SUMMARY OF THE STUDY: ”USAGE OF QUALIFIED ELECTRONIC SIGNATURE WITHIN EUROPE UNION”

Digital signing (referred to hereinafter as electronic signing) is becoming an increasingly universal technical functionality used in the sphere of public administration and business. Users of electronic signing can securely enter into agreements with other parties and certify their intentions without the logistical problems presented by paper documents. While electronic signing is becoming commonplace in Estonia, many other countries are only halfway there. In these other countries, electronic signing often employs different technical and organizational solutions.

From July to December 2015, Ernst & Young Baltic AS conducted a study on the use of electronic signatures in the EU’s 28 member states, Switzerland, Norway and Iceland. The goal of the research was to gauge the percentage of working age residents in the aforementioned countries who use electronic signing.

Any discussion of electronic signing must necessarily differentiate between the various kinds of signatures and signing methods. Often the concept of an electronic signature is applied to a scanned document (such as a .pdf) that bears a handwritten signature, yet this cannot be treated as an electronic signature in the sense of modern information security standards, as the evidential value of such a signature is even lower than that of a conventional signature on a paper document. Definitions of advanced and qualified electronic signatures[1] are now in use, of which the most recent one is comparable to notarization in terms of technological and organizational structure as it can be used to ascertain, with a high level of evidential value, the person who gave the signature. The study focused on the last-mentioned two types of electronic signing.

Based on the methodology set out in the study terms of reference, source data was gathered from service providers in lists of EU trust service providers. As the trust service providers do not have direct data on the electronic signatures given or the electronic signers, data was gathered on the valid electronic signing certificates and the scope of the use of these certificates, and used, if possible, to estimate the number of signers.

Obtaining quantitative data with sufficient reliability and determining the percentage of signers proved possible for 14 countries. Information from other countries did not allow determining the number of persons who used electronic signing and their percentages. Still, it did prove possible to obtain important information regarding electronic signing practices in these other countries for similar analysis in future.

As it turned out in the course of the study, various forms of electronic signing are widespread in different countries, including advanced electronic signatures, which is based on a certificate issued to a physical person, but not issued by a qualified trust service provider. Often use is made of solutions where persons are indeed authenticated by way of certificate and the user confirms an official procedure in the information system but such actions cannot be treated as electronic signing. Such solutions have often been in longstanding use in many countries and users have grown accustomed to them, and thus a changeover to new services would mean a major change for society in general.

---

[1] Concepts and terms related to electronic signing are more precisely defined in the Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC

As a result of the study, four countries (Estonia, Luxembourg, Iceland and Austria) were identified in the observation group where the electronic signing users were estimated as making up at least 10% of the working-age population. In the other countries, the number of electronic signatures was fewer, or it was not possible to gather enough information about the country. From this, it cannot be concluded that electronic signing is not in use at all, but that in a number of the countries is used a kind of electronic signing that conformed to lower security requirements and were not in the scope of this study.

One result of this study is that it yielded a better understanding of the spread of electronic signing and the broader problems related to measuring the penetration and use of electronic signing, of which the most important ones are the varying interpretation of concepts and principles related to electronic signing in different countries and different professional communities and the resulting different approach to a number of electronic signing requirements. Such examples include the strictness of the timestamping requirement and the importance and timing of OCSP in the electronic signing process. The study provided backing for the conclusion that a necessary step for promoting the spread of electronic signing is to highlight the differences and advantages in comparison with conventional signing and of clearly communicating this information. The legal systems of many countries equate electronic signatures with handwritten signatures, but in fact qualified electronic signing represents a significantly stronger connection between the signer and the data being signed. This property puts electronic signing requirements in a new perspective and creates opportunities for broader use of electronic signing.

As a result of the study, a number of recommendations were made with regard to carrying out similar studies and promoting electronic signing in some EU countries, of which the following can be listed as the most important:

- It is of critical importance to harmonize the concepts related to electronic signing and interpretations of use of these concepts – furthering use of electronic signing will require a rise in public awareness of the nature of electronic signing and its advantages over conventional signatures. It should be stressed that a qualified electronic signature has the same legal force as a conventional signature, but gives much greater certainty regarding the connection between the person and the document, and is also valid across national borders.
- Similar studies should be conducted in future on the spot in member states, as based on the different electronic signing practices and customs, the country itself (regulator or supervision body) will also have a better understanding of the current situation. Internal communication within the country would also be much more productive.
- When evaluating the number of signers, qualified and other electronic signatures should be differentiated and gathering of other statistical data related to electronic signing should be considered, such as the number of e-ID cards with valid certificates.

If there is a desire to promote broader electronic signing, a holistic set of technical and organizational solutions should be developed – an environment that enables qualified electronic signing, as it were – that would meet all of the requirements set forth in the technical specifications on electronic signing. Besides qualified certificates, it should also encompass the means for electronic signing (chip card, SIM card etc.), the necessary hardware and software, use of qualified trust services (including timestamping services and OCSP service) and, ultimately, also the means used for processing (creating and validating) electronic signatures given in a standard format.