working Party and suggested that action be taken in respect of those problems in the competent international forums (TRADE/WP.4/R.185/Rev.1). The conclusion reached in the document, and supported by the Working Party, was

“that there is an urgent need for international action to establish rules regarding legal acceptance of trade data transmitted by telecommunications. Since this is essentially a problem of international trade law, the United Nations Commission on International Trade Law (UNCITRAL) would appear to be the central forum” (para. 4).

The document was reprinted as an annex to document A/CN.9/238 and submitted to UNCITRAL at its sixteenth session in 1983. The decision of the Commission to place the subject of the legal implications of automatic data processing to the flow of international trade on its agenda as a priority item was a direct consequence of that report.

19. At its twenty-first session in March 1985 the Working Party “invited the UNCITRAL, CCC, ICC, OECD and other interested organizations to participate actively in the development of uniform rules for communication agreements” (UNCA) (TRADE/WP.4/151, para. 8). The draft UNCA, which was prepared by the Nordic Legal Committee in the context of the activities of the Working Party, has been submitted to ICC for further action (see paras. 59–60).

(b) Inland Transport Committee

20. The Group of Experts on Customs Questions has had referred to it a proposal aimed at the introduction of a special micro-circuit card for the international transport of goods. The note prepared by the secretariat to present the proposal to the fifty-fifth session of the Group of

⁹Recommendation No. 18, facilitation measure 7.3, ECE/TRADE/141.

¹⁰*Ibid.*, facilitation measure 7.5.

¹¹*Ibid.*, facilitation measure 9.4. See also facilitation measures 9.5 and 9.8. The recommendation of the Customs Co-operation Council is discussed in para. 39, below.

⁸Recommendation No. 14, TRADE/WP.4/INF.63.

Experts held at Geneva from 7 to 11 October 1985 concentrated on the technical considerations (Trans./GE.30/R.183). However, it was recognized in the note that there would be legal and administrative considerations before the card could be used to its fullest advantage.

21. The proposal represents a plan to provide a transition from the existing international paper-based TIR carnet system to a system using the micro-circuit card as the access device to a dedicated telematics network for customs transit. The TIR system is an international system of customs transit for road transport, the application of which has gradually spread throughout Europe, the Middle East and North Africa. The system is based on a procedure which has two major elements:

(a) A unique TIR carnet is used for each trip. This carnet includes two forms for each country whose territory has to be crossed (including the country of departure and the country of destination). These forms provide the identification of the vehicle, an indication of the travel itinerary and a description of the goods. They constitute a uniform customs transit document, one copy being used when entering a country and the other when leaving a country;

(b) The TIR carnet is also evidence of the guarantee given to each customs administration by the guarantee chain. To this end, the carnet is authenticated to the guarantee chain which sells the carnets and arranges for its follow-up. All carnets, with counterfoils duly stamped by customs officials, have to be returned to the guaranteeing association.

22. The note by the secretariat points out that micro-circuit cards could not be substituted for paper documents without reaching an international agreement. Such an agreement would initially be given for a limited time in order to test the system. Official paper documents would be used in parallel with the cards during the test period. The ultimate changes to be considered to the TIR Convention and other relevant legal texts would depend upon the success of the tests.

23. After extensive discussion by the Group of Experts on the technical features of the use of a micro-circuit card for customs purposes, and especially in the context of the TIR system, it was decided that the secretariat would present a feasibility study of the proposal to the Group at a subsequent session (TRANS/GE.30/47).

2. International Maritime Organization (IMO)

24. The Convention on Facilitation of International Maritime Traffic (London, 9 April 1965) has as its purpose the facilitation of "maritime traffic by simplifying and reducing to a minimum the formalities, documentary requirements and procedures on the arrival, stay and departure of ships engaged in international voyages". As of 1 October 1984, there were 53 Contracting States to the Convention. Implementing standards and recommended practices are contained in an annex to the

Convention, which can be amended through a simpler and faster procedure than can the Convention itself. Since 1977 several amendments to the annex, or to the Convention, have been adopted or proposed in order to facilitate the use of automatic data processing in the preparation and submission of the documentation required for the entry and exit of ships from ports.

25. In November 1977, standard 2.15 was amended by the Conference of Contracting Governments by adding a new sentence at the end of the standard as follows:

"Documents produced by electronic or other automatic data processing techniques, in legible and understandable form, shall be accepted."

26. Although the 1977 amendment to standard 2.15 seemed to refer only to paper-based documents produced by automatic data processing, by 1979 maritime facilitation authorities were anxious to permit the use of non-paper media for documentation. In this regard, in operative paragraph 1 of its resolution A.452 (XI) of 15 November 1979, the IMO Assembly:

"1. *Recommends* that, in applying Standard 2.15:

"(a) the possibility of accepting, for certain documents, non-paper media, subject to prior agreement (including the method of authentication) between the parties concerned, should be explored;

"(b) the presentation of data in any automatic data processing (ADP output) document should follow the layout of the Standardized Model Forms;

"(c) any substantial deviation from that layout should require prior agreement between the parties concerned."

27. Earlier in 1979 the Facilitation Committee had already considered proposals to amend the Convention and its annex to remove provisions which impeded the use of ADP techniques.¹² At its third session (17 September 1979) the intersessional working group agreed that, to remove any impression that the Convention was documentary-based, the recurrent phrase "formalities, documentary requirements and procedures", which appears in the preamble and articles III, IV, VIII and XIII of the Convention, should be amended to read: "formalities, information requirements and procedures". An alternative proposal, made at a subsequent meeting, was that the definition of "document", which had originally been adopted by ECE and which was referred to in Assembly resolution A.452 (XI), i.e. "document-data carrier with data entries", be inserted into the annex to the Convention. It was thought, however, that the term "data carrier" should also be clarified by including in the annex the ECE definition: "data carrier—medium designed to carry records of data entries".

¹²The following history of the work in the Facilitation Committee is taken from section 5 of the report of its fifteenth session, held from 1 to 5 October 1984 (FAL 15/15).

28. At its fifteenth session in 1984, the Facilitation Committee decided that, in order to make it unnecessary to amend the Convention, it would adopt a "harmonized interpretation" of the term "documentary requirements", which reads as follows:

"The term 'documentary requirements' appearing in the preamble and in articles III, IV, VIII and XIII of the Convention, shall be understood to mean such requirements whether the information required is conveyed on paper or on any other media that can be accepted by the party concerned" (FAL 15/15, annex 3).

The IMO Council, at its fifty-third session, noted the harmonized interpretation agreed to by the Committee.

29. The Committee also unanimously agreed on the text of a number of amendments to the annex to the Convention relevant to automatic data processing (FAL 15/15, annex 2). These amendments would:

(a) Insert in the annex the definitions of "document" and "data carrier" already discussed above;

(b) Add to those standards and recommended practices which call for the public authorities to accept various documents that are signed and dated by a specified person the possibility for the document to be "authenticated in a manner acceptable to the public authority concerned";

(c) Add a new recommended practice that public authorities should take into account the facilitation implications which may result from the introduction of automatic data processing and transmission techniques, and should consider these in collaboration with shipowners and all other interested parties;

(d) Amend standard 2.15 to read:

"Public authorities shall accept information conveyed by an legible and understandable medium, including documents handwritten in ink or indelible pencil or produced by automatic data processing techniques."

(e) Add a new standard 2.15.1 to read:

"Public authorities shall accept a signature, when required, in handwriting, in facsimile, perforated, stamped, in symbols, or made by any other mechanical or electronic means, if such acceptance is not inconsistent with national laws. The authentication of information submitted on non-paper media shall be in a manner acceptable to the public authority concerned".

30. A diplomatic Conference was held from 5 to 7 March 1986, during which those amendments to the annex to the Convention were adopted. Amendments adopted by the Conference enter into force six months after the date on which the Secretary-General notifies the Contracting States of their adoption by the Conference. The Secretary-General notified the Contracting Govern-

ments of the actions of the Conference on 1 April 1986, as a result of which the amendments to the annex will enter into force on 1 October 1986.

3. *International Civil Aviation Organization (ICAO)*

31. The basic documentation requirements for air carriage are found in the Warsaw Convention, and the Warsaw Convention as amended by the Hague Protocol. The Convention and the Protocol require the issue of passenger tickets, baggage claim receipts and air waybills with specific information printed on them. In respect of passenger tickets (documents of carriage) and baggage checks the Guatemala Protocol, which is not in force, provides in its articles II and III:

"Any other means which would preserve a record of the information indicated in (a) and (b) of the foregoing paragraph may be substituted for the delivery of the document referred to in that paragraph."

32. In respect of the carriage of goods, Montreal Additional Protocol No. 4, which is also not in force, provides:

"2. Any other means which would preserve a record of the carriage to be performed may, with the consent of the consignor, be substituted for the delivery of an air waybill. If such other means are used, the carrier shall, if so requested by the consignor, deliver to the consignor a receipt for the cargo permitting identification of the consignment and access to the information contained in the record preserved by such other means.

"3. The impossibility of using, at points of transit and destination, the other means which would preserve the record of the carriage referred to in paragraph 2 of this Article does not entitle the carrier to refuse to accept the cargo for carriage."

33. In view of the fact that neither the Guatemala Protocol nor Montreal Protocol No. 4 are in force, the facilitation provisions in regard to air traffic do not deal extensively with the possibilities for use of ADP. Standard No. 4.4 of annex 9, "Facilitation", to the Convention on International Civil Aviation (Chicago, 1944) provides:

"Contracting States shall accept commercial documents required for the clearance of air cargo, when produced by electronic data-processing techniques, provided they are in legible and understandable form and that they contain the required information."

4. *International Rail Transport Committee (CIT)*

34. CIT has taken the occasion of the entry into force of the Convention Concerning International Transport by Rail (COTIF) on 1 May 1985 to align the model rail consignment note more closely to the United Nations Layout Key. At the same time it has begun to study the legal conditions for a replacement of this document by an instrument using automatic data transmission.

35. A report submitted to the Governing Committee of CIT held at Sandefjord, Norway from 12 to 16 September 1985 pointed out that COTIF, appendix B (CIM), article 8(4)(g) permitted States, by agreement, or the railroad authorities, by supplementary agreements or by provisions in the published tariffs, to derogate from the documentary requirements of CIM so as to permit the transport of goods under the cover of the automatic transmission of data. Furthermore, CIM contained no requirement of a manual signature on the consignment note.

36. The report pointed out that the major concerns of a legal nature involved in the replacement of the consignment note by automatic transmission of data were:

- (a) The legal value of the computer records;
- (b) The necessity of a writing under the laws of some countries for the conclusion of a commercial transaction or to be able to prove the existence of the transaction;
- (c) The legal value of the authentication of a message by electronic means; and
- (d) The allocation of legal responsibility for errors or the loss or corruption of data in transmission.

The report concluded that studies should commence on the technical requirements for the replacement of the consignment note by automatic transmission of data in co-operation with other organizations interested in the question, and particularly user organizations and customs authorities. In the light of the evaluation of those studies, the examination of the legal questions might be undertaken, also in co-operation with the other interested organizations.

37. The Governing Committee accepted the recommendations of the report.

5. Customs Co-operation Council (CCC)

38. The Council has an active programme to encourage co-operation among customs authorities in the use of automatic data processing. Although much of this co-operation is at a technical level involving exchange of information and agreement on such matters as codes to represent standard data elements, the Council has also adopted several recommendations more directly applicable to the legal implications of the use of automatic data processing.

39. On 16 June 1981 the Council adopted a recommendation concerning the transmission and authentication of goods declarations which are processed by computer. The Council, after noting that it is technically possible to authenticate computer-processed goods declarations by the use of various methods including passwords or code words and identification cards and that the general adoption of electronic or other automatic means of data transfer might be precluded unless changes were made in

existing national laws and international conventions and in current commercial practice concerning signature,

“Recommends that States, whether or not Members of the Council, and Customs or Economic Unions should:

“1. Allow, under conditions to be laid down by the Customs authorities, declarants to use electronic or other automatic means to transmit to the Customs Goods declarations for automatic processing. Such declarations may be transmitted either by direct link between the data processing systems of the Customs and those of declarants or on magnetic or other ADP media;

“2. Accept, under conditions to be laid down by the Customs authorities, that Goods declarations which are transmitted by electronic or other automatic means to Customs be authenticated other than by handwritten signature.”

40. Although the 1981 recommendation anticipated the gradual elimination of paper-based goods declarations, for an extended period of time many declarants who used computers in their business operations could use them more efficiently to produce paper-based goods declarations if they had greater freedom in the format for presentation of the data. Therefore, on 16 June 1982 the Council adopted a recommendation whose operative paragraph reads as follows:

“Recommends that States, whether or not Members of the Council, and Customs or Economic Unions should authorize declarants, under conditions to be laid down by the Customs or other competent authorities, to produce their Goods declarations by means of computer or other automatic printers, on preprinted forms or on plain paper. Such authorization may be made subject, in particular, to the condition that declarations produced in this manner substantially conform to the official model specified by the Customs or other competent authorities.”

41. Following its examination of the report of the Working Party on Facilitation of International Trade Procedures on legal problems in automatic data processing referred to in paragraph 18, above, the Computer Working Party of the Council initiated a study of the extent to which goods declarations could be prepared by computer, as recommended in the 1982 resolution, or submitted directly in computer readable form, as recommended in the 1981 resolution, and the extent to which computer records of goods declarations could be used as evidence in litigation. A questionnaire was prepared in collaboration with the UNCITRAL secretariat and replies were received from Customs Authorities of 11 States.

42. On the basis of the study a draft resolution has been prepared for presentation to the Council in June 1986 which, because of the importance of customs requirements to the flow of international trade, is reproduced in full as follows:

“DRAFT RESOLUTION OF THE CUSTOMS CO-OPERATION COUNCIL CONCERNING THE USE OF COMPUTER-READABLE DATA AS EVIDENCE IN COURT PROCEEDINGS

“The Customs Co-operation Council,

“Anxious to:

- facilitate the operation of current Customs ADP systems and the development of planned systems,
- facilitate the greatest possible use of ADP techniques for the transmission of Goods declarations to the Customs by electronic or other automatic means (e.g. magnetic tapes, flexible disks, teletransmission, etc.) and the subsequent acceptability of such data as evidence in court proceedings,
- see that participants in international trade can be provided with some degree of legal certainty insofar as the use of computer techniques and the admissibility in court of computer-readable data are concerned,
- contribute to the creation of greater interest in the development of a legal framework for the acceptance of international trade data transmitted by electronic or other automatic means as evidence in court proceedings,

“Noting that:

- existing legislation often refers exclusively to traditional paper documents,
- the existing legislation of many States requires a handwritten signature,
- few court decisions exist to date concerning the admissibility of computer-readable data as evidence,

“Having regard to:

- the Council’s Recommendation dated 16 June 1981 concerning the transmission and authentication of Goods declarations which are processed by computer,
- the ‘Recommendation on the facilitation of identified legal problems in import clearance procedures’, adopted in March 1979 by the Working Party on Facilitation of International Trade Procedures of the Economic Commission for Europe,
- the ‘Recommendation on the authentication of trade documents by means other than signature’, also adopted in March 1979 by the above-mentioned Working Party,
- the Recommendation on the legal value of computer records, adopted in June 1985 by the United Nations Commission on International Trade Law (UNCITRAL),

“Considering that:

- the general adoption of electronic or other automatic means of data transfer might be precluded unless changes are made in existing national laws and international Conventions and in current commercial practice concerning signature,

- insofar as the acceptance and implementation of the above-mentioned CCC Recommendation is concerned, it is essential that teletransmitted information and other computer-readable data can be used in any subsequent court proceedings,
- the need for a traditional signature necessitates the production of traditional paper documents,
- ADP techniques make it possible to authenticate Goods declarations otherwise than by handwritten signatures,
- alternative authentication methods include, *inter alia*, the issue by Customs to authorized users only of a special identification card, cassette or badge, etc. containing magnetically recorded information unique to the user including a user password or code which the user must insert into a card, cassette or badge reader prior to transmitting Goods declaration data to a Customs ADP system,
- the need to change and modernize legislation in order to ensure the acceptability of teletransmitted data as evidence in court proceedings is of prime importance in order to eliminate the need to complete and sign paper Goods declarations and supporting documents containing data which are also teletransmitted,
- the elimination of such paper documents would constitute a direct saving and a trade facilitation measure and would enhance the maximum use of ADP techniques and the introduction of paperless transactions,
- it is desirable to remove from existing legislation provisions which obstruct the use of ADP techniques,

“Expresses its full support for the review of legal requirements concerning documents and signature with a view to giving authentication of computer-readable data by means other than handwritten signature (for example, use of identification cards, badges, cassettes, etc., incorporating a user password or code) the same legal effect or status as a traditional handwritten signature,

“Suggests that in the review of legal requirements concerning documents and signature, due consideration should be given, inter alia, to the following principles:

- both documentary and alternative information requirements and transmission methods should be explicitly provided for in legislation and in regulations,
- both handwritten and other paper-based signatures and alternative mechanical, electronic or other authentication methods should be explicitly provided for in legislation and in regulations,
- terms such as “document” should be defined in legislation and in regulations by using internationally acceptable definitions which take account of computer media (tapes, disks, microfilm, etc.),

"Urges States and Customs or Economic Unions to bring this Resolution to the attention of the competent authorities at the national and international levels" (Doc. 33.000, appendix I).

C. Other work related to automatic data processing

1. Council of Europe

(a) Data privacy

43. The Council of Europe opened to signature the Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data on 28 January 1981. The Convention is open to ratification by the member States of the Council of Europe as well as to accession by non-member States. The Convention entered into force on 1 October 1985, after ratification by France, Germany, Federal Republic of, Norway, Spain and Sweden. Moreover, the Convention has been signed by Austria, Belgium, Denmark, Greece, Iceland, Italy, Luxembourg, Portugal, Turkey and the United Kingdom of Great Britain and Northern Ireland. The first meeting of the consultative committee established under article 18 of the Convention will take place in June 1986.

44. In addition, the Committee of Ministers has adopted the following recommendations in respect of data privacy: (1) Recommendation No. R(81)1 on regulations for automated medical data banks, (2) Recommendation No. R(83)10 on the protection of personal data used for purposes of scientific research and statistics, (3) Recommendation No. R(85)20 on the protection of personal data used for purposes of direct marketing, and (4) Recommendation No. R(86)6 on the protection of personal data used for social security purposes. The Committee of Experts on Data Protection is currently examining the data protection problems posed by the employment sector and the police sector and has recently directed its attention to certain data-protection problems caused by the introduction and use of new technologies.

(b) Admissibility of recordings on computers as evidence

45. The Committee of Ministers adopted, on 11 December 1981, its Recommendation No. R(81)20, on the Harmonization of Laws relating to the requirement of written proof and to the admissibility of reproductions of documents and recordings on computers. According to the Rules appended to the Recommendation, each member State should "designate which books, documents and data may be recorded on computers" (art. 1(1)). These records, if made in conformity with the Rules, would be admitted as evidence in judicial proceedings and "be presumed to be a correct and accurate reproduction of the original document or recording of the information it relates to, unless the contrary is proven" (art. 2).

46. The conditions under which a computer recording must be made to conform to the Rules are found in articles 3 and 5 as follows:

"Article 3

"1. Reproductions or recordings made under the responsibility of the person referred to in Article 1 must conform to the following general rules. They must:

"a. correspond faithfully to the original document or the information to which the recording relates, as the case may be;

"b. be reproduced or recorded in a systematic way and without gaps;

"c. be made in accordance with the working instructions, laid down consistently with national law and preserved as long as the preservation of the reproductions or recordings;

"d. be preserved with care, in a systematic order, and be protected against any alteration.

"2. When a document which has been reproduced or has been used for a recording is destroyed, the following particulars must be preserved together with the recording and in the reproduction, if possible, or otherwise with it:

"a. the identity of the persons under whose responsibility the reproduction or recording has been made and of the person effecting it;

"b. the nature of the document;

"c. the place and date of the reproduction or recording;

"d. any defects observed during the reproduction or recording."

"Article 5

"1. The following rules shall apply to computer programmes:

"a. the programme write-up, files descriptions and programme instructions must be directly legible and kept carefully up to date under the responsibility of the person referred to in Article 1;

"b. the documents referred to in 'a' above must be preserved in a communicable form for so long a time as the recordings to which they relate.

"2. If, for whatever reason, the data recorded are transferred from one computer to another, the person referred to in Article 1 must establish that there is concordance.

"3. The following rules apply to computer systems generally:

"a. the system must contain the safeguards necessary in order to avoid any alteration of the recording;

"b. the system must also make it possible to reproduce at any moment the information recorded in a directly legible form."

2. Organization for Economic Co-operation and Development (OECD)

47. OECD has engaged in several studies of the economic effect of the new technology and has explored the major policy options available to its member States in this field in an attempt to co-ordinate the actions of the Governments. In this regard on 11 April 1985, the Governments of OECD member countries adopted a Declaration on Transborder Data Flows in which, *inter alia*, they declared their intention to "develop common approaches for dealing with issues related to transborder data flows and, when appropriate, develop harmonized solutions".

48. In December 1980, OECD adopted the Guidelines Governing the Protection of Privacy and Transborder Data Flow of Personal Data. Since that time OECD has retained an active interest in the implementation of the Guidelines and has served as a forum for the continuing discussions on the effect of national regulation of data transmission and telecommunications on transborder data flow.

49. The OECD Committee for Information, Computer and Communications Policy has commissioned a number of studies exploring legal issues arising out of the new technology. Two survey studies were published in 1983 under the title "An exploration of legal issues in information and communication technologies". At the Second OECD Symposium on Transborder Data Flows, held in London from 30 November to 2 December 1983, papers on legal issues were grouped under the headings "privacy protection and transborder data flows", "liability issues and transborder data flows" and "other legal aspects of transborder data flows".¹³

50. Other legal topics which have been the subject of discussion by the Committee include computer crime, copyright of computer software and conflict of laws and jurisdiction. In regard to this latter topic, it has been suggested that if the topic were to be addressed by OECD, the Hague Conference on Private International Law could be involved in the work (see paras. 53-55).

51. In 1983 the Committee on Financial Markets sponsored a study by Professor J. R. S. Revell, entitled "Banking and Electronic Funds Transfers", which considered several legal issues.

52. The Committee on Consumer Policy has established a Working Party on Consumers and Banking with the mandate to undertake an in-depth study on consumer policy issues arising from the development and introduction of electronic funds transfer systems. A questionnaire sent to member States enquires into a number of relevant legal issues.

¹³*Transborder Data Flows; Proceedings of an OECD Conference held December 1983* (Amsterdam, North Holland, 1985).

3. Hague Conference on Private International Law

53. In June 1981 the Permanent Bureau of the Conference submitted a note to the Special Commission on "The protection of privacy and transborder flows of personal data" (Preliminary Document No. 1). The note indicated that the interest of the Permanent Bureau in the subject had been stimulated by receipt of the OECD "Recommendation concerning guidelines governing the protection of privacy and transborder flows of personal data" together with the explanatory memorandum. The explanatory memorandum showed that throughout the discussions of the OECD Group of Experts in preparation of the Guidelines, great attention had been paid to problems of conflict of laws and, above all, to questions as to which courts should have jurisdiction over specific issues in that field. The note from the Permanent Bureau briefly described the difficulties the Group of Experts had experienced in attempting to determine an appropriate connecting factor for the application of a single national law in the case of international computer networks where, because of dispersed locations and rapid movement of data, several connecting factors could occur in a complex manner.

54. The note concluded that, if anything were to be done in the field of conflict of laws, the Hague Conference would appear to be the organization best equipped to undertake the work. The Permanent Bureau did not at that time, however, suggest that the subject be put on the agenda for future work of the Conference, but only that it be given a free hand to discuss the matter with other organizations and to communicate the interest of the Conference to those organizations.

55. The matter was considered again at the fifteenth session of the Conference in October 1984 at which time the Conference invited "the Permanent Bureau to undertake exploratory studies on: ... conflicts of laws occasioned by transfrontier data flows, and to undertake this study in liaison with the international organizations concerned, in particular the United Nations Commission on International Trade Law (UNCITRAL)" (Doc. Trav. No. 1).

4. International Chamber of Commerce (ICC)

(a) Policy statements on telecommunications and transborder data flows

56. The ICC has issued a number of policy statements on telecommunications and transborder data flows directed towards the business community.

(b) Documentary credits

57. The 1983 revision of the Uniform Customs and Practice for Documentary Credits (ICC publication No. 400) recognizes the use of telecommunications and automatic data processing in two ways. Articles 12, 16(d) and 18 state rules governing the use of telecommunications between two banks when a credit is opened or amended

or when an issuing bank refuses documents. Article 22(c) provides the conditions under which banks will accept documents on the following terms:

“Unless otherwise stipulated in the credit, banks will accept as originals documents produced or appearing to have been produced:

- i. by reprographic systems;
- ii. by, or as the result of, automated or computerized systems,
- iii. as carbon copies,

if marked as originals, always provided that, where necessary, such documents appear to have been authenticated.”

58. Since article 22(c) would permit documents to be accepted as originals even though the data was teletransmitted to the location of the issuing bank and a paper-based document was produced by a computer system at that place, the provision could be considered to be a first step towards the adoption of rules for documentary credits based on documents in computer form.

(c) *Uniform rules for communication agreements (UNCA)*

59. ICC is undertaking the preparation of uniform rules for communication agreements, based upon a draft text prepared by the Nordic Legal Committee in the context of the work of the ECE Working Party on Facilitation of International Trade Procedures (Working Party).¹⁴ As a result of the use of open communication systems between user groups of mixed disciplines, the institutional structure and explicit or implicit body of technical, operational and legal rules developed by closed-user groups will not be available. UNCA is intended to provide legal rules available for voluntary adoption by parties to international trade transactions who are using such open communication systems.

60. The first meeting of the Committee was held at ICC, Paris, on 16–17 January 1986 and was attended by representatives of the European Insurance Committee, Customs Co-operation Council, ICC, International Organisation for Standardisation, UNCTAD and the UNCITRAL secretariat (Document No. 374/3). The second meeting will be held on 6 May 1986.

5. European Communities

61. The Commission communication to the Council on a “Work programme for creating a common information market” (COM (85) 658, 29 November 1985), which was favourably received by the Council on 18 March 1986, identified a number of legal issues as requiring priority action. Issues that are already being studied include:

- (a) Access to information held by the public sector;

(b) Inconsistencies in legal rights and obligations applicable to different categories of information providers;

(c) Legal issues relating to telebanking and teleshopping.

Results of these studies are expected by the end of the year. The contractors are the Centre de Recherches Informatique et Droit, Namur, Belgium, Gesellschaft für Mathematik und Datenverarbeitung mbH, Bonn, Federal Republic of Germany and Institute of Informatics and Law, Free University of Amsterdam, Netherlands.

62. A group of experts from all member States of the Community was established in May 1985 under the name of “Legal Observatory for the European Information Market” to advise the Commission of the European Communities on activities in the field of legal issues affecting the new technology information sector. In this connection an international conference on “Paperless Trading and the Law in the EEC” was held in Brussels on 17–18 March 1986 by the Comité Européen (European Committee) *Lex Informatica Mercatoriaque* (CELIM). A CELIM working group will be meeting later this year to prepare its conclusions for the attention of the European Commission and of any interested organisation.

63. A study is being prepared on copyright which will include discussion of software and database protection.

6. International Maritime Committee (CMI)

64. Following the recommendation by the CMI Colloquium on Bills of Lading held at Venice from 30 May to 1 June 1983 that “Uniform rules for incorporation in sea waybills should be prepared and their adoption encouraged”, a Sea Waybills Group was created to study the problem. The Sea Waybills Group reported to the conference of CMI held at Lisbon, from 19 to 25 May 1985, the following recommendation:

“The Sea Waybills Group having considered a number of potential problems flowing from the arrival of cargo at its destination before the arrival of the relevant negotiable bill of lading, and the use of non-negotiable documents, such as Sea Waybills, and new techniques such as electronic data processing or creation of a central bill of lading registry and recognizing the necessity of minimizing the uncertainties flowing from it;

“Recommends:

That the Executive Council appoint an International Sub-Committee to study the above mentioned questions and to find solutions thereto, possibly through uniform rules or an international convention, taking into account, among others, the development of a ‘paper-less’ system” (LIS/SWB-9).

The recommendation was adopted by the conference and the International Sub-Committee is in the process of formation.

¹⁴The draft UNCA is reproduced in ECE document TRADE/WP.4/300 and in ICC document No. 374/1.

7. *International Law Association (ILA)*

65. The Committee on International Monetary Law of ILA is preparing a draft model law on time of payment of a monetary obligation. The changes in banking procedures which have been caused by the use of computers and telecommunications have raised questions as to when the payment of the underlying monetary obligation between the banks' customers takes place as well as to when the funds transfer is final between the bank customers and the banks.

II. Analytical summary

66. The relatively large number of projects undertaken to date can be grouped within a fairly small number of categories.

A. *Privacy*

67. The early concerns for the threat to personal privacy, the parallel concerns for loss of national sovereignty resulting from data processing of nationally generated data in computers located in other countries and the concern that differing national enactments would lead to a severe restriction on transnational data flow, all of which led to adoption of the OECD Privacy Guidelines and the Council of Europe Convention, have not subsided. The discussion over the implementation of these two texts, as well as of the national legislation adopted in a number of countries, can be expected to continue for some time as the constantly changing technology and changing uses for computers and telecommunications create new problems. The question of conflicting rules in different States remains a potentially serious problem, to be solved either by the further harmonization of substantive rules or by the adoption of rules on conflict of laws as is under consideration by the Hague Conference.

B. *Evidence*

68. The three organizations which have actively considered the legal value of computer records as evidence have taken different approaches to the problem depending on the orientation of their programme of work. The report of the UNCITRAL secretariat came to the conclusion that on a global level there were fewer problems in the use of data stored in computers as evidence than might have been expected. The report noted that a more serious obstacle to the use of computers and computer-to-computer telecommunications in international trade arose out of requirements that documents be signed or that documents be in paper-based form. On the basis of that report the Commission recommended that Governments review their legislation in order to eliminate unnecessary obstacles to the use of computers and computer-to-computer telecommunications in international trade. However, neither the report nor the Commission recommendation gave specific criteria to guide national authorities in that task.

69. Council of Europe Recommendation No. R(81)20 was designed to establish uniform criteria under which its member States could shorten or eliminate the period for the retention of written records. Since one means of eliminating the retention of written records is to transfer the data from written records to microfilm or to a computer record, or to generate or receive the data directly in that form, the Recommendation included minimum criteria to be met for such data to fulfil legal requirements as a substitute for written records. One consequence of fulfilling those legal requirements would be that the data would be admissible as evidence.

70. Organizations that are interested in replacing particular paper-based documents with computer-to-computer teletransmission face the question whether the record of the teletransmission will be acceptable as evidence in the courts of particular States in case of dispute. The question has been raised, for example, by CIT in the context of eliminating the rail consignment note. Of these organizations, only the Customs Co-operation Council has made public its conclusions. The draft resolution to be presented to the Council in June 1986 sets forth in great detail the desirability for removing "from existing legislation provisions which obstruct the use of ADP techniques" and suggests certain principles that should be followed. Since these legal questions go beyond the law governing customs matters, the resolution urges States and Customs or Economic Unions to bring this resolution to the attention of the competent authorities at the national and international levels.

C. *Substitution of data transmission for written document*

71. As pointed out in document A/CN.9/265, many documents used in domestic and international trade are required by law to be in paper-based form. Although organizations such as the ECE Working Party on Facilitation of International Trade Procedures, the UNCTAD Trade Facilitation Programme and UNCITRAL have given general support to the elimination of requirements of paper-based documents, such requirements must be eliminated in respect of specific documents by national and international authorities. Work has been undertaken to replace specific documents by the following international organizations:

CCC	—	goods declaration
CIT	—	rail consignment note
CMI	—	bill of lading
ECE	—	TIR carnet
ICAO	—	air waybill
IMO	—	various documents required by port and customs authorities
UNCITRAL	—	written form of arbitration agreement, documents and notices issued by operators of transport terminals

72. The work required of an organization to promote the substitution of data transmission for paper-based documents differs widely depending on the type of document and the relationship of the organization to the document. However, the type of work undertaken may involve both technical agreement on message specifications and protocols, including security measures and authentication techniques, and changes in legislation or other legal texts.

D. Use of electronic authentication in place of signature

73. UNCITRAL, IMO, the Customs Co-operation Council and the ECE Working Party on Facilitation of International Trade Procedures have urged that electronic means of authentication be legally acceptable. Several legal texts prepared by UNCITRAL, UNCTAD and IMO include such a provision.

E. Liability

74. It has been recognized that the use of computers and their linkage by telecommunications has given rise to new ways in which parties to transactions and third persons could be harmed by the failure of messages to be transmitted or to be acted upon, by the corruption of data and by the improper divulgence of information. The uncertainty as to the extent of liability such harm for and the right of the parties to allocate the resulting loss by contractual agreement are often mentioned as concerns in the substitution of electronic documents for paper-based documents.

75. The UNCITRAL Legal Guide on Electronic Funds Transfers considers many aspects of the problem in the context of electronic funds transfers. Although some of the considerations discussed there are particular to electronic funds transfers, many are common to other uses of data transmission. The ICC rules on interbank compensation for late funds transfers would deal with a limited aspect of the problem. The work in OECD on liability problems in transnational data flow has been of general interest.

F. Regulation by contract

76. It has been suggested that many of the outstanding legal problems having to do with such matters as the evidentiary effect of the record in a computer of a message received, authentication by electronic means, responsibility for security and liability for erroneous transmission could be settled between any two parties to a data communication. When the parties are using a closed-user communication system, the rules of the system might

settle these questions. When the parties are using an open communication system, these questions might be settled by contract. The replies to the questionnaire sent by the Customs Co-operation Council showed that the customs authorities in several countries were already using this technique by requiring parties desiring to submit a goods declaration in computer-readable form to agree by contract to the conditions governing such submissions.¹⁵ At a more general level, ICC is preparing a draft uniform rules for communication agreements in co-operation with a number of the organizations discussed in this report.

G. Changes in legal rules of underlying transactions

77. In addition to consideration of the legal rules directly applicable to the use of automatic data processing in one of its several forms, some consideration has been given to the changes in rules governing the underlying transactions called for by the new technology. The UNCITRAL Legal Guide on Electronic Funds Transfers, the preparation by ICC of interbank rules for late funds transfers, the ICC Uniform Customs and Practice for Documentary Credits and the ILA study on uniform rules governing the time of payment partake of this type of activity. The OECD study of consumer policy issues arising from the development and introduction of electronic funds transfer systems includes a number of legal issues of this nature. It can be expected that the CMI study on sea waybills will not only affect the rules governing sea waybills but will also include, or have implications for, the issuance of documentary letters of credit based on waybills or automatic data transmission rather than on bills of lading.

CONCLUSION

78. A number of international organizations are interested in one or more aspects of the legal implications of automatic data processing to the flow of international trade, as are national authorities in corresponding areas of activity. As public data networks become more generally available and teletransmission of trade data becomes more common, it can be expected that even more organizations and national authorities will show interest in the matter.

79. This survey of work in the field shows that the nature of the subject leads each of the organizations to approach only a portion of the problems involved and to do so from a particular point of view. While there is already a substantial degree of co-operation between the organizations concerned by the exchange of documents and, to some degree, by attendance as observers at meetings of other organizations, a further degree of co-

¹⁵See the reply of Denmark quoted in A/CN.9/265, note 27.

ordination of activity and of approach would seem to be desirable. In view of the Commission's decision at its eighteenth session 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, leadership in this effort at co-ordination might be undertaken by the Commission.

80. This co-ordination might take the form of a meeting in late 1986 or early 1987 to which all interested interna-

tional organizations would be invited. The meeting might be devoted to exploring the full range of legal problems that could presently be anticipated to arise in connection with the use of computers and the international teletransmission of trade data. Agreement might be reached on the problems on which work should be undertaken and the appropriate organization or organizations which might undertake that work. The conclusions reached at this meeting might be presented to the Commission at its twentieth session.