

# ELECTRONIC SIGNATURES AND THEIR SPECIFICITY IN NATIONAL AND EUROPEAN REGULATIONS

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**Abstract:** *The paper aims to emphasize the particularities of the electronic signature by reference to the national as well as to the European legislation, trying to point out its utility in the business environment as well as the controversies in this matter. The starting point of this analysis was the Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures, which establishes the legal framework for electronic signatures and the recognition of certification-service providers. Its main aim was to ease its use and help it become legally recognized within all EU countries.*

**Key words:** *handwritten signature, electronic signature, electronic commerce, document in electronic format, transaction.*

## 1. Introduction

The need for the recognition of the electronic signature was obvious and required, mainly, by the business environment realities. At the European Union level, the framework for electronic signatures was established by the Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 which was then implemented by the EU member states.

In our country the Law regulating the matter of electronic signature was Law no. 455/2001 on the Electronic Signature which implemented the above mentioned Directive.

## 2. The Electronic Signature and its Characteristics

According to the General Dictionary of Romanian language, the signature represents “a person's name written by his own hand under the text of an act, of a letter, etc.” (Breban, 1992, p. 937).

The use of our handwritten signature is “a part of several of our daily life activities such as when signing for a courier delivery or when purchasing goods and services using our credit card. In the business realm, a signature also plays a very important role (...) however it is important to note that for the enforceability of such contracts and commercial transactions, a signature is not a mandatory requirement under most laws,

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*particularly, under English law and common law system*" (Srivastava, 2005, p. 7).

Although the handwritten signature plays such an important role in our daily life, we cannot ignore the electronic signature which is "offered as a substitutive solution of handwritten signatures for a wide scale electronic commerce" (Martínez-Nadal & Ferrer-Gomila, 2002, p. 229).

In terms of reliability, it is considered that "it is practically impossible to forge an e-signature and thanks to that it can be considered even more reliable than a traditional handwritten signature" (Kościelny, Kurkowski, Srebrny, 2013, p. 128).

As regards the main ways to secure electronic signatures, the doctrine mentions the following "through the use of passwords where an electronic signature is stored on the hard disk of a computer, using portable information storage devices (PISDs) and using biometric devices" (Srivastava, 2005, p. 83).

The doctrine considered that the electronic signature reproduces old wax seals used in the Antiquity, comparing the seal with a secret signature key which should be in the sole possession of the signatory (the entity that signs up the information) (Wack, Nait-Sidi-Moh and others, 2006, p.162).

According to the same authors, the main difference between seals and electronic signatures is that "whereas a seal is affixed on the support of the information (the paper for example), the electronic signature is generated using the information itself. As a consequence, a seal remains the same (which makes it possible to identify the possessor) but an electronic signature depends on the information it refers to and therefore is different from one case to another.

As a consequence, a given source information must always produce a unique electronic signature and two different sources must lead to generate two different electronic signatures (using a single hashcoding algorithm along with a single private key, called signature key).

To each signature key corresponds a unique public key, called verification key. This verification key verifies signature authenticity and information integrity" (Wack, Nait-Sidi-Moh and others, 2006, p.162).

### **3. The Regulation of the Electronic Signature in the EU and National Legislation**

The *Utah Digital Signature Act of 1996* is mentioned by the doctrine as "the first law to attempt regulation of electronic signatures, certificates and certification authorities. Since then, a great number of states or entities have also enacted or are preparing legislation to rule on electronic signatures (USA, Germany, Italy, Spain, Argentina, European Union, etc.) (Martínez-Nadal & Ferrer-Gomila, 2002, p. 229).

In Europe, „Italy and Germany are still contending for its primogeniture (...) in fact both countries have issued their first law in 1997" (Manca, 2006, p. 363).

Within the European Union, we need to mention the Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures, which establishes the legal framework for electronic signatures and the recognition of certification-service providers, which aims to ease its use and help it become legally recognized within all EU countries.

Among the countries that have implemented the Directive 1999/93/EC, we can mention: the Czech Republic (Act on Electronic Signatures, 227/2000); England, Scotland and Wales (Electronic Communications Act, 2000 and The Electronic

Signatures Regulations 2002); Hungary (Hungarian Act on Electronic Signatures 2001); Italy [Decreto legislativo 7/3/2005, no. 82 (Codice dell'Amministrazione Digitale)]; Luxembourg (Loi du 14 août 2000 relative au commerce électronique, 2000); Sweden [Qualified Electronic Signatures Act (SFS 2000:832)].

As regards our country we have Law no. 455/2001 on the Electronic Signature, which regulates the issues regarding electronic signatures.

### **3.1. The Definition of the e-Signature**

According to article 2, point one of the Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures, the electronic signature is defined as “*data in electronic form which are attached to or logically associated with other electronic data and which serve as a method of authentication*”.

In accordance with the same Directive, the so-called advanced electronic signature means “an electronic signature which meets the following requirements:

- (a) it is uniquely linked to the signatory;
- (b) it is capable of identifying the signatory;
- (c) it is created using means that the signatory can maintain under his sole control; and
- (d) it is linked to the data to which it relates in such a manner that any subsequent change of the data is detectable;” (article 2, point two Directive 1999/93/EC).

The doctrine appreciates that “the massive adoption of the advanced electronic signature strictly depends on how solutions are easy, usable, and little invasive for citizens.” (Buccafurri, Fotia, Lax, 2016, p. 289).

As regards the national regulation of the electronic signature and the advanced electronic signature, Law no. 455/2001 on the Electronic Signature resumes the definitions of the two legal notions of the Directive 1999/93/EC, implementing them in the national legislation.

### **3.2. Electronic signature vs. Digital signature**

The doctrine distinguishes between the concepts of digital signature and electronic signature, defining the digital signature as “*a technical concept, a technical means of protecting data and providing proof of its authenticity and integrity. The digital signature is used both for authenticating data and authenticating entities in a digital dialogue, e.g. in on-line communication protocols.*” (Jošková, 2005, p. 315).

As regards the legal concept of electronic signature, whose meaning has been explained above, both in relation to the legislation and the doctrinal definitions, the feature that differentiates between the electronic signature and the digital signature is that the first one „*refers to data authentication, not to authentication of entities.*” (Jošková, 2005, p. 315).

## **4. The Need to Change from Manuscript Signatures to Electronic Signatures**

Two important questions that were asked in the doctrine were “*Do businesses feel the need to change from the use of manuscript signatures to electronic signatures? And therefore, does the low usage result from a lack of need to change the new technology?*” (Srivastava, 2013, p. 61).

The same authors indicated six potential factors “*that have led or are likely to lead to a low usage of the electronic signature technology among Australian businesses. These are ignorance or lack of understanding of the technology, culture and customs, cost, complexity, security and legal obstacles.*” (Srivastava, 2013, p. 61).

Although they refer to the Australian businesses, we consider that they are also applicable to world - wide businesses, with specific aspects in each country.

Despite these factors mentioned by the doctrine, it is beyond doubt that there is a need for the electronic signature and for documents in electronic format within the business environment.

The electronic signature should not be seen as a substitute for the manuscript signature, as they both find their place in a society in perpetual transformation.

## **5. Brief Comments on the Document in Electronic Format**

The main evidence of the legal act (as *negotium iuris*), namely the writing is, according to art. 265 of the Romanian Code of Civil Procedure "any writing or other record that contains information about a legal act or fact, regardless of its material or how they support conservation and storage."

While the authentic document and the document under private signature have an early regulation within the Romanian legislation, the regulation on the document in electronic format is relatively recent.

As regards the authentic document, it is regulated by art. 269-271 of the Romanian Civil Procedure Code and it is, on the one hand, that writing drafted or, where appropriate, received and authenticated by a public authority, a notary public or by another person vested by the state with public authority state, in the form and conditions established by law, and on the other hand, any other document issued by a public authority and upon which the law confers this character.

The authenticity of the document relates to: establishing the identity of the parties; expressing their consent regarding its content; the signature of the parties; the date of the document.

The probative force of an authentic document must be analysed according to a twofold direction:

According to Art. 270, para. (1) of the Romanian Civil Procedure Code, as regards the personal findings of the staff who authenticated the document under the law, the authentic document makes full proof to any person until it is declared false.

As for the statements of the parties contained in the authentic document, according to art. 270, para. (2) and (3) of the Romanian Civil Procedure Code, they make proof, until proven otherwise, both between the parties and to any other person. Also, the terms of the document that are directly related to the legal relationship of the parties, without being the main object of the act, have the same probative value.

The document under private signature finds its regulation in art. 273-281 of the Civil Procedure Code, according to article 272, it is that writing signed by the parties, regardless of its material and not subject to any further formality, apart from the exceptions expressly provided by law.

The document in electronic format in the regulations of Law no. 455/2001 on the electronic signature republished, is "*a collection of logically and operationally interrelated data in electronic format that reproduces letters, digits or any other*

*meaningful characters in order to be read through software or any other similar technique.* "(art. 4, pt. 2 Law no.455/2001).

As regards its probative force, a document in electronic format that was included, attached or logically associated with an electronic signature recognized by its opponent will have, according to art. 6 of Law no. 455/2001, the same probative value of the authentic document among those who signed it and those who are representing their rights.

According to art. art. 1316-3 of the French Civil Code "an electronic-based writing has the same probative value as a paper-based writing", while article 1316-1 rules that "*a writing in electronic format is admissible as evidence in the same manner as a paper-based writing, provided that the person from whom it proceeds can be duly identified and that it be established and stored in conditions calculated to secure its integrity.*"

## 6. Conclusions

Electronic documents and the electronic signature play an increasingly important role in our lives, especially in the business environment. Any analysis regarding the electronic signature cannot be perceived independently of the Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures, establishing the legal framework for electronic signatures and the recognition of certification-service providers.

Its adoption was the starting point in regulating the matter at European level, the EU member states implementing in their national laws the provisions of the above mentioned Directive.

Although the doctrine underlines some disadvantages in using the electronic signature, like ignorance or lack of understanding of the technology, culture and customs, cost, complexity, security and legal obstacles, we cannot ignore the importance of this instrument, which, in terms of security is considered to be more reliable than a traditional handwritten signature.

There are contexts, especially in electronic commerce, where the electronic signature is practically a substitutive solution for hand-written signatures. But the two of them hand-written and electronic signatures should not be seen separately, but as whole, both of them being extremely useful in the context of the multitude of legal operations concluded worldwide each day.

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