

ELECTRONIC SIGNATURE IN COMPANY LAW OF BOSNIA AND HERZEGOVINA

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Abstract: *The paper analyzes the legal regulation of electronic signatures in company law in Bosnia and Herzegovina within the context of the digital transformation of the business system. An electronic signature serves to identify the signatory and ensure the integrity of the document, while the legal system recognizes its legal validity in electronic transactions. In Bosnia and Herzegovina, a regulatory framework exists; however, its functional and consistent application remains limited. The paper includes a comparison with Regulation (EU) No. 910/2014 (eIDAS) and other relevant documents of the European Union, highlighting the partial and indirect harmonization of domestic law with European standards. Furthermore, it analyzes the legal nature and types of electronic signatures, as well as their application in the registration of business entities. Special emphasis is placed on technical, legal, and institutional challenges, including system interoperability, personal data protection, and the legal certainty of electronic transactions.*

Key words: *Electronic signature, company law, digital transformation, eIDAS Regulation, qualified electronic signature, personal data protection.*

JEL classification: K22, K24

1. INTRODUCTION

Digital transformation of the legal and business environment has led to the expanded use of electronic signatures (e-signatures) in various legal fields, including company law. This phenomenon does not merely represent a technical improvement of administrative processes, but rather a structural change in the manner of expressing legally relevant intent in a digital environment, whereby electronic forms of identification are becoming an

integral part of modern company law infrastructure (Mahmutćehajić et al., 2007, p. 185). In this context, the question arises as to the extent to which legal systems possess the institutional capacity to ensure, through electronic means, a level of legal certainty comparable to that provided by traditional forms of signing.

Within the legal framework of the European Union (EU), Regulation (EU) No. 910/2014 (the eIDAS Regulation) establishes a unified legal framework for electronic identification and trust services in the internal market. The Regulation distinguishes between three levels of electronic signatures – simple, advanced, and qualified – whereby a qualified electronic signature has the equivalent legal effect of a handwritten signature in all Member States (Art. 25 of the eIDAS Regulation).

Consequently, the electronic signature is positioned as an instrument of differentiated legal certainty, whose application includes the electronic incorporation and registration of companies, cross-border recognition of identity, conclusion of contracts, and communication with competent authorities (Dumortier, 2016, p. 1).

The normative framework for the digitalisation of company law was further developed by Directive (EU) 2019/1151 amending Directive (EU) 2017/1132 as regards the use of digital tools and processes in company law. This Directive introduces the obligation to enable the online incorporation of companies and the digital submission of documents, while simultaneously strengthening cross-border data exchange through the system of interconnected registers. In this way, a digitally interconnected European corporate environment is established, based on the mutual interconnection of registry systems (Arts. 13, 16, and 22 of Directive 2019/1151).

Similarly, the legal framework in Bosnia and Herzegovina (BiH) is formally aligned with European standards regarding the legal recognition of electronic signatures; however, its practical implementation depends on the level of development of the institutional and technical infrastructure. The main limitations relate to the insufficient interconnection between electronic identification systems and registry databases, which reduces the efficiency of its application in legal transactions. In contrast, within the EU, the Business Registers Interconnection System (BRIS) ensures automated and mandatory data exchange between the registers of Member States, thereby providing a high degree of integration of the digital corporate infrastructure.

Based on the foregoing, the main hypothesis of this paper is that the effectiveness of the electronic signature does not depend solely on its formal legal recognition, but also on the degree of institutional and technical integration of trust service systems. The auxiliary hypothesis is based on the assumption that the limited interconnection of registry and administrative systems in Bosnia and Herzegovina constitutes a key factor contributing to the uneven practical application of qualified electronic signatures in company law.

2. METHODOLOGY

This research is based on a combined methodological framework integrating normative-legal, doctrinal-analytical, comparative-legal, and empirical approaches, with the aim of providing a multi-layered analysis of electronic signatures in company law in BiH and their alignment with the legal framework of the EU, with particular reference to the eIDAS Regulation.

The normative-legal method is applied to analyse the applicable legislative framework governing electronic signatures, electronic identification, and electronic documents at both the state and entity levels in BiH. This method serves to identify regulatory gaps, normative inconsistencies, and the structural fragmentation of the domestic trust services system.

The doctrinal-analytical method is employed to assess the conceptual and institutional structure underlying the implementation of electronic signatures. Particular attention is devoted to institutional competences, operational limitations, and systemic deficiencies, including fragmentation, insufficient system interconnection, and uneven administrative practice.

The comparative-legal method is applied in order to compare the legal framework of BiH with EU law, as well as with certain regional jurisdictions, including Croatia, Slovenia, and Serbia. These

systems were selected due to their varying degrees of alignment with the EU eIDAS framework, thereby enabling an analysis of different models of regulatory approximation and digital legal harmonisation.

In addition, the empirical component complements the doctrinal and normative analysis. A structured survey was conducted with the aim of examining respondents' level of awareness, attitudes, and practical experiences regarding the use of electronic signatures in legal and business transactions. The collected data were analysed using descriptive statistical methods in order to assess the functional dimension of the practical implementation of electronic signatures.

Accordingly, the research framework integrates normative, institutional, comparative, and user-oriented dimensions of analysis, enabling an assessment that extends beyond the formal legal framework to encompass its practical effectiveness and implementation capacities.

3. CONCEPT AND LEGAL NATURE OF THE ELECTRONIC SIGNATURE

The legal significance of the electronic signature does not derive from its technical form, but rather from its function to ensure the attribution of legal intent to the signatory and to guarantee the evidentiary value of electronic documents in procedures concerning the incorporation and registration of companies, changes to registry data, and the electronic adoption of founding acts and decisions of company bodies (Trnavci, 2009, p. 451). In company law theory, attention is drawn to the possibility of fully electronic execution of registration procedures as a means of increasing the efficiency of company formation, while at the same time emphasizing the legal, technical, and institutional limitations of such a model (Knaier, 2018, p. 307). In this context, particular importance is attached to issues of founder identification, authenticity of electronic documents, data protection, and interoperability of registry systems, given that the efficiency of digital procedures does not depend solely on the legal framework, but also on the degree of functional connectivity between competent institutions.

The eIDAS Regulation maintains continuity with the earlier Directive 1999/93/EC, whereby the electronic signature remains defined as a set of data in electronic form used for signing, while the legal framework is further specified through the concepts of advanced and qualified electronic signatures, including requirements of the signatory's sole control, the possibility of using remote solutions, and the establishment of a list of certified qualified devices, thereby strengthening

legal certainty and cross-border recognition within the EU (Dumortier, 2016, p. 19).

The eIDAS Regulation establishes a unified legal framework for electronic identification and trust services within the internal market. However, its normative scope does not extend to the harmonisation of rules on the form of legal transactions or registration procedures; instead, it is limited to the obligation of mutual recognition of electronic signatures, while preserving the regulatory autonomy of Member States with regard to national formal requirements and registry procedures.

In this regard, Recital 21 of Directive (EU) 2019/1151 explicitly confirms that it does not harmonise rules on the form of contracts or national registration requirements. Consequently, national rules prescribing written form, signature authentication, or notarisation remain in force, as the eIDAS Regulation does not establish a general rule replacing prescribed formal requirements with electronic signatures.

This is particularly relevant for company formation procedures, where national legislation may require notarisation or certification of founding acts, identification of founders, and other formal requirements, irrespective of the use of qualified electronic signatures. Directive (EU) 2019/1151 further reinforces the digitalisation agenda by enabling the incorporation of companies without the physical presence of founders, whereby the qualified electronic signature serves as a key instrument of electronic legal communication with registration authorities (Article 13g(1) and (7) of Directive (EU) 2019/1151).

In the legal system of BiH, the electronic signature produces legal effect in company incorporation and registration procedures, in accordance with Article 3 of the Law on Electronic Signature of BiH (hereinafter: ZoEP BiH).

However, its effective application in practice depends on the functionality of registry systems and the degree of institutional interconnectedness of the competent authorities.

The Law provides for different levels of electronic signatures depending on the level of security and technical reliability, including signatures based on qualified certificates, in accordance with the nature of the legal transaction and the requirements of legal traffic (Article 4 of ZoEP BiH). In this framework, the qualified electronic signature represents the core instrument of legally relevant electronic communication with competent registration authorities, thereby occupying a central position in the digitalisation of company law.

3.1. LEGAL FRAMEWORK IN BIH

The legal framework in BiH stems from the constitutionally established division of legislative competences between the state and entity levels of government (RS and FBiH), which determines its fragmented and multi-layered structure. Within such a system, the electronic signature is not observed in isolation but rather as a horizontal legal-technical instrument that enables the digital operationalisation of this institute in company law. Together, these elements form a framework for the electronic incorporation and operation of business entities (Trnavci, 2009, p. 451).

In this sense, the relevant substantive legal framework is based on the same principle of recognizing the legal validity of the electronic form of corporate acts. Their common characteristic lies in the acceptance of the electronic form as an equal means of expressing will in corporate relations. It enables the electronic signing of incorporation acts, statutes, and decisions of company bodies. The company laws in BiH (FBiH and RS) further confirm the application of electronic signatures in corporate relations, allowing incorporation acts, statutes, and decisions of company bodies in electronic form to be considered legally valid, thereby positioning the electronic signature as a key instrument in the digitalisation of company law. In this context, the electronic signature functions as an instrument of corporate decision-making and the expression of the will of company participants.

The procedural aspect of this system is regulated by the Law on Registration of Business Entities of the FBiH and the Law on Registration of Business Entities of the RS, which stipulate that electronic registration applications for business entities are submitted to the competent registration authorities using qualified electronic signatures and standardised electronic forms. In this way, substantive legal solutions are operationalised through registration procedures, thereby ensuring their procedural application.

At the state level, the Law on Electronic Signature of BiH (hereinafter: ZoEP BiH) establishes a general legal framework for the recognition and legal effect of electronic signatures, including their use in legal transactions and proceedings before public authorities.

However, this law does not regulate company law in detail nor does it establish a unified system of technical implementation, but rather functions as a horizontal normative framework that complements entity-level regulations.

The differences between ZoEP BiH (Arts. 3–5), ZoEP RS (Arts. 5–6), and the Law on Electronic Document of FBiH (ZoED FBiH, Arts. 4–5) do not concern the legal effect of electronic signatures and electronic documents, as all legal regimes recognise them as legally valid. ZoEP BiH establishes a general framework, ZoEP RS provides a more detailed regulation of certification and trust services, while ZoED FBiH places normative emphasis on the electronic document as a central institute of digital business operations. These differences are primarily regulatory-technical in nature, as they affect the degree of system elaboration rather than its legal validity.

Although the basic rules on electronic registration are largely harmonised, their practical application depends on the technical maturity and institutional capacities of individual registry systems, which leads to a functionally uneven implementation of formally identical legal rules.

This confirms that normative harmonisation does not necessarily imply operational uniformity in practice.

Overall, the system shows that the legal framework of electronic signatures and digital registration in BiH functions as an integrated normative model, in which the electronic signature acts as a legal-technical mechanism for the authentication and verification of the will of participants in legal transactions, while its operational efficiency depends on the institutional and technical environment in which it is applied.

The fragmentation of the legal framework in BiH is, in practice, not reflected in normative conflicts but rather in the uneven technical and institutional application of the same legal standards, which leads to different levels of functionality of electronic registration procedures among competent authorities. In the case of a centralised or uniformly coordinated system, electronic registration procedures would be faster, interoperability of registers would be higher, and legal certainty for users would be improved through unified technical and procedural standards.

In this regard, it is necessary to more clearly establish a chain of functional connectivity: “company law → registration procedure → electronic signature → legal effect of the act”, whereby the electronic signature serves as an operational mechanism enabling the legally recognised transformation of the founders’ intent into an electronic form suitable for registration and for producing legal effects in the field of company law.

3.2. ANALYSIS OF THE AVAILABILITY AND APPLICATION OF ELECTRONIC SIGNATURES

In order to increase the accessibility of electronic signatures in BiH, an institutional framework has been established based on a network of registry and authorised bodies that enable access to qualified certificates for business entities.

Qualified electronic signatures became operationally available on 1 July 2024, when the IDDEEA BiH established the first registration offices for issuing qualified electronic certificates, thereby enabling their practical use after a prolonged period following the adoption of the ZoEP BiH.

However, certain segments of electronic services were developed earlier in practice, particularly within the Indirect Taxation Authority of BiH (UIO BiH), which implemented electronic services for tax reporting and business communication.

From an institutional perspective, the management of the qualified certificate system in BiH is primarily entrusted to IDDEEA BiH and the Indirect Taxation Authority of BiH, which operate in accordance with prescribed technical and security standards. In parallel, certain functions are also performed by the Tax Administration of the FBiH and authorised trust service providers, such as Halcom d.o.o., indicating the existence of a multi-layered institutional framework.

Such an institutional structure complicates the unified functioning of the electronic trust services system. The absence of a single certificate management system deviates from the integrated electronic identification model developed within the European legal framework.

Data from 2025 show that the Indirect Taxation Authority of BiH has issued more than 22,000 qualified certificates, indicating growing usage, but also persistent limitations in the broader business environment.

In practice, the use of scanned documents instead of electronically signed acts is still present, although they do not produce the same legal effect, which indicates insufficient user awareness (Cvejić, 2019, p. 3).

3.3. ELECTRONIC APPLICATION IN BUSINESS ENTITY REGISTRATION

An electronic application is considered legally valid if all submitted documents are prepared in the form of an electronic document that meets the prescribed technical and security standards, including requirements for ensuring data integrity, authenticity, and reliability.

The content of the application includes a set of general and specific data, as well as additional information relevant for tax and statistical authorities. The applicant enters the data in electronic form, while the competent registration court processes and enters them into an electronic database, including data that are forwarded to other competent institutions. In this way, a functionally integrated data exchange system is established between the court register and other public records.

The registration court is obliged, during the registration procedure, to verify the formal and substantive correctness of the submitted documents, including their compliance with the prescribed legal and technical requirements.

Scanned versions of paper documents do not meet these standards, as they do not allow reliable verification of the integrity and authenticity of an electronic document, and therefore do not produce the legal effect of an electronic document within the meaning of the relevant regulations. This confirms that the formal legal recognition of the e-signature alone is not sufficient for the complete digitalisation of company law procedures.

3.4. COMPARATIVE OVERVIEW OF ELECTRONIC SIGNATURE MODELS

The comparative analysis of e-signature models in neighbouring jurisdictions indicates different levels of digitalisation of procedures within company law, particularly in the areas of company incorporation, registration, and electronic communication with registration and tax authorities.

In the Republic of Croatia, the integration of e-signatures into the e-Građani system enables a unified digital identification of business entities and their interaction with judicial and administrative registers. This model has direct significance for company law, as it enables the electronic submission of registration applications, management of corporate documents, and digital fulfilment of companies' regulatory obligations (Terze, 2023, p. 129).

The Republic of Slovenia represents a developed model of digital corporate governance in which the court register, tax system, and corporate reporting systems are functionally integrated. This enables a fully digitalised life cycle of a business entity, from incorporation to dissolution, with minimal need for physical interaction with institutions. Within EU law, the digital interconnection of registers is further ensured through the use of the European Unique Identifier (EUID), which enables the unambiguous identification of business entities in cross-border electronic communication between

Member State registers (Art. 16 of Directive 2019/1151).

In the Republic of Serbia, a system of electronic registration of business entities was established in 2017, enabling the fully online incorporation of companies through the use of a qualified e-signature (Randjelović et al., 2021, p. 20). Shortly thereafter, by the end of 2018, the registration of single-member limited liability companies became technically possible. Following its successful implementation, electronic incorporation was expanded during the following year to multi-member limited liability companies as well (Jevremović & Petrović, 2023, p. 334).

The comparative analysis demonstrates that Croatia and Slovenia have highly integrated systems of electronic registration of business entities. Serbia applies a phased model of electronic registration development, whereas BiH has a multi-layered system due to the constitutional division of competences, which affects the varying levels of technical and institutional implementation of electronic registration procedures.

4. CHALLENGES OF ELECTRONIC SIGNATURE APPLICATION IN COMPANY LAW

Starting from the previously analysed normative and institutional framework, certain legal, technical, and institutional challenges arise in the application of e-signatures in the company law of BiH, limiting their full operational efficiency (Tang et al., 2026, p. 95).

In BiH, these challenges are particularly pronounced due to institutional dispersion and the uneven technical implementation of electronic registration, which complicates the consistent application of e-signatures. An additional problem is the limited integration of registry systems and the different levels of digital development of competent institutions, which may lead to legal and technical uncertainty in company registration procedures (Jašarević, 2023, p. 173). In such circumstances, an additional challenge lies in ensuring a uniform standard of legal certainty for electronically signed acts, while simultaneously preserving the flexibility of company law under conditions of digital transformation.

Furthermore, although the possibility of fully digitalising company registration procedures is considered in legal theory, practical limitations still exist regarding the degree of automation and legal integration of all procedural stages, indicating that the e-signature still functions within

a hybrid model between traditional and digital administration.

4.1. TECHNICAL CHALLENGES

The use of e-signatures in company law is conditioned by a number of technical requirements related to digital infrastructure, including the management of cryptographic keys and qualified certificates. Although these elements are formally designed to ensure security and legal reliability, their effectiveness in practice depends on the consistency of implementation across different technical environments and institutional systems.

Although cryptographic standards generally provide a high level of security, practical application in BiH demonstrates that challenges still exist, particularly regarding data exchange used by different public and private actors. It is precisely at this point that the core problem arises, since the lack of a unified and functionally interconnected system leads to interruptions in the continuity of electronic procedures in situations requiring the simultaneous participation of multiple systems and different legal entities.

This problem is particularly evident in the field of corporate governance, for example in the holding of shareholders' meetings through electronic sessions and electronic voting. Although the legal framework does not formally exclude the possibility of electronic participation, technical and procedural limitations arise in practice, especially with regard to shareholder identity verification, reliable electronic voting, and the recognition of powers of attorney in digital form. For example, a power of attorney submitted electronically often cannot be easily integrated into the voting systems of different registers or platforms, which results in the need for additional physical or hybrid verification.

These problems become visible precisely at the level of interaction between systems, where technical incompatibilities may directly affect the validity and efficiency of electronic transactions in company law.

4.2. INSTITUTIONAL CHALLENGES

As previously stated, in BiH the competence for issuing and supervising e-signatures is distributed among several institutions operating at different administrative levels, which contributes to the institutional fragmentation of the trust services system. Although such a structure formally increases access to trust services, in practice it leads to the stratification of the institutional framework for the management of qualified certificates.

The absence of a coordinated governance framework and unified operational standards results in the duplication of administrative structures and inconsistencies in procedural practice. For business companies, this may lead to additional compliance costs as well as differing administrative requirements depending on the competent institution.

Rather than the mere existence of multiple competent authorities, the essential problem lies in the limited degree of institutional coordination and the absence of harmonised procedures. This affects the predictability of administrative practice and the overall legal certainty in the application of e-signatures within company law.

4.3. LEGAL CHALLENGES

The legal framework governing e-signatures in BiH is characterized by a pronounced decentralization of competences and a multilayered normative structure, given the existence of regulations at both the state and entity levels of government. However, these differences do not constitute a normative conflict of legal rules, as the domestic legislation is, to a significant extent, formally aligned with the relevant EU standards. The primary issue lies in the inconsistent implementation and limited functional interconnectedness of the system, which, in company law, may give rise to legal uncertainty, particularly with regard to the legal effect of electronic documents and their use in registration and contractual procedures.

Business entities are often not fully certain about the practical legal effects of electronic acts, which hinders their broader application in commercial practice. An additional challenge is the partial and functionally limited harmonization of the domestic system with the eIDAS Regulation, due to which BiH has not yet been fully integrated into the European framework of trust services and the cross-border recognition of electronic identification and qualified e-signatures.

In this respect, the legal challenges are not confined solely to the issue of formal normative harmonization, but also encompass the effectiveness of implementation, legal predictability, and the integration of information systems, which constitute key prerequisites for the stability and legal certainty of company law in the digital environment.

5. EMPIRICAL INDICATORS

In FBiH, electronic business entity registration systems have been implemented through digital platforms of the competent courts, which has enabled the gradual introduction of electronic submission and processing of registration

applications, as well as the digital maintenance of court registers (BizReg FBiH, n.d.).

The registration procedure for business entities is increasingly carried out in electronic form, whereby applications are submitted digitally, while processing and decision-making are conducted within court registers. In this process, the legal validity, authenticity, and integrity of electronic acts are ensured through the use of qualified e-signatures (VSTV BiH, n.d.). Digitalization of the judiciary in BiH forms part of a broader reform process (VSTV BiH, n.d.), which includes the introduction of electronic tools into the work of registry courts, with the aim of increasing efficiency and transparency. Within these reform processes, certain judicial bodies participate in business registration digitalization projects in cooperation with international organizations and development partners, which is part of the broader modernization of the business environment (IFC, n.d.).

A key challenge remains the protection of personal data in the context of the use of e-signatures, whereby ensuring legal certainty in company law requires the consistent application of applicable data protection regulations in BiH, alongside the implementation of adequate technical and organizational security measures.

5.1. CASE LAW IN THE FIELD OF DATA PROTECTION AND ELECTRONIC IDENTIFICATION

Judgment of the Court of BiH No. S1 3 U 048584 25 U of 10 June 2025 was delivered in an administrative dispute between IDDEEA and the Personal Data Protection Agency of BiH, concerning the lawfulness of personal data processing during the development and testing phase of the electronic identification system. The key legal issue related to the application of data protection principles in the early stages of information system development.

The Court took the position that the principles of lawfulness, purpose limitation, and data minimisation must also be respected during the testing and development phases of information systems, particularly when processing sensitive data, including biometric identifiers. This approach is consistent with the data protection standards enshrined in the GDPR, as well as relevant European standards in the field of digital registers and identification systems, including Directive (EU) 2019/1151 on the digitalisation of company law. It was also confirmed that the institution managing the electronic identification system has the status of a data controller within the meaning of data protection regulations and bears

responsibility for the lawfulness, security, and transparency of processing.

Although the judgment primarily concerns personal data protection, its significance in the context of company law stems from the fact that electronic identification systems constitute an infrastructural prerequisite for the use of qualified e-signatures in business entity registration procedures and other corporate processes. In this regard, the judgment indicates that the legal certainty of e-signatures depends on the reliability and lawfulness of electronic identification systems, whereby data protection standards are regarded as an integral part of the functional infrastructure of electronic business.

In practical terms of company law, deficiencies in electronic identification systems may affect the security and reliability of electronic registration procedures, including the authentication of authorised representatives of business entities and the authenticity of electronic communication with registration authorities. At the same time, the judgment highlights the need to establish a balanced relationship between the protection of personal data and the development of digital public registry systems. In this context, the further development of the legal and institutional framework should be directed towards strengthening system interoperability, increasing legal predictability, and ensuring a high level of legal certainty in electronic business.

5.2. EMPIRICAL ANALYSIS OF THE SURVEY RESEARCH

Although empirical research does not constitute a primary source of legal argumentation, it plays a complementary role in this paper, as it provides insight into the level of practical awareness and user perception regarding e-signatures. Given that its application in BiH is still in a developmental phase, the survey results are not used to generalise legal conclusions, but rather to illustrate the current degree of social and institutional adaptation to digital legal instruments. Public surveys represent an indicative source of data for assessing perceptions and experiences related to the use of e-signatures in everyday legal and business transactions.

The empirical research was conducted through an anonymous online questionnaire on a sample of 78 respondents from BiH.

Regarding familiarity with e-signatures, 26 respondents (33.3%) stated that they are fully familiar with the concept, 42 respondents (53.8%) are partially familiar, while 10 respondents (12.8%) are not familiar with e-signatures. The results indicate a predominant level of partial

awareness, suggesting the existence of an information gap between the formal legal framework and its practical application.

Regarding the impact of e-signatures on business processes, 35 respondents (44.9%) believe that e-signatures have significantly facilitated business processes, 28 respondents (35.9%) report partial improvement, while the remaining respondents either do not perceive a significant impact or report negative experiences. Overall, the results indicate a generally positive perception of their functional role, but also uneven practical experiences.

As for trust in e-signatures, 44 respondents (56.4%) express a certain level of trust, 22 respondents (28.2%) do not express trust, while 12 respondents (15.4%) report uncertainty or insufficient experience. These results show that trust is moderate and has not yet been fully stabilised in practice.

Overall, the findings indicate that the levels of awareness and trust are not yet uniform, highlighting the need for strengthened institutional support, user education, and more effective practical implementation.

The survey results are not intended to generalise legal rules, but rather to confirm the existence of a transitional period in which e-signatures still exist between normative recognition and full functional integration within the company law system in BiH.

CONCLUSION

The synthesis of findings shows that the legal framework governing e-signatures in BiH is to a significant extent aligned with relevant EU standards, particularly the eIDAS Regulation, and that there are no normative conflicts or legal gaps that would call into question its legal validity in registration and corporate procedures. However, its actual effectiveness and consistency of application in legal transactions primarily depend on the degree of uniformity of administrative practice, technical interoperability, and functional integration of existing trust service systems.

In this regard, the analysis has shown that e-signatures in BiH are in a phase of normative completeness but functional incompleteness, whereby the gap between formal legal compliance and practical implementation proves to be crucial for their actual application in company law.

The effectiveness of e-signatures in BiH is not determined solely by their normative status, but primarily by institutional coherence and the degree of integration of trust service systems, which confirms that it is a functionally dependent legal institute.

The main hypothesis of the paper, according to which the effectiveness of e-signatures does not depend exclusively on their formal legal recognition but also on the degree of institutional coherence and integration of trust service systems, has been confirmed through the analysis of the existing institutional structure and limited system interconnectedness in BiH. The auxiliary hypothesis, relating to the impact of fragmented technical and administrative connectivity of registry systems on the uneven practical application of e-signatures, has also been confirmed through comparative and empirical findings.

The identified challenges arise primarily from institutional fragmentation and uneven technical development of systems, rather than from normative inconsistencies in the legal framework.

Therefore, the further development of e-signatures in BiH should not be primarily directed towards normative interventions, but rather towards strengthening institutional coordination, standardising technical solutions, and improving data exchange between existing systems, in order to ensure their full functional integration in the field of company law. In this way, e-signatures in BiH should be viewed not only as a legal-technical instrument, but also as part of a broader infrastructure of legal certainty.

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