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**AN ELECTRONIC SIGNATURE WITHIN THE DIGITAL  
ECONOMY**

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*Abstract*

The current article is devoted to a digital signature as a new method of authentication within the digital economy. The paper studies a legal nature and a juridical force of a digital signature. The author compares the values of an electronically arranged signature with a personal handwritten counterpart. The article also pays attention to that now, in digital age, many people still prefer using only a personal handwritten signature in a document flow. Based on the Russian federal law, the author outlines the classification of e-signatures. The role of an e-signature in conditions of the digital economy is considered. In conclusion the author points out that the legal force of an electronically arranged signature is equal with a personal handwritten counterpart. At the same time, it is noticed that the field of application of a digital signature is more unidimensional than of non-digital signatures. Finally, the author outlines that the digital signature has a lot of prospects in the digital age. The research also discusses the possible outcome when a digital signature would become the exclusive way of identity authentication. By the way, it is established that its personal handwritten counterpart could not be totally escaped in a document flow. In addition, there are some risks which can be developed after the total transforming to electronically arranged signatures.

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**Keywords:** Digital economy, identification and authentication, digital signature, digital document flow, digitalization.



## 1. Introduction

At the current time, at the post-industrial society, the new technologies of data processing are totally developing transforming all the spheres of human being. This trend is defined as the digital economy. The digitalization affects the economy as well as the law (Simpson & Murphy, 2016). The new social relations and appropriate legal framework are arising in the digital field. Some foreign scholars also advice to use computers in prevention crimes (Abbott, 2018). It is likely that in the nearest future three generation of human rights developed by K. Vasak, the famous Check lawyer, might be complemented by digital rights (Domaradzki, Khvostova, & Pupovac, 2019). In that regard we consider that it is important to analyze an e-signature as a new method of identification and authentication within the digital age.

We should notice that there are both individuals and business entities in the civil commerce, but a digital signature is available only for individual's identity. In the case of legal entities public organisations, we can determine just an executive officer that is capable for doing business or exercise functions.

Besides, it is worth noting that before October of 2019 the Russian legal system includes properties (including certified securities, cash money), other property (including non-cash money, book-entry rights), property fights, deliverables, intellectual property, intangible benefit. But then digital rights also were included to this system becoming a separate legal object.

We cannot define what are the digital rights relying on the Russian legislation. Nonetheless, analyzing the actual legal acts it is impossible to separate digital rights from any informational system. It is confirmed by the fact that a user of digital rights can exercise these rights as well as deal with them only in accordance with regulations and within this informational system. In addition, a holder of digital rights has to satisfy the legal requirements.

A digital signature has some specific features. Firstly, a digital signature can be in the possession to an individual person. Secondly, an e-signature relates to a precise person and it is unalienable from him. A transfer to other person, pawn, assignment, buy/sell or any other right alienation are impossible. Thirdly, an e-signature as a digital right is displayed in an material object—token (portable information asset) or in a personal computer (in this case a digital signature is considered as an integral element). Fourthly, a process of using is strongly limited. The start of using is defined by the time of allowing access by the licensed certification authority. And the end of using is determined by the day when this centre blocks the access according to the settlement.

## 2. Problem Statement

The main idea of our research is to determine the role of a digital signature in the system of a modern document flow. It should be noticed that we define the document flow as the interaction procedures between individuals, sole proprietors, organizations and government through the papers exchange in digital form. It has more significance in legal and financial consulting as well as in other spheres of business.

## 3. Research Questions

The research explores three main issues. The first issue considers the legal force of a digital signature in comparison with a handwriting counterpart of individuals, sole proprietors, managers of organizations

and officers. In other words, whether a legal nature of digital signatures from its non-digital predecessor. The second issue is devoted to e-signatures' classification depending on a security level. This method implies using two types of keys: the first is used to create an e-signature while the second – to make sure the current e-signature belongs to an authorized person. These keys are the number of symbols that content some data about its owner of a key certificate. It means that the completeness of data depends of an information complexity that was encoded earlier. The authentication and identification are based on these figures. The final issue relates to the application field of an e-signature according to its type. It means that somewhere we can use a simple e-signature but, in some situations, we have to take enhanced digital signature to confirm our identity and intention of a person. The forth issue is devoted to the comparison of a digital signature with other trends in technological developing (for example, it covers using blockchain technology in election process, function of electronic government and implementation of computerized recognition that is used by enforcement agencies) (Rio, Moctezuma, Conde, Diego, & Cabello, 2016).

#### **4. Purpose of the Study**

The main goal of our study is to establish the nature and the role of an e-signature within the digital economy. The achievement of the study facilitates improving the using of a digital signature in practice. It is also a factor for future strengthening the Russian economy.

#### **5. Research Methods**

The comparative law method, cybernetical method as well as the doctrinal law interpreting method were used in the article. Using of the comparative law method is essential for a comparison the e-signature within the Russian legal framework with its counterpart in other legal systems. It lets us analyse domestic and foreign legal doctrine, legislation, judicial and compliance practise connected with the using of e-signatures. This approach gives the answer on the issue about a legal force of a digital signature in Russia and in the common law countries, in Great Britain, for example (Mason, 2018). Due to doctrine interpreting of law we analyze the Russian legislation about an e-signature appliance, identify authorised officers and organizations that control this sphere. We use the cybernetical method to define a digital signature either the way of authentication as well as an important institute of the digital economy, to find out the corporate information system's structure. Using of all these approaches let us form the comprehensive and precise conception of a digital signature.

The author uses both national and foreign sources:

- The Constitution of the Russian Federation;
- international agreements in the field of the intellectual property protection;
- Russian civil legislation;
- laws in the field of the IT and mass communication;
- legislation in the digital signature;
- statutory acts in that regulate enrolment of sole proprietors and business entities;
- tax legislation;
- currency legislation;

- on-exchange trading laws;
- delegated legislation;
- judicial practise;
- legal doctrine.

## 6. Findings

Based on the outcomes of the study we can draw the conclusion that:

1.The legal force of an e-digital signature in our modern conditions is equal with its handwritten counterpart. The analyse of Russian and foreign legislations and the code of legal practice confirm this statement. Nevertheless, a digital signature has a confined area of application in comparison with its handwritten counterpart. In other words, in some cases, we can execute our papers only by hand.

2.The handwritten signature is enough standardised and can be implied in many cases. At the same time, the digital signature is used only for committing simple acts. On the one hand, it is enough easy-to-use, but on the other hand, it needs to define and verify identity data.

We can divide the e-digital into qualified and unqualified. Qualified e-signatures are much more complicated and are strongly coded. And at the same time, unqualified digital signatures are related to simple categories.

3.An electronically arranged signature can be applied in authentication and identification process, when we apply and receipt different document, interact with clients of financial institutes, participate in tendering and in many other cases.

A digital signature is not a new phenomenon. It has been used since 2011 when the law about the digital signature was adopted. Nevertheless, in modern conditions an e-signature is becoming an integral part of society, economic and government.

4. By now taking into consideration the legal amendments an e-signature is included to digital rights that form a system of civil rights. A digital signature as a digital right relates to a precise person and it is unalienable from him. All the settlements that change a right holder are declaimed invalid. The period of using is confined. A person can start using the e-signature after allowing access by the licensed certification authority. And the end of using is determined by the day when this centre blocks the access according to the settlement. The relations between e-signature's holder and a special authority are contractual.

5. Before the using the e-signature a holder has to approach to a special software. They are usually delivered by the licenses. These relations are regulated by the intellectual property law. By the way, it is not obligatory to sign a lot of contracts that makes easy using the e-signature in a web application.

## 7. Conclusion

In conclusion, we have to pay attention to developing prospects of an e-signature within the digital economy. In our opinion, the nearest future the implementation of a digital signature would be enhanced due to simplifying of data exchange procedures. In this regard, we should pay attention to the fact that in many countries it is available to use evidences based on a digital signature in criminal procedures (De

Busser, 2017), as well as in the activities of the tax authorities (in particular, in the Federal Tax Service of the Russian Federation).

The digital signature dramatically simplifies the cooperation between individuals, sole owners, legal entities and tax service. The applying procedures have become much simpler than in any situation where. Now personal attendance is not obligatory, it is enough to sign any documents by a digital signature. If earlier a person had to apply on a paper, now it is possible to do any requests to tax services due to a personal account. It is very simple and takes just a few minutes.

The sphere of application of an e-signature is wide:

- a registration of a sole proprietors, incorporation as well as a termination of business;
- introduction of amendments to the Uniform State Register of Legal Entities;
- filing of application to correct mistakes in the Uniform State Register of Legal Entities;
- a notification of a tax authority about any organization's activity;
- applying balance sheet.

It is also likely that using an e-signature would become our obligation rather than a right. At the same time, we can not definitely claim that handwritten signature would be totally replaced by an electronically arranged counterpart. There are some reasons for it. Firstly, some technological failures could be appeared. And secondly, we cannot totally refuse from a traditional way of authentication and identification because of high risks of cyberattack. The danger of cyber threats is becoming acuter in spite of international measures to meet these issues (Kim, 2017). Consequently, in our opinion, a digital signature as an integral part of the digital economy would be developed. But at the same time, this phenomenon would not replace its handwriting counterpart.

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