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Computers in the law of evidence – a comparative approach in civil and common law systems

Bernard E. Amory* and Yves Poulet**

Summary

Computers and telematics have brought about the development of new technologies in data processing and the conclusion of transactions. These technologies give rise to some difficult legal questions, notably with regard to the law of evidence.

In the common law system, the hearsay and best evidence rules theoretically prevent the admissibility of computer documents before the courts. In the civil law system, the problems relate to the validity of these documents as evidence of the legal acts and facts which they assert.

The aim of this paper is to examine the legal solutions which may be applied to these problems under the two systems, taking into account the special characteristics of the technologies involved.

Introduction

The amount of information which companies have to keep, often for long periods, whether for legal reasons or in the interests of good business management, can in some cases cause serious storage problems, leading to higher overhead costs.¹

One of the advantages of the use of computers in business is the ability to reduce the volume of documents kept in archives and to facilitate their processing. There is no longer any doubt that companies need to be able to keep computerised records.²

The combined use of computers and telecommunications, known as 'telematics', offers further possibilities, such as long-distance operations, which include transferring funds, ordering consumer goods, accessing data banks and numerous other types of information exchange.

This technology, still in the initial stage of its development, immediately raises some rather complex legal questions, notably in relation to the law of evidence.

Does the processing and storage of information in the form of computer documents (computer listings, magnetic tapes, discs, computer microfilms) constitute the basis of valid evidence for the purpose of legal proceedings? Do these processes conform to the requirements of accountancy, fiscal, employment and social security laws relating to the preparation and storage of certain documents?

Do transactions which can nowadays be carried

out by computer (so-called telematic transactions) satisfy the legal requirements relating to evidence in legal acts?

The answers to these questions are considered in relation to two legal systems: the common law (more particularly English and American) and the civil law (more particularly French and Belgian law).

This legal approach will be preceded by a general summary of the credibility of computer documents and followed by some thoughts on the technical solutions to the legal issues in question.

I. The credibility of computer or telematic documents

To what extent do documents processed by computer and/or obtained by telematic medium fully reflect the information which they purport to contain? These documents are subject to two risks: error and fraud.

A. The risk of error

Errors have different origins: human, technical or external. The type of error which would appear most frequent is human error.³ The risk of such errors occurring is greatest when data is being input into a system, and when it is being processed. For example with electronic fund transfers, the absence of a universal language for messages creates the risk of human error in interpreting and coding the message. The involvement of different operators in the execution of a bank order.⁴

External errors are attributable to the environment. Bad temperature or humidity conditions, the presence of dust, vibration, static electric charges, electromagnetic interference, irregular power supply, etc. are all factors which can be the cause of a breakdown which in turn can damage or destroy data.

Finally, technical error is created by a malfunction of software, hardware or the data transmission system linking different computer systems. Thanks to technical progress, errors due to malfunctions in hardware or software have become very rare, whereas failures in communication systems are now common. On the other hand, the former can have serious consequences due to their often repetitive nature.

Generally, it can be said that computer telematics have diminished the risk of error but can arise in the preparation, storage and transmission of data but that the consequences of error, which are always statistically possible, are more serious than in traditional systems, given the large number of operations which can be carried out by one machine in a short space of time.⁶

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B. The risk of fraud

The element which distinguishes fraud from error is intent.⁷ Its origin, therefore, is human.

In contrast to error, it represents a very important risk and is at present considered by those in the computer world to be a major problem.⁸ In fact, although estimates are very difficult to make (very few cases of fraud are declared), fraud has been estimated to involve \$100 million per year in the United States and \$30 million per year in Japan.⁹

Fraud can be committed by employees of a company or bank who know how to operate the access keys to the computer system and use this knowledge to their own ends. The classic example is when a bank employee programs the computer to misappropriate funds.

Third parties can also commit fraud by accessing and manipulating a system, notably in telematics networks where the use of telecommunication systems facilitates such fraudulent access. When the defrauder interferes with such systems, for example by paralysing them by deliberately blocking their lines, the term used is computer or telematic sabotage.

Another form of fraud is the unlawful use by a person of his right of access to a system such as the use of an electronic fund transfer system above the credit limit set by the bank.

C. Conclusion

In the case of both error and fraud, the risk increases with the complexity of the system required for the processing or communication of information.

This complexity results as much from the number of computers and the amount of software as from the number of operations performed.

So telematics networks are exposed to this risk to a greater extent than individual systems due to the involvement of a greater number of people and computers and above all the vulnerability of the intercommunications between these computers. Furthermore, data which is simply stored in a computer will be less at risk than valuable data which undergoes more complex processing.

It should not be thought from this brief outline of the risks which threaten the credibility of documents processed by computer or created by telematics that they cannot be relied upon. On the contrary, effective methods of prevention, detection and correction significantly diminish the effects of error and fraud. Finally, it should be remembered that the value of a computer document will always depend on the value of the data loaded in the first place, as expressed by the acronym 'gigo' (garbage in, garbage out).

II. The common law approach

The law of evidence under the common law system, which is characterised by the wealth, the precision and the technicality of its rules, contains two fundamental principles which appear to constitute major obstacles to the admissibility of computer and tele-

matic documents as evidence of the information which they contain. These rules are the hearsay rule and the best evidence rule.

By virtue of the hearsay rule, oral evidence, which is a privileged form of evidence under common law, is only admissible if it is given by the person who has personal knowledge of the facts which he is asserting. He is in fact the only person who can validly be cross-examined on those facts. Applied to written evidence, this rule means that a document is not admissible unless its author is present to testify before the court on its contents. So when data, e.g. bills, are fed into a computer and then presented in the form of a computer document, the original information has passed through several 'hands': those of the author of the original document (in our example the bill), those of the coder, who is not necessarily the same person or even answerable to him (e.g. in the case of a service agency) and finally those of the computer, since in processing and storing the information, it is capable of altering it. Since by their nature computers cannot be cross-examined, legal writers¹⁰ and case law¹¹ have always considered computer documents to be hearsay evidence.

By virtue of the best evidence rule, a document is in principle only admissible if it is produced in its original version. Computer documents are often only transcriptions of 'traditional' documents (bills, order forms etc.), which constitute the originals; these are often destroyed after being recorded on computer. Even when there is no written document which could serve as the basis of a computer document, for example in the case of direct recording, the original is considered to be the data contained in the computer in magnetic or electronic form and the machine printout on which the data appears in readable form is only a transcription of that data and, as such, is not admissible before a court.

Fortunately, in both American and English law there are numerous exceptions to the best evidence and hearsay rules and their application to computer documents will now be examined.¹²

A. The hearsay rule

1. English law

In the absence of jurisprudential exceptions to the hearsay rule granting the admissibility of computer documents as evidence of the facts which they contain and given the fact that it is impossible for the courts to create new exceptions to this rule,¹³ the legislature intervened in 1968¹⁴ and introduced, along with new general provisions relating to hearsay evidence, provisions relating specifically to computer documents.

In its provisions of general application, the Civil Evidence Act 1968 allows the admissibility of 'first-hand' hearsay.¹⁵ Applied to computers, this rule means that a computer document is admissible if the person who loaded the data had personal knowledge of it, or acting in the exercise of his duty, received it from a person who had such knowledge.¹⁶ These provisions do not apply when a computer document does not have as its original a document of

which a person has direct and personal knowledge. Such is the case with a transaction performed at an automatic teller machine or a recording by optical reading. In these circumstances, s.5 of the Civil Evidence Act lays down specific conditions relating exclusively to the admissibility of evidence in the form of computer documents.

By virtue of these conditions, a computer document will be admissible as evidence if:

- it was produced by a computer which is regularly used for the normal activities of its user;
- the computer is regularly supplied with information of the kind contained in the document put forward as evidence;
- the computer was operating properly at the moment of the recording of the information;
- the information contained in the document reproduces or is derived from information supplied to the computer.

By virtue of s.5(4) of the Act, a certificate identifying the document, describing the manner in which it was produced and any device involved in its production as well as any other useful information relating to the conditions contained in sub-s.(2) must be submitted to the court signed by a person occupying a responsible position in relation to the operation of the relevant process or the management of the relevant activities.

If the document satisfies these conditions, it is declared admissible and it is then for the court to weigh up its probative value taking into account all the circumstances, notably the degree of simultaneity between the occurrence of a fact and its recording on computer as well as any interest that any person who is implicated might have in altering the data.¹⁷

These provisions have been much criticised¹⁸ for the definitions which they contain and the conditions of admissibility which they lay down. For example, the definition of computer is limited to hardware and makes no mention of software. The result is that the requirement of proper operation does not extend to programs, which can, however, be the source of errors.

Another criticism of the Act is that it has no provision for verification of the accuracy of the original information which has subsequently been processed by computer. If this information is wrong, the computer document will likewise be wrong – garbage in, garbage out.

In parallel with this adaptation of the law by the Civil Evidence Act, the English legislature has also specifically recognised the value of computer documents in certain particular areas. Thus in the banking sector, the Banking Act 1979, amending the Bankers' Books Evidence Act 1879, expressly recognises that 'bankers' books' includes records 'kept on microfilm, magnetic tape or any other form of mechanical or electronic data retrieval mechanism'. In the same way, the Stock Exchange Act 1976 allows commercial enterprises to keep the books which the Companies Act oblige them to

keep other than in directly readable form as long as they can be reproduced in readable form.

2. American law

There is a jurisprudential exception in the United States to the rule prohibiting hearsay evidence which is known as the business records exception. This was introduced into federal legislation¹⁹ and adopted without major alteration by a major number of states. This exception provides that business records²⁰ are admissible as evidence without the requirement of oral evidence by their author if the transactions which they record were performed in the normal and regular course of business and recorded at the time or shortly after they were performed.²¹

Since these conditions of admissibility are based on the circumstances surrounding the recording of the information and not its form, the jurisprudence has been able to resort to the business records exception to allow the admissibility of computer documents.

This usage of the exception can nevertheless be criticised: information is often stored only in electronic or magnetic form and only in printed legible (that is, by man) form if this proves necessary (for example when there is a dispute), which may long after its recording. The result is that it could be claimed that in the strict legal sense neither the requirement of regularity nor that of simultaneity are satisfied. These arguments were rejected in an important decision of the Supreme Court of Nebraska,²² which gave rise to much case law²³ on the subject. The judgment of the Supreme Court confirms that the business records exception must be given a broad interpretation because its purpose is to 'bring the realities of business and professional practice into the courtroom'. The court added that the requirements of regularity and simultaneity must be satisfied at the moment of the introduction of the information into the computer and not at the moment of the printing of the computer document.

According to the business records exception, such documents are admissible without the need for evidence in person by their authors. They must be presented by the person responsible for the computer system or by any other employee of the company who is fully informed about the system of recording, processing and storage of information. This person explains to the court the procedure for detection and correction of errors and gives evidence on the reliability of the system, its proper functioning etc. There was formerly a requirement that the computer be of a standard type but this has now been abolished since it acted as a brake on technical development.

Because of the great flexibility of the business records exception, there was no need for the legislature to act to allow the admissibility of computer documents. The federal legislature nevertheless adopted a new formula for the Federal Rules of Evidence²⁵ and stated that the exception applies to information stored 'in any form', which, according

to official commentaries,²⁶ includes information stored by computer.

Insofar as it confirms an already firmly established body of case law, this provision was not really necessary. However, it may prove to be useful when new data processing and storage techniques are discovered.

B. The best evidence rule

1. English law

The production of a copy as evidence of the contents of its original is permitted if the party exercising this right establishes that he was unable to obtain the original.²⁷ Thanks to its very general terms, this exception allows the removal of the obstacles created by the best evidence rule to the admissibility before the courts of computer documents. To establish their non-availability, it is enough to show that the originals of such documents were destroyed in the normal course of business or never existed (e.g. direct recording).²⁸ The argument that the original is the document in its magnetic or electronic form as it appears in the computer and not the computer printout seems untenable to us, for in reality only as a printout is the document legible by man and therefore able to be put before a court.

The requirement of proof of the non-availability of the original was abolished in 1982 for copies of films and audio recordings by a decision which held that they are by their nature reliable.²⁹ According to certain writers, this decision could be applied to computer documents.³⁰ We believe that such an interpretation should be qualified: an extension of this case law to computer documents containing information which has undergone fairly complex processing does not seem to us to be well-founded since in the circumstances the original information has been altered. It is therefore no longer a simple copy.

There are also legislative exceptions to the best evidence rule. Thus s.5 of the Civil Evidence Act 1968 provides that the copy of a computer document (e.g. on microfilm) is admissible if its conformity with that document is sufficiently established in the eyes of the court. The criteria of conformity are not defined in the Act and to our knowledge the courts have not yet clarified this point.

2. American law

As in English law, the admissibility of a copy depends on proof of the non-availability of the original. This concept of non-availability has been interpreted very broadly in relation to computer documents.³¹

Another exception which can be used is the voluminous writing exception, by virtue of which a summary (possibly in computer document form)³² is admissible in the place of the original when this is too complex or lengthy to be put before the judge and where the opposing party has had the opportunity of examining the originals: this presupposes that they have not been destroyed.

III. The approach in French and Belgian law

Unlike the common law, the problem does not arise in French and Belgian law in relation to admissibility before the courts and tribunals, but to satisfying legal requirements concerning on the one hand the storage of documents and on the other the conclusion of transactions.

Is the practice of recording information on computer and then destroying the originals compatible with the law of evidence and, if so, under what conditions? Do transactions which can nowadays be performed by computer (so-called 'telematic transactions') satisfy the requirements of the law relating to evidence of legal acts?

A. Requirements relating to the storage of documents

1. General provisions

Direct-recording magnetic tapes (that is, containing information received directly by the computer and not having a written document as its original) probably constitute originals for the purposes of the civil code.

This hypothesis will not be examined here, however, for two reasons: one the one hand, only limited security is in fact provided by long-term storage on magnetic tapes and is a relatively rare practice, while on the other the production of this information for the purposes of legal proceedings entails its transcription onto computer documents, which must be considered to be copies.

It is not disputed that the recording by computer of information the source of which is a written document and the transcription of these magnetic or electronic impulses onto computer documents (printouts or COM microfilms)³³ make these documents copies.

Article 1334 of the civil code provides that when the original still exists, copies are conclusive only to the extent of that contained in the original which can still be required to be produced. Their legal value is therefore in principle extremely precarious,³⁴ even though in commercial matters judges tend to accord them the same legal value as the original. However, given the fact of their novelty, copies in the form of computer documents would not inspire the same confidence as copies made by more traditional methods (e.g. photocopies).

This is still the situation in Belgian law, whereas in 1980 the French legislature amended several provisions of the civil code relating to evidence. The new art. 1348, para. 2 of the French civil code effectively grants greater probative value to certain types of copy than does art. 1334: when the original no longer exists, a 'faithful and lasting' copy may validly replace it. A 'lasting' copy is defined as 'any indelible reproduction of the original which involves an irreversible alteration of the medium'. The criterion of fidelity is more difficult to satisfy: how can one judge the fidelity of a copy in relation to the original when this original has disappeared?³⁵

Computer documents are particularly liable to undergo operations which leave no trace. There is often a risk, therefore, that they will not satisfy the fidelity requirement laid down by the new art. 1348 of the French civil code. In order to satisfy this legal requirement, the norm AFNOR Z 43061 sets the conditions for the production of microfilms intended to replace original documents. Complying with this kind of provision at present unfortunately requires the use of sophisticated and expensive equipment,³⁶ which few companies are in a position to purchase.

The Grand Duchy of Luxembourg is also intending to revise the provisions of its civil code dealing with evidence, notably by according micrographic reproductions and computer recordings the same probative value as written documents. They would benefit from a rebuttable presumption of fidelity to the original when the original has been destroyed in the normal course of business. This would be a case of a civil law jurisdiction adopting an American law concept.

2. Specific provisions

As well as the provisions of the civil code, there are provisions in certain areas, notably tax, accountancy and employment and social security law, relating to the keeping and storage of certain documents.

a) Belgian law

From the point of view of accountancy law,³⁷ Belgian legislation does not prevent the keeping of account books in computer document form, as long as they satisfy the various requirements of that law,³⁸ notably the requirement dealing with intelligibility and unalterability. The first will be satisfied if the computer documents are printed in an easily legible form (e.g. listings), the second by affixing a signature across the page of the account book and the computer document attached to it.³⁹

Accountancy documents, which must in principle be kept for ten years,⁴⁰ can be either the original or a copy, on microfilm or in a similar form.⁴¹

In fiscal law, computerised accounts can be used as the basis of a decision by the fiscal administration even if the requirements of accountancy law (see above) have not been satisfied.⁴² As far as the fiscal authorities are concerned, the requirement of keeping documentary evidence depends in principle on the original documents, although administrative practice allows them under certain conditions to be kept on microfilm, including COM microfilm.⁴³

Finally, as far as employment and social security law is concerned, it has been stated⁴⁴ that Art. 24 of the Royal Decree of 8 August 1980 on the keeping of employment and social security records allows employers to keep such records in a form different from that of the original provided that they are fully legible and that the form of reproduction used enables effective checks to be made.

b) French law

The Decree of 27 April 1982 introducing the

accountancy programme and the draft accountancy law make provision for the keeping of computerised accounts.⁴⁵ These new legal provisions dealing with accounts have abolished the concept of account books and refer to 'account documents and recordings' and, finally, give validity to 'all reliable information systems'.⁴⁶

The 'General provisions of the New Accountancy Programme relating to the use of automatic processing' also provide that 'the processing system must establish periodic reports on paper or on any medium providing precise conditions relating to guarantee and storage for the purposes of evidence'.⁴⁷ This means that given the present state of the art, on listings or microfilms satisfying the AFNOR Z 43061 norm⁴⁸ can be used.

No rules have been made governing the storage of accountancy documentary evidence. In this case the common provisions of the law contained in the civil code apply, examined above in relation to the requirement of storage either of the original or of 'faithful and lasting' copy.

On the fiscal level, there is effectively no rule governing the presentation and keeping of accounts. However, accounts which do not comply with the relevant laws run the risk of being rejected by the tax authorities.⁴⁹ As for the keeping of documentary evidence, any type of copy is allowed, including electronic copies, as far as documents sent by companies are concerned; on the other hand documents received by companies must be kept in their original form.⁵⁰

Finally, employment and social security legislation allows the use of microfilm for the storage of information relating to pay slips, provided that certain conditions concerning consultation by the relevant authorities are satisfied.⁵¹

B. Requirements relating to evidence of transactions⁵²

1. The problem

The combination of computers and telecommunications, known by the term 'telematics', enables the performance at long distance of certain transactions, such as the electronic transfer of funds, the ordering of consumer products and the consultation of data banks.

If the advantage of telematics is the increased speed at which contracts can be concluded, a disadvantage is the transience of the operation. Information appears and disappears on the screen making it difficult to keep a record of an operation.

Furthermore, even if it is possible to establish the existence and the details of a contract, the identity of the parties is not thereby certain. Identification of the terminal does not automatically lead to identification of the person who performs the transaction. Even a password or secret code only identifies a person who has access to the network and not the person who actually carries out the operation.

So evidence of the transaction raises the following different questions:⁵³

1. evidence of the existence of a contract: the most far-reaching argument on this point is that which claims that the whole principle of a contract being in question, it is for the party claiming the benefit of it to show that it was properly concluded);
2. evidence of the details of the contract: the existence of the contract is not disputed, only some of its provisions (e.g. delivery date, method of payment etc.);
3. evidence of the identity of the parties to the contract.

These questions are examined below in relation to Belgian and French law together. Where a provision is particular to one jurisdiction alone, this fact is mentioned.

2. The legal requirements

a) The distinction between legal acts and legal facts

The civil law makes a clear distinction between evidence of legal acts and that of legal facts. The distinction between the two notions is not a simple one.⁵⁴ 'It is that the legal fact is a social fact, a fact of man. The "I think therefore I am" leads one to the view that legal facts are linked to the individual and are so of his own accord. However, and this is where the distinction with legal acts lies, the consequences in law of legal facts are independent of the will of the author of the facts ... a characteristic of legal facts is to leave undetermined the exact scope of their effects.'⁵⁵

The distinction between legal acts and legal facts may not be straightforward but the consequences for the law of evidence are important.

Legal facts can be proved by any means the law allows: presumption, oral evidence, confession, etc. On the other hand, the code requires in principle that legal acts be proved by a signed written document with probative value.⁵⁶

This requirement has been re-affirmed on numerous occasions.⁵⁷ In particular, the judges have refused to consider as written documents exchanges of correspondence by teleprinter on the grounds that the originals, typed at a distance, are not signed and cannot therefore be considered as signed documents.⁵⁸

b) The principle

Article 1341 of the civil code lays down the principle that a legal act must be evidenced by a written document (either authenticated or signed by the author).

The application of this principle to contracts concluded by telematics leads one to question the probative value of these contracts: agreements transmitted through telematics networks dematerialise; the written signature, which is the expression of the personality of the individual and his act of agreement to the contents of a document disappears.⁵⁹

Any surviving magnetic or electronic traces of the transaction cannot therefore, or so it would appear,

have probative value or assist in establishing the truth for legal purposes.

This rather bold assertion must be qualified.

c) The exceptions to the principle and their application to telematic contracts

There are numerous exceptions. For example:

- transactions involving small amounts of money (up to 5000 French francs and 3000 Belgian francs) may be proved by any legal means. This will often be the case for operations performed at automatic bank tills and points of sale⁶⁰ and consultations of data banks.
- article 1341 of the civil code applies when the subject i.e. the act, comes under the civil law (art. 1341, para. 2). In commercial matters, evidence is not restricted and all forms of evidence are admissible at the discretion of the judge.⁶¹

So the requirement of written evidence is felt less in the use of telematics in business than in its private use since the former often involves contact between traders, whereas the latter, in most cases, makes possible the conclusion at long distance of contracts between traders and non-traders. The act is therefore 'mixed' and it is the quality of the defendant which is the determining factor for the purposes of the law of evidence.

Furthermore, according to many writers⁶², art. 1341 of the civil code is neither a mandatory provision nor a public order provision. It would therefore be possible to derogate from the written document rule in an evidential clause stating that legal transactions performed on a telematics system may be proved by any means of law.

This clause could be in the form of a general regulation applicable to all telematic operations. This general regulation and in particular the evidential clause, coming from the person providing the information by computer, would have to be brought to the notice of the user.

The concept of an evidential clause is not unrealistic in the case of agreements concluded by written document and performed by telematics, as in the case of a subscription to financial information. In fact, the classification of this type of contract as a contract of hire and not as a succession of service contracts for the supply of information allows the problem of evidence to be easily solved. The written agreement by which the database company undertakes to transmit financial information to the user can be analysed in two ways: is it a framework agreement which at each separate request for information is followed by agreements applying that agreement, or is it a single agreement on which subsequent requests for information are based, the answers to these requests constituting the performance of this single agreement?

If there is no evidential clause in the framework agreement and the first alternative is considered to be correct, there is a risk of evidential problems arising. On the other hand, if the second alternative is considered to be the correct one, the existence of

an evidential clause does not significantly change the situation since the performance of an agreement would in any case be a legal fact,⁶³ which may be proved by any means under the law.

Finally, another situation in which art. 1341 of the civil code does not apply is when it has not been possible for the person who is pleading the fact to gather documentary evidence of the contractual obligation made in his favour (art. 1348 of the civil code) or when there is written evidence which does not strictly satisfy the requirements of contract law (art. 1347).

According to several writers,⁶⁴ the use of computer systems or telematic networks, at least by private individuals, constitutes the exception contained in art. 1348 and even the one in art. 1347. This interpretation is in line with the extensive jurisprudential theory of the impossibility of keeping written evidence to oneself.⁶⁵

The recent law of 12 July 1980 in France confirmed this jurisprudential development by providing for the exemption from the requirement of written evidence in cases where there is a 'material impossibility' of obtaining such evidence. As F. Chamoux remarks,⁶⁶ 'it will be relatively easy for a judge to consider that it has been impossible for a written document to be drawn up, every time he finds himself dealing with the transmission of information which never appears in material form'.

It is clear from this analysis of the scope of art. 1341 of the civil code that the principle of the signed written document (*instrumentum*) which is required for the proof of a legal act is subject to broad exceptions which, in the final analysis, mean that it very rarely applies to telematic transactions.⁶⁷

IV. Towards technical solutions

It can be seen that the legal and jurisprudential exceptions to the long-established principles which govern the law of evidence in the common law system allow, in the majority of cases, the admissibility of computer documents. It can also be seen that the requirements of the law of the continental countries examined above very often make allowance for modern techniques of storage of documents and conclusion of contracts involving computers and telematics.

This does not mean, however, that all problems are solved. For if a document is declared admissible by a court, if a party to a contract can rely on a telematic transaction without having a signed written document, he still has the task of convincing the judge of the reliability of such documents. As can be seen from the opinion of an American judge, this will not always be easy: 'As one of the many who have received computerised bills and dunning letters for accounts long since paid, I am not prepared to accept the product of a computer as the equivalent of Holy Writ.'⁶⁸

It is in relation to telematic transactions that the most acute difficulties will arise. This article is not going to give an analysis of the technical methods of

providing evidence.⁶⁹ Instead, certain techniques will be outlined which may be able to provide a solution to the problems of evidence on the levels at which they arise.⁷⁰

Evidence of the existence of the agreement

At present, facsimile terminals function both as receivers and copiers. It would be possible to modify them to show that a call has been received on a particular date at a particular time. It would also be possible for the terminal to be equipped with a printer using different characters depending on whether or not the message was coming from a particular user. However, that would be an expensive solution.

Evidence of the identity of the parties

It has already been pointed out that the use of a secret code (or subscription number) only allows identification of the holder of that subscription, not the person holding access to the system but not the actual person who concluded the contract. Therefore some technical means would be required to enable a physical characteristic of an individual to be recognised at a distance. These technical means would be particularly useful in relation to videotex and the electronic transfer of funds. Machine-readable signatures, fingerprints or voiceprints are all possibilities but are still at the research or prototype stage.

Another possibility might be the adoption of a cryptographic system using a public key; 'it would be technically possible to "sign" the information in a convincing way for the parties as a traditional signature on a paper document'.⁷¹ The advantage of this system would be that it would establish at the same time both the identity of the parties and the contents of the agreement.

Evidence of the contents of the agreement

Whatever the type of telematic contract, it is important in the event of a dispute to establish the contents of the agreement (for example, quantities ordered or the details of the performance due under it) and the information transmitted by videotex for example. This gives rise to two problems.⁷²

It must be proved that the contents of the transmission have not been altered by the recipient or during the course of that transmission. Apart from the use of codes accessed by key, there appear to be no effective ways of dealing with this. It is possible that the use of characters which differ like fingerprints could allow transmitted messages to be traced but the reliability of such a trace could not be complete. Consequently, the presumptive value that would attach to it would be limited and it would be even more difficult to accord it the character of contradictory evidence.

The cost and the complexity of most of the technical solutions that have just been outlined are based on the assumption that both the suppliers of telematic services and the user have sufficient financial

cial and technical means at their disposal to enable them to put such solutions into practice. When telematic services are offered to users who do not have such resources at their disposal, as in the case of private individuals, it is suggested that legislative solutions should be enacted, with the double aim of protecting the interests of consumers *vis-à-vis* a tempting and simple type of contract and to impose requirements as to the security of procedures for the recording of messages transmitted by the user.

A good example of such a measure is the English AVIP code which provides for the written confirmation of an order in a contract concluded by telematics but performed by other means, in the framework of the PRESTEL experiment.⁷³ It is a measure specifically aimed at the protection of consumers and, it must be said, imposes a heavy burden on those administering such systems. The nature of this written confirmation must be examined from a legal point of view — is it simply written evidence with probative value, or does it prove the existence of the contract?

The American system established by the Electronic Fund Transfer Act⁷⁴ is also worth mentioning. In a legal action between a bank and a customer a special procedure comes into play which involves a reversal of the burden of proof. It is for the bank to show that the reliability and security of its system provide as absolute a guarantee as possible of the absence of errors in the recording of transactions by telematics.⁷⁵ It must be said that after four years' experience, certain systems (including the Belgian automatic bank tills and points of sale) have proved to be very reliable and that the media that they produce (computer recording tape) 'display characteristics which will allow them to play a crucial rôle in the evaluation of evidence by the judge in a legal action'.⁷⁶

Is the solution to this problem the 'memory card', distributed by certain suppliers and tested in various areas? The memory card held by the user of a system offers him a means of keeping a record of all the transactions which he has performed. 'This information remains in his possession'.⁷⁷ In short, it is not only the person who runs the system who unilaterally holds the evidence. The memory card effectively provides the user with the means of obtaining counter-evidence. However, as Delahaie and Grissonnanche note, the possibility cannot be excluded that an error made at the moment of the transaction will be recorded on the card 'and that in the end, it is the person who runs the system who on a technical level retains the mastery of all the transactions recorded on the different media, including memory cards'.⁷⁸

Conclusion

According to René David,⁷⁹ it is primarily the rules of procedure which account for the very different approaches adopted on the one hand by civil law and on the other by common law. It is for this reason that it was decided that this article should deal separately

with the admissibility of computerised documents as a form of evidence in one legal system and then the other.

There are striking similarities between the two systems, even though a wide gulf separates the reasoning behind them. The law is hard-pressed to recognise the existence of computerisation. In common law, 'the fundamental problem is the rule which prohibits hearsay evidence'.⁸⁰ In the civil law system the obstacle is the requirement of a written document. The work of the courts is being succeeded by legislative action. There are many technical questions which cannot be answered by judges and require special rules; so, for example, without mentioning more specialised fiscal and accounting regulations, the Civil Evidence Act 1968 and the French Law of 12 July 1980 lay down certain principles relating to the admissibility by the courts of 'computer-produced evidence'.

These legislative principles should be enacted in sufficiently general and flexible terms to allow for technical development. In applying these principles, the law prefers to act by means of 'recommendations' or 'norms' which can more easily be amended and are less binding. As far as possible the linking of legal definitions and concepts to a technical subject should be avoided and the job of translating the deliberately hazy concepts adopted by the legislation should be left to more specialised practitioners who are conscious of the needs and the constraints of the technology on the one hand and of business on the other.

Over and above these national rules and 'quasi-rules', there is also a move towards some sort of international regulation since the information market is international by nature. In the words of the Secretary General of the United Nations Commission on International Trade Law, 'it is therefore urgent that measures be taken at international level to establish rules relating to the legal acceptance of commercial data transmitted by telecommunications'.⁸¹ The rules relating to the admissibility of computerised documents and the rules relating to signatures cannot differ from one country to another in a domain where frontiers no longer exist and where data which is signed and transmitted electronically must be identifiable at any place at any time.

As the Secretary General of the UN Commission remarks, 'faced with the necessity of adapting to the widespread use of computers for commercial and administrative purposes, a number of countries have amended their relevant legislation in order to allow this usage and to accept as a form of evidence documents recorded by computer or data storage systems, provided that they satisfy certain criteria. The disparities between the criteria which are used to determine their legal value together with the refusal by other countries to accord them such value create serious problems when computerised records stored in one country are to be used as evidence in a legal action in another country'.⁸²

As traditional jurists, we started off from the

assertion of the originality of each national law of evidence; it is clear that the existence of an international economy based on transborder data flow makes it necessary for us to consider the need for an international law of evidence in the computer field. It is for us, as jurists, to take up this challenge

not by sacrificing ourselves to an ever-changing technology but by broadening our legal concept: what is a signature? What is the finality of evidence in law? What is the essence of the distinction between a legal act and a legal fact?

NOTES

1. Cf. the striking figures quoted by F. Chamoux, *La Preuve dans les affaires*, Litec, Paris, p.103 et seq.
2. *Ibid.*
3. J.-D. Dehetre, 'Data Processing Evidence, is it Different?', *Chic. Kent Law Rev.*, 1975, 570; W.A. Fenwick and G.K. Davidson, 'Use of Computerized Records as Evidence', *Jurimetrics Journal*, 1975, 21; R. Reese, 'Admissibility of Computer Kept Business Records', *Cornell Law Review*, 1969-1970; J.A. Sprowl, 'Evaluating the Credibility of Computer Generated Evidence', *Chic. Kent Law Rev.*, 1975, 543.
4. See on this the efforts made by the International Standards Organisation (ISO). Cf. *United Nations Commission for International Commercial Law*, Doc. A/CN.9/250/Add. 4, 11 et seq.
5. See *United Nations Commission for International Commercial Law*, Doc. A/CN.9/250/Add. 4, 10.
6. *Ibid.*, p.11.
7. For a study of computer fraud see V.U. Sieber, 'Gefahr und Abwehr des Computer Kriminalität', *Betriebsberater*, 30 August 1982.
8. D.B. Parker, 'Combattre la criminalité informatique', *OROS*, Paris, 1985 and M. Comer, 'How to prevent computer fraud', *Asian Banking*, 1982, 35-37.
9. M. Briat, 'La fraude informatique', *L'Observateur de l'OCDE*, March 1984, pp.36 to 38.
10. D. Bender, *Computer Law: Evidence and Procedure*, M. Bender, Ed., 1978; W.A. Fenwick and G.K. Davidson, *op. cit.* supra note (3); F.B. Lacey, 'Scientific Evidence', *Jurimetrics Journal*, 1984, pp.254 to 272; L.E. Mills, K.J. Lincoln and C.E. Laughead, 'Computer Output, its Admissibility into Evidence', *Law and Computer Technology*, 1970, pp.14 to 21; R. Reese, *op. cit.* supra note (3); J.J. Roberts, 'A Practitioner's Primer on Computer Generated Evidence', *University of Chic. Law Rev.*, 1974, pp.254 to 280; N.E. Smith, 'Evidence Admissibility of Computer Business Records, an Exception to the Hearsay Rule', *North Carolina Law Rev.*, 1969-1970, pp.687 to 697; C. Tapper, 'Evidence from Computer', *Georgia Law Review*, 1974, pp.562 to 613; R.P. Wallace, 'Computer Printouts of Business Records and their Admissibility in New York', *Albany Law Rev.*, 1967, pp.61 to 73; Note 'Appropriate Foundation Requirements for Admitting Computer Printouts into Evidence', *Wash. Univ. Law Quart.*, 1977, pp.59 to 93.
11. Cf. notably in American law, *Transport Indemnity Co. v. Seib*, 178 Neb. 253, 132, NW 2d 871 (1965); *United States v. De Georgia*, 420 F. 2d 889 (9th Cir. 1969); *King v. State ex rel. Murdock Acceptance Corp.* 222, SO 2d, 393 Miss 1969; and in English law: *Myers v. DPP* [1965] AC 1001; *R. v. Pettigrew*, [1980] 71 Cr. App. R., p.39 and *R. v. Ewing*, [1983] 3 WLR 1.
12. We are not going to examine here the situation in other common law jurisdictions. We will merely mention that in Australia, the South Australian Evidence Act 1972 based itself on the Civil Evidence Act 1968 while departing from it to take into account certain criticisms that had been levelled at the English legislation. The Australian Act has however already been the subject of proposed reforms (see *The Australian Law Journal*, vol. 56, 1982, p.152). C. Tapper has written a commentary on the Australian provisions in the article cited above in note 10 at pp.604 to 612. In South Africa, measures adopted in 1983 allow the presentation in evidence of computer documents on condition that their author may be cross-examined and on the production of an affidavit, from which obligation, however, both insurance companies and government departments are exempt. In addition, Canada is planning a reform of Canadian Evidence Act 1982 (s.33) cf. *Transnational Law Report*, vol. VI, no. 5, p.245. Finally, on the subject of arbitration, the State Arbitration Commission of the U.S. has proposed that arbitration tribunals should accept computer documents which are put before them (*Transnational Data Report*, vol. VI, no. 2, p.75).
13. The House of Lords decided in *Myers v. DPP* [1965] AC 1001 that no new jurisprudential exceptions to the hearsay rule could be created.
14. Civil Evidence Act 1968, *Halsbury's Statutes of England* Annual Volume 1968, 1211.
15. Civil Evidence Act 1968, s.2.
16. Or even other persons also acting in the exercise of duties as long as at the end of the chain is someone with personal knowledge of the information (see s.4 of the Evidence Act 1968).
17. It appears from American case law that parties rarely contest the probative value of computer documents these have been declared admissible by the court (see *Bender, op. cit.* supra note 10, p.82). There is insufficient English case law on this subject to allow conclusions to be drawn.
18. A. Kelman and R. Sizer, 'The Computer in Court', *Georgetown Law Journal*, 1982, 21; C. Tapper, *op. cit.* supra note 10, p.604 to 612; R. Sizer, 'Computer Generated Output: Admissible Evidence in Civil and Criminal Cases', Report by the Professional Advisory Committee of the British Computer Society, 1982, 831.
19. The Uniform Business Records as Evidence Act and the Uniform Rules of Evidence, 9 AULA (1965).
20. The term 'business' includes business, institution, association, profession, occupation and calling of every kind whether or not conducted for profit.
21. See in particular Art. 63(13) of the Uniform Rules of Evidence.
22. *Transport Indemnity Co. v. Seib*, 178, Neb. 253, 132 N.W.2d 871, 11 ALR 3d 1368 (1965) with note by J. Evans.
23. See in particular *King v. ex. rel. Murdock Acceptance Corp.* 222 SO 2d 393 (1969); *Merrick v. US Rubber Co.*, 7 App. 433, 440 P 2d 314 (1968) and *United States v. Georgia*, 420 F 2d 889 (1969).
24. See in particular *United States v. Jones*, 554 F.2d 251, (5th Cir. 1977) and *United States v. Verlin*, 466 F.2d 155, 7 CLSR 323 (ND Tex. 1979).
25. Federal Rules of Evidence, Pub. L. No 93.595.88 Stat. (1975) Rule 803 (6) and (7).
26. See 'A Reconsideration of the Admissibility of Computer Generated Evidence', *University of Pennsylvania Law Review*, vol. 126, 1977, 432.
27. *Lucas v. William and Sons*, [1982] 2 QB 113, p.116, C Lord Esher, MR.
28. See in American law *King v. State ex. rel. Murdock Acceptance Corp.*, reference at note 23 supra.
29. *Kajala v. Noble*, (1982).
30. A. Kelman and R. Sizer, 'The Computer in Court', *Georgetown Law Journal*, 1982, p.20 (*a contrario*).
31. J.J. Roberts, *op. cit.* supra note 10 and *King v. Murdock Acceptance Cor.*, supra.
32. See *Harned v. Credit Bureau*, 513 2d, 650 (Wyo. 1977).
33. 'Computer Output Microfilm (COM) translates into video

- and legible form information which appears on a computer's magnetic tape', F. Chamoux, *op. cit.* supra note 1, p.138.
34. F. Chamoux, 'La loi du 12 juillet 1980: une ouverture sur de nouveaux moyens de preuve', JCP 1980, II, 13491.
 35. *Ibid.*
 36. For a technical description, see M. Bougon, 'Naissance d'une méthode et d'une technique nouvelle en micrographie', CIMAB Encyclopédie, September 1980.
 37. See C. Van Wymeersch, J. Autenne and J. de Lame, 'Le statut comptable et fiscal de l'informatique', Actes du cycle de cours et conférence sur les contrats informatiques, Namur, 1984.
 38. See the Law of 17 July 1975, in particular Art.8 s.2 and Art.9 s.1 and the Royal Decree of 12 September 1983, in particular Art. 8.
 39. P. Lurkin, 'Le Nouveau Droit Comptable Belge', Brussels, FEB, 1979, p.191.
 40. Law of 17 July 1975, Art. 9 s.2 and Royal Decree of 12 September 1983, Art. 9.
 41. P. Lurkin, *op. cit.* p.22.
 42. Gent, 3 June 1980, JCB, 1982, 405 on the keeping of accounts by lawyers and other liberal professions, see Parliamentary Questions no. 252 of 15 March 1984, QR Chambre, 17 April 1984 and no. 224 of 18 April 1984, QR Sénat, 5 June 1984.
 43. For more details, see C. Van Wymeersch, J. Autenne and J. de Lame, *op. cit.* supra note 37, pp.9 and 10.
 44. Parliamentary Question no. 212 of 26 September 1980, QR Chambre, 4 November 1980.
 45. For a more detailed commentary on these provisions, reference is recommended to the excellent article by A. Bensoussan, 'Droit et comptabilité informatique', 01 *Informatique*, no. 168, April 1983, 110 and 111, no. 169, May 1983, 102 and 103 and no. 170, June-July 1983, 140 and 141.
 46. A. Bensoussan, *op. cit.* note 45, 01 *Informatique*, no. 168, April 1983, 111.
 47. *Ibid.*
 48. Cf. supra.
 49. Cf. 'La valeur légal des microformes', CIMAB Encyclopédie, April 1975, p.3.
 50. *Ibid.*
 51. Circular no. 38 of 29 July 1969 of the Ministry of Work, Employment and Population.
 52. See on this point Y. Pouillet and X. Thunis, 'Introduction aux aspects juridiques de la télématique', in *La Télématique, Aspects Techniques, Juridiques et socio-politiques*, Actes du Colloque de Namur, Gent, Story Scientia, 1984, vol. 1, no. 60 et seq.
 53. F. Chamoux, 'La force probante des supports modernes d'information', *Informatique et Gestion*, 1981, no. 126, 25 and 26.
 54. Cf. the thesis of Hauser, *Objectivisme et subjectivisme dans l'acte juridique*, Paris, 1970.
 55. J.-L. Aubert, *Notions et rôle de l'offre et de l'acceptation dans la formation du contrat*, (Thesis, Paris), 1970, 188.
 56. NB that the proposals for the reform of the law of evidence in the Grand Duchy of Luxembourg would give a broader interpretation of the concept of the signature by including any mark individually identifying a person by which he manifests his consent. Such an interpretation would recognise the value of the 'electronic signature' (e.g. secret identity codes).
 57. Notwithstanding Recommendation no. R (81) 20 of 11 December 1981 of the Committee of Ministers of the Council of Europe which requests the governments of those Member States whose legislation imposes evidence by written document 'to examine the possibility of abolishing this requirement'. On this requirement and the Recommendation, see X. Linant de Bellefonds, *L'informatique et le droit*, PUF 1981, 43.
 58. Cass. comm. fr. 19 Nov. 1973, *Bull. civ.*, 1973, IV, no. 333; G. Goubeaux, and D. Rihl, *Preuve*, Dalloz, Rép. dr. Comm.
 59. This argument is not conclusive since as F. Chamoux points out (*op. cit.* note 1, a secret code is a much safer method of identification than a signature. It is also worth pointing out that a whole series of draft international conventions (on cheques, promissory notes, bills of exchange, commercial transport documents) accept mechanical or electronic means of identification (cf. *Aspects juridiques du traitement automatique des données*, Report of the Secretary General, United Nations Commission on International Trade, A/CN.9/2548 May 1984, 3, no. 8). Cf. also the concept of signature in the proposed Luxembourg reforms, supra note 56.
 60. See D. Syx, 'Aspects juridiques du mouvement électronique de fonds', Brussels, Kredietbank, 1982.
 61. On this point see in particular J. Van Ryn and J. Heenen, *Principes de droit commercial*, vol. 1, 2nd edn., 1975, 484 on Art. 109 of the French Commercial Code, implemented by the Law of 12 July 1980: 'with regard to traders, commercial acts can be proved by any means.'
 62. X. Malengraux, 'Le droit de la preuve et la modernisation des techniques de rédaction, de reproduction et de conservation des documents', *Annales de Droit de Louvain*, 1982, 117 and the references cited at note 28. Cf. in the jurisprudence, recently Cass. française 7 January 1982, *Bull. cass.* 1982, III, 4: 'The Court of Appeal did not comply with the terms of the new Art. 202 of the Procedural Code by rejecting written depositions on the grounds that their authors had not respected the conditions relating to form provided by the Article, whereas the penalty for non-compliance with these conditions is not nullity.'
 63. According to N. Catala, 'La nature juridique du paiement', Paris, LDGJ, 1961. In effect, it is the legislation which, *de plano*, attaches an extinctive effect to this factual situation which constitutes the satisfaction of the creditor.
 64. See D. Syx, *op. cit.* supra note 60 and X. Linant de Bellefonds, *op. cit.* supra note 57 at p.122.
 65. On this point see X. Malengraux, *op. cit.* supra note 62, 116; also J. Van Rijn and J. Heenen, *Traité de droit commercial*, vol. 1, 481; P. Malinvaud, 'L'impossibilité de la preuve écrite', JCP 1972, I, 2468. In Belgian jurisprudence, Liège, 20 June 1978, *Jur. Liège*, 21 October 1978.
 66. F. Chamoux, Article cited above, note 34.
 67. As concerns arbitration, the State Arbitration Commission of the USSR has recommended to arbitration tribunals to give transactions concluded by computer the same value as those concluded by written document. See *Transnational Data Report*, vol. 6, no. 2, p.75.
 68. *Perma Research and Development v. Singer Co.*, 452, F. 2d 111 (1976), dissenting opinion of Judge Van Graafeiland.
 69. For an analysis of these technical methods, see H. Grissonanche, 'Data Protection and Data Security Technology', ADI typescript, GMD, NCC, 1983, 24 et seq. and J.-P. Chamoux and H. Grissonanche, 'Preuve et sécurité dans les réseaux informatiques', *Rapport de synthèse*, typescript document, September 1980, p.111 et seq.
 70. See the 'levels' of evidence envisaged by H. Delahaie and H. Grissonanche, 'Les nouveaux moyens de paiement ont-ils besoin d'un cadre juridique spécifique?', *Les Cahiers de Droit*, 1982, vol. 24, 292 to 295.
 71. 'Aspects juridiques du traitement automatique des données', document of the United Nations Commission on International Trade A/CN.9/238 18 March 1983.
 72. See J.-P. Chamoux, H. Delahaie and A. Grissonanche, *op. cit.* supra note 69, p.36.
 73. This concerns orders of goods and services from mail order companies.
 74. The Electronic Fund Transfer Act contains other interesting provisions, such as the obligation on banks to send frequent account statements to enable the client to follow developments in his account.
 75. Compare the position of the French Conseil économique et social ('La monnaie électronique', Opinion and Report of the Conseil économique et social, 1982, no. 12, JO, Paris, 1982, published in *Documentation Française*), which is of the opinion on the one hand that the initiator of a technique has, by the choice which he exercises, the control and the responsibility of the level of reliability of a system and on

the other hand the damage suffered by the banker in the event of an incident is relative whereas that suffered by the customer is of a more serious nature and finally the disproportion in the means at the disposal of the customer to open and conduct legal proceedings is already enough to put the latter in a position of inferiority.

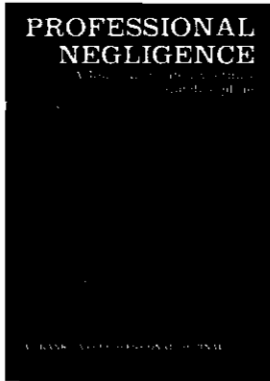
76. D. Syx, 'Le transfert électronique de fonds: un droit hésitant face à une réalité galopante', in 'La Télématique, Aspects techniques, juridiques et socio-politiques', *Actes du Colloque de Namur*, Gent, Story Scientifica, vol. II.
77. The Conseil économique et social in the opinion cited at note 75 seems to think so. The 'memory card' system brings an element of response to the risk of imputation by error in the customer's account as well as to the risk of bad faith by

the user. In case of difficulty, the confrontation between the two recordings can constitute an element of evidence for the courts and at the least a dissuasive factor for defrauders ('La monnaie électronique', *op. cit.*, p.578).

78. H. Delahaie and A. Grissonnanche, *op. cit.* supra note 70.
79. R. David, 'Les grand systèmes de droit contemporains', 4th edn. 1971, s.316.
80. D. Kirby, 'Aspects juridiques de la technologie de l'information', in *Une analyse préliminaire des problèmes juridiques dans l'informatique et les communications*, Paris, OECD, 1983, 83.
81. UNCIT, 'Aspects juridiques du traitement automatique des données', A/CN. 9/238, p.2, no. 5.
82. UNCIT, *op. cit.*, note 81.

PROFESSIONAL NEGLIGENCE

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