

# **Electronic Legal Transaction: Comparative analysis with emphasis on the use of electronic signature under the EU law and laws of the Czech Republic and Germany**

## **Abstract (English)**

### *Objectives.*

This thesis provides a comparative analysis of electronic legal transactions under the EU law and laws of the Czech Republic and Germany, while emphasising the utilisation of higher versions of electronic signature, especially of a qualified electronic signature, which has legal effects of a handwritten signature in legal transactions performed by electronic means (Chapters 6 to 10). At the same time, increased attention is also paid to entirely novel concepts of advanced and qualified electronic seal, which are intended exclusively for use by juristic persons. The laws under scrutiny are based especially on recently adopted Regulation (EU) No 910/2014, known as eIDAS.

To provide a general background, the comparative analysis is preceded by a theoretical part (Chapters 2 to 4, partially Chapter 5), dealing with the concept of legal transactions (also termed “legal acts” or “legal action”) in general, while also focusing on the traditional handwritten signature and its functions, especially in view of the German and Czech legal doctrines and with occasional references to common law, as well as to requirements ensuing from various attempts at introducing an electronic form of signatures.

Handwritten signature is a concept originating in customary law. Its use has mostly established itself as a natural process, serving for the benefit of both the signing person (the “signatory”) and the person relying on the signature (the “relying person”), also within autonomous relationships of private law. The signature ceremony has developed into a confirmation of a legal act made by the signatory, where the ensuing deed bearing the signature can also play an evidentiary role. Signature is also used for legal acts which – based on the law or mutual agreement of the parties – require that their contents be captured in a more permanent form, with the possibility of documenting or proving the acts. The benefits should then prevail over the risks and burdens associated with formality.

The entire thesis is therefore based on two interrelated questions, or challenges. The first general question is whether a qualified electronic signature meets the requirements for an analogously acceptable distribution of benefits and risks between the signatory and the relying person as in the case of a handwritten signature. This relates to the main dilemma discussed in the text – to whom should potentially be attributed a legal act if the authenticity of a signature attached is later repudiated by the person who allegedly signed the document? The second general question is whether a qualified electronic signature is equivalent to a handwritten signature in terms of its functions and properties. If the second question is answered in the affirmative, this should probably also imply a positive answer to the first question. This, however, will not be necessarily true *vice versa*. Consequently, an acceptable distribution of risks and benefits between the two persons is the main challenge, while functional equivalence only plays a subsidiary role. Nonetheless, a theoretical analysis of a signature (Chapter 4) is what determines the actual properties, in particular, of a handwritten signature. On a similar note, a theoretical analysis of the concept of legal act implies the overall requirements on such an act (Chapters 2 and 3) as they have been established especially in private laws of Germany and the Czech Republic, and it is also useful for getting the idea what a legal act performed through electronic means is as well as for evaluating such an act. This is also supported by an analysis of the applicable laws in the two mentioned countries (Chapter 5).

### ***Contents.***

In the Czech environment (Chapter 2), the notion of *legal act* (*legal transaction*, *legal action*) is used both in a broader general sense (2.1) in theory and in a narrower sense (2.2) in private law. A historical probe has also been made into the General Civil Code (2.3), with a view to explaining the foundations of the contemporary Czech theoretical system and also looking back at the inception of notions that were developed in early 19<sup>th</sup> century, especially in the German language. These notions were then developed for use in the German Civil Code, the BGB.

In German doctrine, the notion is typically used within private law (Chapter 3), where it is designated in two closely related ways, specifically as *das Rechtsgeschäft* and *die Willenserklärung*. The text shows how the German doctrine differs from the Czech one also by employing a slightly different structure of terminology. A legal act (a legal transaction) has a much more specific quasi-normative substance in the German

doctrine, where it typically refers to autonomous establishment of regulated relationships between persons. In his theoretical concept, *Flume* places a characteristic emphasis on legal acknowledgment, i.e. the permissibility of contents, which – according to *Flume* – better conforms to the legislative maxim of *ius suum cuique tribuere* also in private relationships (3.3.2), as their creation would otherwise be excessively affected by “self-aggrandisement” (*Selbstherrlichkeit*). *Flume* requires that the parties act mostly using various “figures”, which the applicable law pre-established as samples of legal action, for example as standard types of contracts. A similar channelling function of law is also found by *Fuller* in common law (4.4); however, he mostly focuses on the legal certainty associated with the nature of the relationship and the possibility of resolving a potential legal dispute. However, *Flume* otherwise deals with protection of private autonomy and private law as a sector. He rejects a direct effect of constitutional norms as well as their indirect effect (*die Drittwirkung*) because he believes that they, as such, do not fit into private law; what should rather be directly used are rules and principles immediately governing private law which correspond to the above norms, including especially the concept of good morals.

For *Flume*, legal acts play an important role in an individual’s self-determination, albeit on the background of existing legislation. In the German doctrine, the process of establishing the theory of legal action took at least a century. The critical point lies in the relationship between inner will and its outer manifestations. In particular, the possibility of an error (also termed “mistake”) on the part of the acting person is then likely to be, in theory, most similar to the dilemma discussed in this thesis, i.e. to whose detriment will be a potential repudiation of authenticity of a signature by the person who allegedly attached it. Similar to an error, it is not possible to unambiguously morally attribute a failure or fault, and the legislature has no reason to side with one of the parties to a private legal transaction. The practice now prefers to construe legal action based on the recipients’s “objective horizon” (3.2.1) and the theory of validity (*Geltungstheorie*, section 3.3.4) of legal action. However, *Flume* does not find any of the theories entirely satisfactory as the matter in question entails an *a priori* unresolvable conflict between the principle of self-determination and the principle of self-responsibility of an individual (3.3.5).

Chapter 4 provides an analysis of a handwritten signature and alternative electronic forms in terms of theory of law. Many of the requisites of a signature are

often not explicitly laid down in the legislation and are only elaborated in the doctrine. The doctrines of the Czech Republic, Germany and common law are discussed in the thesis. A summary is provided of the types of techniques used to implement electronic signature which find various degrees of recognition. Electronic signature is also discussed from the viewpoint of cryptology, which considers a “digital signature” to be a proof of the origin of data or a data message, or authentication of the originator, as the case may be. In terms of electronic practice, this chapter reflects on the possible need for setting a commitment or signing policies.

Chapter 5 then proceeds to the notion of *electronic legal transaction* (“act”) and its explication, especially in view of the jurisprudence and private law applicable in the Czech Republic and Germany. Both these jurisdictions refer to an informal legal act as a standard. The German doctrine provides a more detailed theory (5.2.1) of legal acts made by electronic means, with classification to electronically transmitted expressions of will (5.2.1.1) and electronically created expressions of will (5.2.1.2), which may be automated. In respect of the written form of a legal act, both the structure and terminology slightly differ. In Czech law, attention must be paid to the notion of *writing* (5.1.3), while German law is characteristic using the term *electronic document* (*elektronische Dokument*, section 5.2.5.2). The applicable laws of the two countries substantially differ in terms of the requirements for a written form of a legal transaction, where Czech law appears to satisfy itself with a simple electronic signature (5.1.5), while German law requires a qualified electronic signature (5.2.5.2). This is why the Czech legislation is criticised in the conclusions (5.3 and 11.7.3.4) of the thesis.

Chapter 6 focuses on the new EU Regulation (eIDAS), and specifically on its part denoted as *trust services*, which covers notions and concepts derived from electronic signature. Interpretation is provided in terms of the eIDAS Regulation itself and of the European Union law. The quantity of described terms and detail of elaboration ensue from the complexity of the framework established by the Regulation, and from the number of questions and issues that arise within this novel piece of legislation, the need to not omit any legal question that might arise in the use of higher versions of electronic signature on the part of the person attaching his/her signature (or seal) – the “signatory” or “creator of a seal” – and the relying person. The introductory sections (6.1 and 6.2) provide primarily the first basic insight into the Regulation. The subject and scope of the Regulation (6.3) are explained, along with its application.

Explication is provided for the new definition of simple electronic signature (6.4) and its sense. This is followed by description of authenticating electronic signatures (6.5), in particular an advanced (6.5.1) and qualified (6.5.3) electronic signature, where the latter has legal effects equivalent to a handwritten signature. The notion of electronic seals (6.6) is an absolute novelty. The thesis also provides a new opportunity for discussing the purpose of introducing an advanced electronic seal (6.6.4), which may also lie in enabling electronic confirmation of a legal act directly by the given juristic person, but rather only within subsequent national implementation. An electronic time stamp (6.7) is an additional service. Explanation is also given for trust services and their providers (6.8). Trusted lists (6.9) are crucial for national and, particularly, for cross-border legal transactions. Higher versions of signature may require qualified electronic signature creation devices (6.10). The Regulation also provides in general for the subject of (technical) validation of a qualified electronic signature (6.11). The Regulation establishes responsibilities of the trust services provider (6.12) and of the Member State (6.13). A separate issue is the duty to accept electronic transactions bearing an electronic signature (6.14). The evidentiary effects of the higher versions of electronic signatures and seals are made more clear in comparison with the evidentiary value of other regulated digital objects (6.15). The criticism of various shortcomings of the Regulation is divided into 15 individual issues (6.16). The author presents a possible status hypothesis (6.17) and suggests that the author of the draft might have been influenced by the French concept used in the *Code civil*, where numerous legal duties are implicated without further ado by technical standards and specifications.

Chapter 7 briefly describes implementation in the Germany of the parts of the eIDAS Regulation examined in the thesis, with a view to enabling subsequent comparison with Czech implementation. The manner of implementation always indirectly implies the way how the eIDAS Regulation is conceived and construed itself (Chapter 6). Following a description of the process of adopting (7.1 and 7.2) the belatedly enacted *eIDAS-Durchführungsgesetz*, the main attention is focused on the *Vertrauensdienstegesetz* (7.3), embodied in the former. A minor amendment was also made to the German *Zivilprozessordnung* (7.4). No implementing decree has yet been adopted in Germany.

Chapter 8 comprises an overview of similar implementation of the eIDAS in the Czech Republic, especially through transposition Act No. 297/2016 Coll., on trust

services for electronic transactions. Most attention will likely be paid to the adapting and receiving provisions (8.2). An analysis is also provided of the specifying and supplementing provisions (8.3), as well as the institutional and competence provisions (8.4) and provisions on sanctions (8.5). The transposed terms are used in dozens of amendments (8.6) throughout the legislation; but no changes were made to the rules of evidence (8.7). In the conclusion of this chapter, an overview is provided of topics which the author of the thesis believes to have been omitted during implementation (8.8) and provisions that were cancelled without explicit replacement (8.9), thus bringing smaller or bigger changes to the legislation of the Czech Republic.

Chapter 9 deals with certain options for legal acts executed with an electronic signature under the laws of the Czech Republic following the effective date of the transposing and amending law related to the eIDAS. Certain legislative comments are provided (9.1). A brief note is made on the background security of drafting documents by public-law creators (9.2), as an important prerequisite for the legal presumption of accuracy of public instruments. Certain options are mentioned in terms of electronic filing and fulfilment of the requisites within electronic filing (9.3). A concise discussion is dedicated to the possibilities of private legal transactions (9.4), including a suitable concept of evidentiary effects of a qualified electronic signature.

Chapter 10 provides a basic summary of the options for private electronic legal transactions made by a juristic person under the Czech legislation. The legislation is based on the fiction theory and requires that transactions be made for a juristic person by its representatives (10.1). The basic theoretical possibilities of the concept of electronic agent are debated (10.2). It becomes clear that a link to a specific representative is generally not suitable and practical in the case of automatic operation of juristic persons. Legal acts in electronic commerce (10.3) are based on the EU law, which does not require identification of a natural person acting for a juristic person as its representative. The analysis shows that an advanced electronic seal could be used optionally to technically secure the provision of mandatory information (10.3.3). In the case of other electronic agents (10.3.4), the use of advanced or qualified electronic seals is possible, but need not suffice. At the end of the chapter the thesis discusses the requirements for a written form to be met in the case of legal transactions made by a juristic person by electronic means (10.4).

### ***Conclusions (results).***

The thesis implicitly concludes that implementation of a qualified electronic signature is a complex issue (cf. Chapter 6 and its scope). This fact, together with the need for obtaining the necessary electronic devices, is a burden for the signatory which is unparalleled for handwritten signatures and is probably the main reason for the low penetration (beginning of Chapter 11 and section 11.7.4) of higher versions of electronic signature.

The methodology of electronic signatures ensures independent professional control of each of its component parts and thus provides the signatory with the possibility of making autonomous legal acts, together with an assurance of his/her autonomy. However, the eIDAS Regulation is incomplete (11.5) as it does not provide, for example, for the security of signature creation applications or of the system environment. This is why the signatory should arrange voluntarily for further needs of his/her computer security. In the public sector, additional security needs should also be arranged for by the law (11.7.3.5), as this is required by the legal presumption of accuracy of public instruments.

The answers to the two aforesaid questions dealt with in the thesis, i.e. whether a qualified electronic signature meets the requirements for a similarly acceptable distribution of benefits and risks between the signatory and the relying person, and whether it provides a functional equivalence to a handwritten signature, thus differ in terms of both the legal rules and substance. An affirmative answer in terms of the law is provided by the Regulation itself (11.7.6); however, given the gaps in its provisions, various objections can be raised in terms of substance and evidentiary value. The mentioned incompleteness of the eIDAS Regulation does not benefit the relying person either, as it reflects in the latter's lesser legal certainty.

Repudiation of authenticity is still rare in practice (introduction of Chapter 11), and this is also true of electronic signatures. In private law, the dilemma in repudiation of authenticity is weakened by a duty to prove a cause (11.2), while in public law it relates to the background security of the public-law originator (11.1), which however must be real.

This conclusion corresponds to the multiple gaps in the Regulation (11.5). The thesis deals with the possibilities of overcoming the gaps by detailed national

implementation, i.e. by means of supplementing and specifying provisions. The conclusion therefore first provides a general overview of the legal arguments for and against a more detailed national implementation in the Czech Republic (11.6), followed by specific suggestions for supplementation (11.7.3), also as regards repudiation (11.7.3.2) and automation (11.7.3.3), revision of private law in the Czech Republic (11.7.3.4) and recommendations for public law (11.7.3.5). Different substantive implementation in Czech law is also advocated by comparison with German implementation (11.7.1).

However, even after supplementation, there will still likely be certain residual risks, also given the fragility of computer systems (introduction, Chapter 11). Instead of ever laying down further details and specifying more duties, the author therefore also suggests entirely different approaches for technical and legal development which would allow to avoid the dilemma of repudiation or deal with it otherwise. An *a priori* limitation of applicability (11.3) is proposed based on the type of the relevant act or the financial limit. An alternative could be to transform the relevant transaction into a contestable process (11.4).

The possibility of creating a qualified signature by distance means (11.7.4) could popularise the use of this type of signature; however, it does not, in itself, resolve the legal and technical issues.

The conclusion also comprises the notions of preconception (11.7.2.) and electronic legal acts by a juristic person and electronic seal (11.7.5) discussed below.

Partial summaries are also provided in the conclusions of the individual chapters.

### ***Original findings.***

In terms of theory of law, the greatest benefit of the thesis lies in a comprehensive description of the properties and functions of a signature (Chapter 4). It summarises and interlinks the findings of the Czech, German and common-law doctrines. Moreover, the thesis reflects on the types of techniques used to implement electronic signature, as well as signature “commitments” and “policies”, i.e. requirements which more often follow from the various manners of implementing an electronic signature, rather than from the practice of handwritten signatures. Chapter 4 shows a concept of signature in terms of jurisprudence which could also perhaps be

used for new implementing techniques, and thus also for legal considerations of various types.

In respect of the dilemma of repudiation of signature, the legal doctrine contributes on the most general level by analysing the conflict of the principles of self-determination and self-responsibility (3.3.5). The former principle requires a superiority of the authentic inner will of an individual, while the latter accentuates the same individual's responsibility for the actual expression of will, and calls for restraint in such expression. The analysis further reveals that a legal transaction requires the individual's preconception (11.7.2) as to how the addressee will understand it in legal terms. Electronic legal transactions might take even currently unknown forms provided that the acting person and the relying person will be able to learn in advance what legal significance will be attached to the particular expression of will or that this will be sufficiently clear in view of the common usage. The applicable law confirms these theoretical findings in specific cases, e.g. in respect of the duty to provide advice (7.3.3) of the legal effects of a qualified electronic signature or setting the duties to provide information on the individual technical steps leading to execution of a contract (under the EU e-Commerce Directive, section 10.3.1). A similar role is played by the normative references to usages or even the established practice of the parties (e.g. Sections 545 and 556 of the Czech Civil Code).

In terms of implementing EU legislation adopted in the form of a regulation, the thesis surprisingly points out that in order to achieve uniform effects of such a regulation in all the EU Member States, it might be necessary in the Czech Republic not only to exercise self-restraint in terms of not adding any provisions to the subject of the legislation, but even – in contrast – adding such provisions that would supplement the rights and obligations which follow in other EU Member States from sources that are not automatically considered sources of law in the Czech Republic. Such sources could be technical standards and specifications, dozens of which have been published in connection with the eIDAS Regulation. Their publication corresponds to the methodical concept of the eIDAS Regulation. This is why the thesis also states a hypothesis that the proponents of the draft Regulation in the Commission might have been influenced by this concept, which follows especially from the French *Code civil* (6.17).

The thesis describes a so called “New Approach” developed in the EU law regarding the not strictly obligatory status of the technical standards, which is relatively

unknown in the Czech Republic, and uses that approach when describing interpretation of Art. 29 eIDAS (6.10.2). Compliance with the technical standards gives rise to a presumption of conformity and increases legal certainty, but does not strictly limit the development of products or services only within the technical standards. In terms of theory of law, the presumption of conformity is specific in that it represents alternative compliance with the disposition part of the legal rule, rather than with its hypothesis, as is true of legal presumptions.

A novelty introduced by the eIDAS that deserves attention are “trusted lists” (6.9) and their form, as they must be established “in a form suitable for automated processing”, which is also an ordinary legal form of keeping a trusted list. This does not exclude that the list might also be human-readable or quasi-human-readable; nonetheless, automatic processability results not only in the intended use for automation (especially evaluation of validity of electronic signatures), but also secondarily implies the easy translatability of the contents into any language, especially into the official languages of other Member States. Similar legislative solutions and underlying technologies could also be used to create extracts (copies of entries) from official registers of the EU Member States; this would avoid the need for their certified translations in cross-border use. This new form and especially its ordinary and legally decisive nature replaced the previous dichotomy of machine-processable form and human-readable form of trusted lists, where the latter form was legally decisive.

In conclusion, different methods than those used in the eIDAS Regulation are suggested for a practical solution to the issue of repudiation of signatures. This is true, on the one hand, of the *a priori* option of restricting the applicability of an electronic signature by registering such limitations in the qualified certificate. The restrictions could take the form of financial limits (6.16.10, 11.3) or restrictions based on the type of activity (6.16.9, 11.3). A restriction based on the type of activity could have considerable significance, e.g., for distinguishing professional and private use.

Another method that could reduce the risks borne by persons using electronic signature, is the suggested transformation of a one-off act (signature) into a process consisting of several steps (11.4). Practical and legal implementation can take various forms.

The thesis indicates a different possible sense and purpose of introducing an advanced electronic seal and qualified electronic seal than that currently advocated by the Czech legal doctrine (6.6.4). It is suggested that the mentioned seals should also serve, in legal terms, the same purpose as that of a signature in general, save for the fact that this legal effect is not directly proclaimed by the Regulation, but it is rather left to national implementation whether it will admit such a consequence. In terms of automated creation, an advanced electronic signature and an advanced electronic seal are generally equivalent, which is also the approach used by the eIDAS Regulation itself (6.6.4). The two concepts mentioned above also overcome the contradictions (equality, non-discrimination) of the current interpretation that have arisen at the level of fundamental rights, both in the EU and the Member States.

Other than in the use cases specified in the eIDAS Regulation itself, an advanced electronic seal is also applicable to confirm mandatory information provided by e-shops operated by juristic persons (10.3.3), even if a legal transaction is involved. However, its use is legally optional – it is a voluntary security mechanism, similar to (qualified) certificates for authentication of websites, which are now also covered by the eIDAS Regulation (in terms of their issuing).

In respect of legal transactions taken by an electronic agent of a juristic person, the thesis indicates that it would admittedly be a natural step to omit the link to a specific natural person. Where legal transactions are taken by an e-shop, the EU law itself does not require the involvement of a representative (10.3.1). In conclusion, it is suggested (11.7.5) to lay down in the Czech laws similar provisions also for other cases of legal acts taken by an electronic agent of a juristic person.

## **Keywords**

Legal transaction, legal transaction of legal person, signature, electronic signature, electronic seal, legal theory of signature, eIDAS, electronic legal transaction, electronic transaction, writing, electronic document, electronic time stamp, authentication, identification, legal comparison, Czech law, the EU law, German law, qualified electronic signature, qualified certificate, QES, AdES, QSCD, QESeal, AdESeal, QESealCD, QTS, trusted lists, trust services, TSP.