

# The Passage from Paper to Bit in Italy: How the Legal Documentation Process Is Changing

By Daniela Rocca

**T**echnological progress and legislative compliance have brought deep innovation in electronic authentication in the past few years, making the electronic document fully legal through use of the qualified electronic signature, or digital signature.

## Electronic signatures in legislation

Today, one of the factors boosting the legislative innovation process in Italy is the search for greater efficiency in the public administration (PA). The legislature has intervened more and more often in order to streamline processes within the PA and the relations between the PA, citizens, and businesses.

The legislative basis for electronic signatures and electronic documents is currently made up of Legislative Decree 82/2005, Italian Presidential Decree 445/2000 and the technical standards of January 13, 2004. The subsequent legislation, which aimed at achieving the

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actual use of electronic signatures, sometimes incorporated European directives – one example concerned electronic invoicing. In other cases the Italian government issued the legislation spontaneously, since no obligation in this regard arises from Italy's membership in the EU, as evidenced by the legislation on certified electronic mail and backup optical storage.

Thanks to these measures Italy's legislation in this sector has become the most advanced in Europe, and the qualified electronic signature is more widely used in Italy than elsewhere in Europe.

The main reasons for this success, in addition to the political intent shared by ministers Bassanini and Stanca, are the patterns of use – the Italian Business Register is the first fully computerized system in the world and is studied worldwide – and the signature interoperability among Certification Authorities, obtained thanks to the joint work of CNIPA and ASSOCERTIFICATORI.

A considerable number of qualified certificates have been distributed in Italy. Of the 13.1 million smartcards issued, about 2.2 million are qualified digital signature devices. Among them approximately 1.9 million have been issued by Infocamere, mainly to professionals and legal representatives of businesses.

The creation of the electronic document has triggered new challenges in technology and organization, linked to the streamlining of the workflow, storage and document consultation processes. And it has caused problems previously not faced, relating to the concept of document originality and the responsibilities arising from it.

## The document between writing and speech

Taking advantage of the possibilities given by the new legislation for the storage of documents in digital format means getting rid of great quantities of paper, and therefore abandoning the traditional storage method, which has always guaranteed a historical memory. But from a practical point of view, the digital document cannot be considered fully equivalent to the paper document, although the law gives to it the same evidence value. The “digital” indeed is neither completely “written,” nor is it completely “oral.” Digital data in itself is absolutely illegible: The operating system, the middleware and the application systems contain a great quantity of data and information necessary for data reproduction that is not included in the signed data. It is like signing the written without signing the paper. We are at the borderline separating written language from spoken language!

## Characteristics of digital documents

- Not intelligible to the human mind without the aid of machines. In order to be intelligible, the electronic document needs the continuous and reliable presence of a series of infrastructures. In addition to the electronic computer, it needs electric power and ambient conditions of a dry climate with temperatures not oscillating by more than approximately 50 centigrade degrees
- Semiotically very complex, since it is necessary to translate machine language into human language, through a long series of steps
- Lacks the intrinsic distinction between text and context, since binary language not only defines the text, but at the same time also determines the nature and mode of presentation of information, and several aspects of its context
- Not immanent in nature: naturally re-writable

- Cannot be produced directly by human beings, without the aid of machines (electronic computers)
- Semantically very difficult to interpret
- Intrinsically modifiable

### Characteristics of digital and paper documents

- The possibility of storing and retrieving information
- Duplicability

Both of these characteristics are much more evident in the digital document than in the paper document, and they are the very two reasons why the digital document is becoming more and more widely used.

From a morphologic and semiotic point of view, therefore, the digital format is actually a tertium genus which will inevitably lead to a sys-

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tem of hybrid documents resulting from a mediate documentation process, whereas only paper enables an immediate documentation process. As a consequence, with use of the digital document instead of paper, it is not possible to have it work like a piece of paper: This becomes clear upon an exchange of the signed documents. With paper one exchanges the medium; with bits one exchanges data.

The simple paper process guaranteed the preservation of data in time, even for centuries. With the bit, data storage is a continuous service requiring a complex activity. With paper, the assumption that who signs a document has read it (if not understood it) was founded, less and less, on a substantially true belief based on experience. As regards the bit, it is a mere *fictio juris*.

If one considers these fundamental differences, one understands how absurd it is to digitally reproduce exactly the procedures of exchange of data on paper, since it is no longer necessary to exchange the medium. We must accept, therefore, that the agreements reached using electronic machines feature various levels of complexity, more than is the case with the paper document – both as regards their generation and their exchange.

### Responsibilities and opportunities

The signature creation process can be subject to malicious attacks and errors. The signature could be appended not on undamaged data, but rather on modified, corrupted or replaced data. In short, the digital signature could be compared to a signature appended by parties “in the dark”: Before signing, they can read a representation on a video of the data that they are going to sign, but upon signing the light is necessarily and inevitably off.

The preference for the digital document is clearly only justified, therefore, when availability and duplicability are strongly needed. This occurs, for example, in case of data valid as legal advertisement

and of general utility, or in all the cases of unilateral documentation produced based on an obligation laid down by the law: administrative procedures, corporate bookkeeping, etc.

How will the legal documentation process develop in this context? Which new responsibilities will arise for businesses implementing a growing document digitalization? The new regulations do not always provide an answer!

The replacement of the paper original with the digital original requires an accurate evaluation of responsibilities, since it eliminates the paper used in data flow management, which the operators could always make reference to in case of disputes. Now it is necessary to define telematic procedures certifying the correctness of electronic data exchange procedures, and to monitor electronic communications and transactions, since the original will be the digital document.

Digitalization may certainly make it easier to retrieve information and therefore guarantee a greater efficiency in terms of costs, resources and time needed for the corporate transactions linked to the document management, but business must understand that the concept of document is changing, and that this transformation causes the need for further guarantees for operators. This need holds in the processes of electronic invoicing, digital bookkeeping and storage of documents in digital format.

### The role of notaries

In order to ensure that the degree of reliability of the bit can be considered equivalent to, if not higher than, that of paper, a network of European notaries has been working for several years to guarantee the correctness of telematic procedures. This entrusts to the notary, an impartial third party, the monitoring and certification of electronic communications and transactions.

All of this is possible thanks to a technology whereby an “electronic witness” photographs (the “hashes” of) a data exchange. This enables that trustworthy third party – through a combination of strong authentication, protocol management and data storage (without any intervention on its contents) – to produce certifications on originality, on contents, on data integrity, and in some cases on the data generation process.

The notary’s function as impartial third party, thanks to the electronic witness, is therefore confirmed in the digital world, too, although with some important differences consequent to the loss of the mechanical functions of paper, replaced by the particular properties of dematerialized data.

This evolution represents a real opportunity for the corporate world, due to the decrease in legal risks for businesses achieved by transferring the responsibilities that arise out of the use of computer means to a party traditionally used to certifying the validity of transactions. These are risks that notaries have assumed for almost 2000 years, successfully guaranteeing the availability of information in the long and very long term.

### About the Author

*Dr. Daniela Rocca graduated in Law in 1997 with a Doctorate Thesis in Criminal Procedure. She cooperates with many partners in legal research and consulting activity on electronic signatures, privacy protection and optical archiving. She was actively involved in the QualiSign and Certiserv projects. She is a columnist for ICT Security and teaches in the field of legal aspects of IT security.*