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## ELECTRONIC DOCUMENTS AS EVIDENCE

# THE ISSUE OF INTEGRITY

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Article 1316 (1) of the French Civil Code provides that an electronic document is only admissible as evidence "*if it has been created and preserved in conditions calculated to guarantee its integrity*". Law No. 2009-526 provides that pay slips can be issued in electronic form "*under conditions that will guarantee data integrity*."

By law, the admissibility in evidence of documents created and/or stored in digital form depends on the integrity of their data. However, neither the Civil Code nor the Law explains what is actually meant by integrity and how the obligation to guarantee data integrity is to be satisfied.

This lack of information raises a number of issues. How do we go about guaranteeing the necessary integrity? What form of archiving should we use? Does the wording of the law mean that we need to scrutinize the digital data themselves if validity is challenged? If so, are the binary data validly enforceable against third parties?





Accordingly, a digital document that has undergone changes of one sort or another may give rise to disparate data without us being able to tell from examining that data whether they depict honest dealings or embezzlement.

In any event, where a document is stored as a computer file, it is crucial for its data to remain modifiable: over time, locking digital data may result in their loss if operating systems are no longer able to read the data format, or the content may be altered if the document recognition software has been updated. In other words, locking data may in itself produce divergent results. To ensure the survival and consistency of digital content, we must be able to vary the data in a digital document.

This leads to a paradox: a file in which the data have been changed may be exactly the same as if the data had remained static, whereas digital data that have been locked may change in appearance or become impossible to view.

We can only deduce that measuring a document's evidential value by the integrity of its digital data raises more issues in terms of evidence reliability than it provides answers, running counter to what was expected when this legal duty was imposed.

To obey the law, we therefore need to explore other technical options for guaranteeing data integrity. The goal is to ensure that a document's digital format cannot be misused as a means for falsifying its content.

If we look back at our pay slip example, we can easily see how a judge would draw the same conclusion from the PDF version as the JPEG version. Rather than observing that the digital format of one is in discord with the other, he would undoubtedly prefer a guarantee that, if the submitted document states "01/08/2006", this is what the initial version of the document said.

In other words, the root of the problem is the "before" to "after" relationship. We expect strict similarity to be the defining principle in this relationship, even where a file has been produced in more than one form. This means that a digital document's data *integrity* is *de facto* dependent on any reproduction made being **true and faithful**. The problem is simply one of original and copy.

### **The Lifecycle of Digital Documents**

Faithful reproduction of a document is governed by Article 1348 of the French Civil Code, which provides that the party which has not retained the original of an instrument is entitled to produce a copy provided that copy is "*not only faithful but also enduring*". The section also defines "enduring" as "*an indelible reproduction of the original which involves a non-reversible alteration of the medium*".

However, as the law demands digital document data integrity, does this section apply to such documents?

The answer is clearly yes because:

- (i) nowadays paper documents are more often than not initially computer created and we have to be able to prove, where required, that a copy of the document is faithful, whether or not it was created in digital form;
- (ii) regardless of how it was created, the ability to digitise a paper document also requires any subsequent representation of it to be a guaranteed faithful copy should it be adduced in evidence instead of the original;
- (iii) although a digital document comprises binary data, we still have to be able to represent it in an intelligible physical form, an original which must be copied faithfully even for viewing on a computer screen rather than on paper;
- (iv) the digital document's lifecycle raises the issue of the original-to-copy relationship for a mechanical reason: where a document is created in one computer format and is then represented in another, it means that it has been copied. The same is true where storing it requires changing medium or making a back-up copy. This applies whether these actions are termed "migration", "conversion", "replication" or something else;
- (v) although the copy of a paper document needs to be faithful and enduring, it would be peculiar to link this requirement to the "material" used for the initial document.

All this proves that being "electronic" does not excuse a document from needing to comply with the rules governing *faithful and enduring* copies. This question seems inescapable and it would be irresponsible not to be able to answer it.

Under Article 1348 of the Civil Code, a copy is deemed faithful if it is "*an indelible reproduction of the original which involves a non-reversible alteration of the medium*". We should note that the law equates faithful with enduring and enduring with the irreversibility of the data medium.<sup>1</sup> By requiring a non-reversible medium, Article 1348 points towards possible archiving techniques and media. This is a great help because, although the law is silent on how to achieve integrity, there is a precise and fitting rule governing faithful copying.

Most importantly, it is interesting to note that through technical necessity, "*an indelible reproduction of the original which involves a non-reversible alteration of the medium*" means that there is obviously *integrity*.

Applying Article 1348 is therefore both relevant and sensible; firstly, because it is explicit and places all those involved in a clear and reliable legal and technical framework, and above all, because it provides an appropriate solution for satisfying all requirements by guaranteeing both integrity and a "faithful and enduring" reproduction of the document through the same process. *It kills two birds with one stone ...*

It remains for us to look at suitable technical means for securing this much-cited "*indelible reproduction of the original which involves a non-reversible alteration of the medium*".

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<sup>1</sup> This is absolutely necessary because, in the opposite case, a copy made on a modifiable medium would not be definitive and this could therefore raise doubts as to whether it is faithful. Also, where would be the sense in relying on the "faithfulness" of a copy when its appearance might change?

## ISO Standard 11506

Published in June 2009, this international electronic data archiving standard has the same origin as AFNOR (ISO member for France) Standard **NF Z 43-400** (2005).

In basic terms, its scope of application includes:

- ensuring the long-term (for more than a century) integrity, accessibility, usability, readability and reliability of electronic data to protect their evidential value;
- using micrographic techniques and media (or COM<sup>2</sup> applications) because the only possible outcome of this digital document recording process is medium irreversibility.<sup>3</sup>

The standard also specifies procedures for the dual recording of COM and COLD<sup>4</sup> output from the same data.

By recommending dual recording, ISO 11506 is giving due consideration to corporate reality. Some COM advantages are also shortcomings. Although they have many archiving and evidential virtues, they are less convenient than digital forms for use in everyday work. Faced with these factual circumstances, the standard lays down a *dual recording* solution whereby, using the same procedure, it is possible to:

- record documents on microforms to protect them, securing them as valid evidence and dealing with longevity issues;
- work on a daily basis on an electronic version of the same documents, e.g. via an EDM<sup>5</sup> system.

This means that, thanks to parallel recording, the use of computer micrographics in no way interferes with currently preferred working methods or general practices.

The standard lays down conditions in which original or copy proof documents have to be created on COMs for use as evidence. In the case of dual recording, the standard provides that proof exhibits may be disclosed to other parties on a digital basis, but that where documents need to be verified or where there is uncertainty, the microforms will take precedence. ISO 11506 was approved unanimously by Technical Committee (TC 171) participating members.<sup>6</sup> A consensus was achieved in terms of legal and technical requirements. These requirements do not cause distortions between the legislation applicable in various States and appear to be echoed significantly from country to country.

From a French legal standpoint, the techniques described in the international standard satisfy the requirement for producing a *faithful and enduring* copy guaranteeing the integrity of the data, both as regards documents that are digital at inception and documents that are digitised at a later date.

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<sup>2</sup> *Computer Output Microform*

<sup>3</sup> Recording a digital document using a COM production unit involves reproducing a miniaturised, analogue, image on film. This is an integral reproduction of the document in both form and substance, time and date stamped on the same medium. Image recording involves the entire medium passing into a state of irreversibility. Accordingly, there has clearly been a *non-reversible alteration*. The "sealed" and time-stamped image prevents alteration. It remains accessible to anyone wishing to read it by optical enlargement. The process offers a digital document with a lifespan exceeding a century.

<sup>4</sup> *Computer Output Laser Disc*

<sup>5</sup> *Electronic Document Management*

<sup>6</sup> Participating Members: South Africa, Australia, Bulgaria, China, France, Japan, United Kingdom, Russia, USA. Observing Members or other countries that approved the standard: Spain, Luxembourg, Switzerland, Ukraine

***Integrity can only have valid meaning if its purpose is to provide reliable evidence***

In terms of documents produced for evidence purposes, any legal requirement must be based on an obvious and stable technological reality that is acceptable and comprehensible to businesses.

In this regard, it is fortunate that computer micrographics enable us to comply with legal requirements reliably and over the long term. If we consider Article 1316 (1) word for word, it is clear that a digital document recorded on COMs is "*created and preserved in conditions calculated to guarantee its integrity*".

Above all, and leaving aside any procedural formalities, COMs provide everything in essence that we can reasonably expect from a proof document and they offer an effective means of solving the digital document proof equation. As the state of the art stands, only computer micrographics are capable of providing these guarantees.

In terms of corporate acceptability and general custom and practice, the dual recording solution, standardised by ISO 11506 and AFNOR NF Z 43-400, shows that the use of computer micrographics does not create any obstacles to the operation of an EDM system, nor does it prevent anyone from benefiting from the incredible flexibility and great efficiency that digital format offers.

On the contrary, this solution is highly beneficial: relevant legal obligations clearly constitute a stumbling block for electronic data, and by removing the need to worry about using documents as evidence, it renders electronic document management more attractive. By remedying this predicament, dual recording will clearly help to promote the digital economy.

The electronic and online world in which we live, where personal communication has become highly fluid but also dependent on highly complex and, sometimes, decidedly mysterious devices, has all the more need of solid evidence that can be reviewed by all interested parties, free of all esotericism, and guaranteeing "equality of arms" to those who know and those who do not.

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