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# Studia

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# CHILD PORNOGRAPHY IN HUNGARIAN CRIMINAL LAW: OFFENDER CATEGORIES AND THE INVESTIGATIVE POTENTIAL OF ARTIFICIAL INTELLIGENCE

KISS, ESZTER<sup>1</sup> – CZEBE, ANDRÁS<sup>2</sup>

## ABSTRACT

This article examines the Hungarian offence of child pornography from criminal-law, criminological, comparative-law, and technological perspectives. It outlines the development of the Hungarian legal framework under the influence of international and European norms, and compares it with the regulation in Germany, the United Kingdom, the United States, and Japan. The article also argues that the term paedophile is often used inaccurately in legal and public discourse, since not all offenders involved in child pornography cases fall within that clinical category. Against this background, it considers whether artificial-intelligence-based image recognition may assist criminal investigations involving child sexual abuse material. It concludes that such systems may be legally and practically useful in Hungary, provided that they remain subject to clear statutory regulation, meaningful human oversight, and strict data-protection safeguards.

**KEYWORDS** Child pornography; child sexual abuse material; artificial intelligence; criminal investigation; Hungarian criminal law

## 1. Introduction

As children gain access to smartphones and social media at an increasingly early age, the digital environment has become a significant site of sexual exploitation involving minors (NMHH, 2021). The digital environment has become a space of heightened vulnerability for minors (Hottó, 2024). This development has created new opportunities for offenders to obtain sexualized images of children through deception, coercion, and online manipulation (Mezei, 2021). In Hungary, such conduct is criminalized under Sections 204 and 204/A of Act C of 2012 on the Criminal Code.

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This article examines the phenomenon from criminal law, criminological, and criminalistics perspectives. It proceeds from two premises. First, offences involving child sexual abuse material are characterised by substantial latency, as child victims are often intimidated into silence. Second, the investigation of such cases is highly resource-intensive because authorities must review large volumes of digital data, creating both practical burdens and risks of human error.

Against this background, the article explores whether artificial intelligence, especially machine-learning-based image recognition, may assist in the detection of child sexual abuse material, including pseudo-pornographic content. It further analyses the domestic and international legal framework and considers whether limited automation could improve the efficiency of criminal investigations, allowing law enforcement to concentrate more resources on identifying and prosecuting high-risk offenders.

## 2. The Evolution of the Hungarian Offence of Child Pornography

The current Hungarian regulation of child pornography is the result of a gradual convergence between domestic criminal law, international child-protection instruments, and European Union standards. At the international level, the 1989 UN Convention on the Rights of the Child established the basic obligation to protect children from sexual exploitation, including their use in pornographic performances and materials. This framework was later reinforced by the Optional Protocol on the sale of children, child prostitution and child pornography, as well as by the Council of Europe's Lanzarote Convention. At the European level, both Framework Decision 2004/68/JHA and, subsequently, Directive 2011/93/EU required Member States to adopt broader and more effective measures against the sexual exploitation of children, including offences committed through digital technologies (Csapucha, 2020).

Hungary incorporated these developments gradually. The broader child-rights orientation of the Convention was reflected in domestic law through the Child Protection Act of 1997 (Honti, 1998), while criminal-law protection developed through successive amendments to the Criminal Code. Child pornography first became a distinct criminal offence in Hungary in 1997. The original provision focused primarily on the production and distribution of prohibited pornographic recordings involving children, but the regulation remained relatively narrow in scope. In the following years, the legislature progressively expanded the range of punishable conduct to include, inter alia, acquisition, possession, offering, transfer, and making such material accessible to others.

This legislative development reflected a broader conceptual shift. Hungarian law moved away from an obscenity-centred understanding of pornography and

increasingly framed the offence in terms of the protection of minors from sexual exploitation (Csapucha, 2020). That shift became more pronounced after Hungary's accession to the European Union and the growing influence of international and European standards. A major restructuring took place in 2007, when the earlier offence was replaced by a provision more clearly centred on pornographic depictions of persons under eighteen and better aligned with Hungary's external legal obligations (Kovács, 2018).

The current Criminal Code, adopted in 2012, preserved the core structure of the earlier offence but repositioned it within a reconceptualised chapter on sexual offences. The most important recent reform came in 2021. The legislature separated offences relating to pornographic recordings from those involving pornographic performances, now regulated in Sections 204 and 204/A of the Criminal Code. The amendment also broadened the statutory concept of a pornographic recording to include realistic depictions of non-existent persons, thereby moving Hungarian law closer to the wider European approach to pseudo- or virtual child pornography. At the same time, penalties were increased, new aggravating circumstances were introduced, and certain limited privileged rules were retained for offenders aged between fourteen and eighteen (Tóth, 2025).

The present Hungarian framework extends beyond the definition of the offence itself. In addition to the criminalisation of production, distribution, possession, and related conduct, the law imposes mandatory permanent disqualification from occupations or activities involving authority over minors, and recent constitutional and statutory changes have further restricted access to individual presidential clemency in offences committed against children. Taken together, these developments show a clear legislative trend toward broader criminalisation, stricter sanctioning, and closer alignment with international and European child-protection standards (Commission Recommendation (EU) 2024/1238).

### 3. Comparative Legal Perspectives

National legal systems differ in terminology, structure, and legislative technique, yet a common regulatory pattern can be identified across jurisdictions. In each of the legal systems examined below, child pornography is criminalised through rules covering at least production, distribution, and possession, while digital dissemination has become an increasingly central concern. At the same time, important differences remain regarding protected age groups, the treatment of virtual or synthetic material, and the relationship between child protection and competing constitutional or cultural considerations.



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### 3.1. Germany

German law provides one of the clearest examples of differentiated regulation. The Criminal Code distinguishes between child-pornographic content and youth-pornographic content, thereby separating depictions involving children under fourteen from those involving adolescents aged fourteen to seventeen (StGB, §§ 184b–184c). This age-based bifurcation gives the German framework a high degree of internal precision. It also criminalises a broad range of conduct, including dissemination, making content publicly accessible, procurement, and possession, while extending liability to realistic depictions. Although German law remains among the stricter European regimes, recent reform has demonstrated a willingness to recalibrate penalties without abandoning the overall protective structure (Witting, 2019).

### 3.2. United Kingdom

The United Kingdom regulates the field through several statutes rather than through a single codified offence (Coroners and Justice Act 2009; Criminal Justice Act 1988; Criminal Justice and Public Order Act 1994; Protection of Children Act 1978; Sexual Offences Act 2003). The British framework criminalises the taking, making, distribution, and possession of indecent images of children, and later amendments expanded the regime to include pseudo-photographs and related forms of visual representation. A notable feature of the British model is its practical categorisation of images by seriousness, which plays an important role in sentencing (Iemelianenko & Dmytruk, 2025). Compared with the German model, the British approach is less conceptually unified, but it is still mature, comprehensive, and highly adaptable to technological developments.

### 3.3. United States

The United States presents a different model, shaped not only by legislation but also by constitutional adjudication. Federal law criminalises the production, distribution, and possession of child pornography (18 U.S.C. ch. 110, §§ 2251, 2252, 2252A, 2256), and the Supreme Court has made clear that visual depictions involving real minors do not enjoy First Amendment protection (Ashcroft v. Free Speech Coalition, 2002; New York v. Ferber, 1982; Osborne v. Ohio, 1990). At the same time, constitutional limits have constrained attempts to regulate virtual or synthetic material too broadly (Niculescu, 2024). As a result, the American framework is broader than a purely real-child-only approach, but it remains heavily influenced by free-speech doctrine and by the distinction between actual minors, indistinguishable synthetic depictions, and protected expression (Palomares, 2024).

### 3.4. Japan

Japan regulates child pornography through a special statute rather than through its Penal Code ([Act on Punishment of Activities Relating to Child Prostitution and Child Pornography, and the Protection of Children](#), arts. 2, 7). The statutory framework criminalises possession, production, provision, and online dissemination, and defines a child as a person under eighteen. Its most distinctive feature, however, lies in its narrower treatment of virtual material ([Galbraith, 2011](#)). Japanese law remains focused primarily on depictions of actual children, while wholly fictional or artificially created depictions have remained more weakly regulated than in several Western jurisdictions ([Takeuchi, 2015](#)). This reflects a different balance between child protection, legal policy, and broader cultural considerations.

### 3.5. Comparative Findings

From a comparative perspective, the four legal systems illustrate different regulatory priorities. Germany offers the clearest age-based distinction and one of the most systematic statutory models. The United Kingdom demonstrates a fragmented but functionally comprehensive regulatory approach. The United States shows how constitutional constraints can shape the limits of criminalisation, especially in relation to synthetic content. Japan, by contrast, remains comparatively restrictive in its treatment of wholly artificial depictions, revealing a narrower conception of the protected legal interest.

For Hungarian law, these comparisons suggest two broader conclusions. First, the international trend clearly favours broad criminalisation and adaptation to digital forms of offending. Second, the greatest divergence among legal systems now concerns pseudo-, virtual, and AI-generated material. This issue is especially relevant for the present article, because it is precisely in this area that questions of technological development, offender differentiation, and future criminal investigation most closely intersect.

## 4. Offender Categories, Terminological Precision, and Investigative Risk

A central analytical difficulty in this field lies in the widespread but imprecise use of the term paedophile. The term does not belong to criminal law as such; rather, it originates in clinical psychiatry and refers to a specific pattern of sexual interest subject to diagnostic criteria. It therefore cannot be used accurately as a blanket label for all persons who commit sexual offences against minors, including offences involving child pornography. The routine conflation of psychiatric diagnosis and criminal offending obscures important differences among

perpetrators and may distort both legal analysis and criminal policy (Erdélyi, 2022).

This distinction is particularly important in cases involving child sexual abuse material. Available research suggests that only a part of the broader offender population meets the diagnostic criteria for paedophilia, even if the proportion may be higher among offenders involved in child pornography than among contact offenders more generally. Conversely, not every person with a clinically relevant sexual interest in children commits a criminal offence. The relationship between diagnosis and offending is therefore significant, but not identical (Szabó & Virág, 2023).

A more differentiated criminological approach reveals that offenders in this field are far from homogeneous. The literature distinguishes, among others, compulsive users of pornography, situational or opportunistic offenders, and those whose sexual interest is preferentially and persistently directed toward children. These groups differ in motivation, degree of danger, responsiveness to treatment, and likelihood of reoffending (Weiss, 2020). From the perspective of criminal investigation, such differences are not merely theoretical. They bear directly on the assessment of risk, the likelihood of related offending, and the level of investigative attention required in individual cases.

Table 1: Number of Child Pornography Offenses Committed by Registered Offenders in Hungary (Ministry of the Interior, Criminal Records Authority, n.d.)

Age group	2020	2021	2022	2023	2024
1. Children (0–13)	16	40	39	181	41
2. Juveniles (14–17)	76	151	79	128	113
3. Young adults (18–24)	55	66	66	72	59
4. Adults (25–59)	100	125	140	228	136
5. Elderly (60+)	6	10	12	8	8
<b>Total</b>	<b>253</b>	<b>392</b>	<b>336</b>	<b>617</b>	<b>357</b>

The issue becomes even more complex in relation to juvenile offenders (see Table 1). A significant proportion of detected child pornography cases involve minors or young persons who exchange self-generated sexual images within peer groups or engage in related conduct without fitting any meaningful clinical notion of paedophilia. In such cases, the indiscriminate use of the term paedophile is not only scientifically inaccurate but also normatively misleading. It collapses crucial distinctions between exploitative offending by adults and unlawful but qualitatively different conduct among adolescents (Csendes-Erdei, 2024).

This terminological problem has practical consequences. If all offenders are treated as if they belonged to a single high-risk category, law-enforcement resources may be allocated inefficiently, and investigative strategies may fail to reflect actual levels of danger. By contrast, recognising the heterogeneity of the offender population makes it possible to distinguish between lower-complexity cases and cases involving a greater likelihood of coercion, repeated offending, or broader sexual exploitation. That distinction is central to the present article, because it helps explain why technological assistance may be most useful in the preliminary sorting and assessment of less complex cases, while higher-risk cases continue to require intensive human investigation.

For this reason, greater terminological precision is necessary. In legal analysis, it is preferable to refer to offenders involved in child pornography or child sexual abuse material, rather than to use paedophile as a generic category. Such precision is not simply a matter of language; it is essential to a more differentiated and more effective investigative response.

## 5. Artificial Intelligence as an Investigative Tool

Against the background outlined above, the relevance of artificial intelligence in this field lies not in replacing human judgment, but in assisting criminal investigation where very large volumes of digital material must be processed. For the purposes of this article, AI is understood in a functional sense: as a machine-based system capable of analysing inputs and generating outputs that support prediction, classification, or decision-making ([Artificial Intelligence Act, art. 3, point 1](#)). In the present context, the relevant question is whether such systems can help law enforcement authorities identify, filter, and prioritise potentially relevant material in cases involving child pornography.

The most important technological field for this purpose is computer vision. Computer vision enables machines to process and interpret visual inputs such as images and videos, while contemporary image-classification tasks are typically performed through deep-learning methods ([Szeliski, 2022](#)). For the present analysis, the technical details need not be examined exhaustively. What matters is that such systems can be trained to recognise visual patterns and classify content at scale, including material that may be relevant to criminal investigation.

This technological capacity is particularly significant in child pornography cases. Investigations in this field often require the review of very large datasets, including thousands of images, videos, and digital communications. This creates not only a quantitative burden but also a substantial psychological burden for investigators. In such cases, AI may serve as a triage instrument: it can support



the preliminary filtering of digital evidence, reduce the volume of material requiring immediate manual review, and assist in the prioritisation of files that are more likely to be relevant from a criminal-law perspective (Lee et al., 2020).

At the same time, the use of AI in this field must be approached with caution. A system trained to detect child pornography can improve efficiency, but it cannot itself determine criminal liability or replace evidentiary assessment by competent authorities. Error rates remain a central concern, especially in relation to false positives and false negatives (Kafteranis et al., 2023). A false positive may burden the investigation with irrelevant material, while a false negative may result in the overlooking of evidence of serious abuse. For this reason, AI can only be justified here as an assistive tool operating under meaningful human supervision.

This cautious conclusion is supported by a German pilot project. The project demonstrated that AI-assisted image recognition may achieve a high rate of successful detection, while also revealing the continued need for human verification and further refinement. Its significance lies less in the promise of full automation than in showing that AI may already have practical value in the initial sorting and assessment of digital material (Brodowski et al., 2023).

From the perspective of the present article, the main implication is clear. If offender populations and case profiles are heterogeneous, then investigative responses should also be differentiated. AI may be most useful in supporting the preliminary assessment of less complex or lower-risk cases, where the goal is not to replace human investigation but to reduce unnecessary burdens and allow law enforcement authorities to concentrate more resources on cases involving coercion, repeated offending, or other indicators of heightened danger.

## 6. Conditions for AI-Assisted Implementation in Hungary

The possible use of AI-assisted image recognition in Hungary must be assessed within a multi-layered legal framework. The relevant question is not whether such a system is technologically conceivable, but whether it could be introduced in a manner consistent with EU law, Hungarian criminal law, criminal procedure, and data-protection requirements. From this perspective, the issue is best approached through four interrelated dimensions: EU regulatory requirements, substantive criminal law, procedural law, and data protection.

### 6.1. EU Regulatory Requirements

At EU level, the primary legal framework is provided by the Artificial Intelligence Act. A system used by or on behalf of law enforcement authorities to assist in the assessment of digital evidence would very likely fall within the category of high-

risk AI systems. This classification has significant legal consequences. Such systems must satisfy requirements relating to risk management, technical documentation, logging, traceability, accuracy, human oversight, and post-deployment monitoring. Their use therefore presupposes not merely technological functionality, but a structured governance framework capable of ensuring transparency, accountability, and legal control.

For the purposes of the present article, one consequence is particularly important: the AI Act does not authorise autonomous decision-making in criminal investigation. Rather, it permits the use of such systems only within a framework that preserves meaningful human supervision. Accordingly, any Hungarian implementation would have to be designed from the outset as an assistive mechanism rather than as a substitute for the evidentiary judgment of investigators, prosecutors, or courts.

## 6.2. *Substantive Criminal-Law Issues*

From the perspective of substantive criminal law, the principal difficulty lies not in the definition of the offence itself, but in the handling of illicit material for the purposes of training, testing, and operating the system. Under Hungarian law, the acquisition and possession of child pornography are themselves punishable forms of conduct. This creates an obvious tension where the development or operation of an AI system requires access to unlawful material.

A functional legal solution is conceivable, but only if accompanied by clear statutory authorisation. In principle, the social harmfulness normally associated with such conduct is absent where the material is handled exclusively for legitimate law-enforcement purposes under strict control. Even so, legal certainty would be better served by an explicit statutory basis exempting authorised actors from criminal liability under clearly defined conditions. Such a solution would also be consistent with the broader logic already visible in legal systems that recognise limited exceptions for official investigative or professional purposes.

## 6.3. *Procedural-Law Issues*

Hungarian criminal procedure offers a plausible framework within which such a system could operate. Electronic data may constitute evidence, may be seized, may be made temporarily inaccessible, and may also be subject to orders preserving digital material. Within this procedural context, AI could function as a support instrument for the identification, sorting, and prioritisation of potentially relevant files.

Its role, however, must remain limited. AI may indicate that a dataset is likely to contain child pornography, or conversely that it is unlikely to contain relevant material, thereby assisting investigators in directing their efforts more efficiently. It may also facilitate the structured storage and retrieval of evidence. Yet it cannot replace the procedural guarantees attached to the evaluation of evidence. Hungarian criminal procedure excludes unlawfully obtained evidence, and any AI-assisted handling of digital material must therefore preserve evidential integrity, verifiability, and the possibility of subsequent human review. The legal acceptability of such a system depends not only on what it detects, but also on whether its operation can be reconstructed, explained, and validated within the evidentiary process.

#### **6.4. Data Protection**

Data protection is an equally central condition of lawful implementation. In this field, the relevant material will often contain personal data of the most sensitive kind, including data concerning sex life and images of children, who are entitled to heightened legal protection. In Hungary, the general data-protection framework is supplemented, for law-enforcement purposes, by the specific rules applicable to criminal data processing. Any AI-assisted system would therefore have to comply with strict requirements concerning purpose limitation, data minimisation, access control, logging, storage limitation, and system security.

The use of AI does not reduce these obligations; on the contrary, it intensifies them. Automated or semi-automated processing introduces additional risks, including unauthorised access, data leakage, model extraction, and the possibility that sensitive material might be reconstructed or misused. For that reason, any domestic implementation would require not only formal legal authorisation but also robust technical and organisational safeguards. It may be argued that a properly designed system could, in some respects, improve protection by reducing the number of individuals exposed to the original material. Even so, that advantage would be acceptable only if the integrity, confidentiality, and evidentiary usability of the data remained fully protected.

#### **6.5. Conditions for Lawful Implementation**

Taken together, these considerations suggest that AI-assisted detection of child pornography could be introduced in Hungary in principle, but only under strict legal conditions. First, the system would have to remain an assistive tool rather than an autonomous decision-maker. Second, its operation would require a clear statutory basis governing the lawful handling of illicit material by authorised actors. Third, its procedural use would have to preserve evidential integrity, traceability, and the possibility of meaningful human verification.

Fourth, its design and deployment would need to satisfy the stringent requirements of EU AI regulation and criminal-data protection.

The decisive point is therefore not whether AI can be used at all, but under what conditions it can be used lawfully and responsibly. If those conditions are met, AI may become a valuable investigative aid in Hungary, especially in the preliminary assessment and prioritisation of digital material. If they are not, its use would risk undermining both procedural fairness and the protection of the sensitive data that such investigations inevitably involve.

## 7. Conclusion

This article has argued that the Hungarian offence of child pornography can no longer be examined solely as a matter of substantive criminal law. Its current form is the product of international child-protection standards, European legal harmonisation, domestic legislative development, and the growing impact of digital technologies on both offending and enforcement. At the same time, comparative analysis shows that important differences remain across jurisdictions, especially in the treatment of virtual or synthetic depictions.

A second central conclusion concerns the offender population. The routine use of the term paedophile in legal and public discourse is analytically misleading, because it obscures the heterogeneity of offenders involved in child pornography cases. Greater terminological precision is therefore necessary, not only for conceptual clarity but also because different offender profiles may require different investigative responses.

Against that background, artificial intelligence appears to offer a limited but significant opportunity. AI-assisted image recognition may help law enforcement authorities filter, sort, and prioritise large volumes of digital material, thereby reducing investigative burdens and allowing greater concentration on cases involving heightened risk. Its value lies in assistance, not substitution: it cannot replace human legal judgment, evidentiary evaluation, or procedural guarantees.

From a Hungarian perspective, the use of such systems appears legally conceivable in principle, but only under strict conditions. Any implementation would require a clear statutory basis, full compliance with EU requirements on high-risk AI systems, procedural safeguards ensuring evidential integrity and human review, and a robust data-protection framework capable of protecting highly sensitive material. If these conditions are met, AI may become a useful investigative instrument in the detection of offences involving child sexual abuse material.

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# THE CRIMINALISATION OF INFORMAL PAYMENTS IN HUNGARIAN HEALTHCARE: LEGAL CHANGE AND SOCIAL ATTITUDES

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## ABSTRACT

This article examines the criminalisation of informal payments in Hungarian healthcare, with particular attention to the legal uncertainty that preceded the 2020 reform, the logic of the new anti-corruption framework, and the social attitudes surrounding its enforcement. It analyses the former judicial treatment of “hálapénz”, the legislative shift introduced by Act C of 2020, and the broader question whether criminal law can effectively eliminate a practice that has long been socially embedded. Drawing on questionnaire-based research, the article also explores public knowledge of the current regulation and attitudes towards the punishability of informal payments. It argues that criminalisation may narrow the scope of the practice, but that its long-term reduction is likely to depend on broader structural improvements in the healthcare system, including legal clarity, institutional trust, and the perceived fairness and quality of care.

**KEYWORDS** Informal payments; Hungarian healthcare; criminalisation; legal consciousness; anti-corruption law

## 1. Introduction

Informal payments in healthcare have long been a deeply embedded feature of the Hungarian medical system. The institution commonly referred to as gratitude payment or parasolvency developed during the state-socialist period and remained socially entrenched for decades. Its scale is illustrated by a 2014 estimate of the Hungarian Central Statistical Office, according to which households spent approximately HUF 8.3 billion on such payments (HCSO, 2015).

The practice was widely perceived as a routine element of medical care, often framed as a socially accepted supplement to treatment rather than as a legal or ethical problem. This changed fundamentally with Act C of 2020 on the Legal

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Status of Health Service Employees, adopted on 6 October 2020. The Act, introduced alongside a comprehensive wage reform, sought to eliminate informal payments in state- and municipality-run healthcare institutions. It also amended the corruption offences contained in Act C of 2012 on the Criminal Code, with the result that, from 1 January 2021, both the giving and the acceptance of gratitude payments became subject to criminal sanctions.

This legislative shift raises a broader question concerning the limits of criminal law. Although the system of informal payments was widely regarded as ethically objectionable, it had also become a longstanding social practice within Hungarian healthcare (Nagy, 2020; MOK Elnökség, 2020). Criminalisation may be justified where serious social harms are involved, yet the *ultima ratio* character of criminal law requires caution. The effective elimination of parasolvency therefore depends not only on legal prohibition, but also on an understanding of the social causes of the practice and the obstacles to its lasting disappearance.

This article examines the uncertain legal situation prior to the current regulation, as well as the legal-policy and social considerations that underpinned criminalisation. It also draws on legal-consciousness research to assess social attitudes towards the abolition of the gratitude payment system and considers the interpretive and regulatory questions that may arise in the future.

## 2. Conceptual and Terminological Framework

Informal payments in healthcare are difficult to define with precision because they combine legal, social, and ethical dimensions. In Hungarian discourse, the term gratitude payment (*hálapénz*) often carries a more neutral or even positive connotation, while parasolvency more accurately reflects its function as undeclared supplementary income connected to medical care. In international terminology, the phenomenon is usually described as an informal payment or under-the-table payment, expressions that more clearly emphasise its unofficial and legally problematic character (Ferencz & Nyerges, 2020).

Hungarian professional and judicial sources have also approached the concept differently. The Hungarian Medical Chamber's ethical framework distinguishes between a voluntary, unsolicited payment given after treatment and other forms of benefit linked to the provision of care (HMC, 2022). By contrast, criminal-law relevance turned primarily on the distinction between a genuinely voluntary post-treatment payment and an advantage that was requested, expected, or effectively compelled.

This distinction was clarified in Hungarian case law. The Curia held that a payment may be regarded as gratitude payment only if it is given after the healthcare service has been provided, voluntarily, and without prior request. A

benefit given in advance, or one provided in response to explicit or implicit solicitation, does not fall within that category (Bhar.III.6/2015/20., 2015). Judicial interpretation also made clear that solicitation includes not only direct requests, but also indirect forms of communication, such as hints, references to customary practice, or other behaviour capable of undermining voluntariness (Bfv.III.63/2025/11., 2025).

For the purposes of criminal-law analysis, the most relevant distinction is between unsolicited payments made by the patient after treatment and payments requested by the healthcare provider (Kincses, 2004). The former historically occupied an ambiguous legal and social space, while the latter much more clearly resembled a corrupt exchange. Since the healthcare institution determines the lawful fee for treatment, medical personnel involved in publicly funded care are not entitled to request additional payment from patients in connection with their work.

In practice, however, the boundary between voluntary and requested payment was often difficult to identify. Physicians did not always make explicit demands; in many cases, the expectation of payment was conveyed indirectly. Patients might believe that payment was necessary to obtain better treatment, shorter waiting times, access to a more favourable procedure, or even access to care itself (Nagy, 2022). This explains why the legal distinction between voluntary gratitude and illicit solicitation remained unstable in practice, despite its doctrinal importance.

### 3. The Pre-2021 Criminal-Law Framework

Before the adoption of the 2020 reform, the legal status of informal payments in Hungarian healthcare was uncertain and internally inconsistent. It was not clearly settled whether the giving or acceptance of such payments amounted to bribery under criminal law. For that reason, the pre-criminalisation period is essential to understanding both the later reform and the arguments that supported it.

Historically, Hungarian law had long treated the acceptance of illicit advantages by physicians as problematic. Earlier criminal legislation prohibited public officials, including physicians acting outside private practice, from requesting or accepting undue benefits (Király, 2016). Yet the later development of parasolvency created an ambiguous legal and social environment in which informal payments remained widespread despite the general anti-corruption framework (Ambrus, 2020).

Under the former Criminal Code, the key issue was whether the accepted advantage was linked to a breach of duty. The earlier version of the passive

bribery provision did not criminalise every advantage accepted by an employee of a public or economic body, but primarily those connected to the violation of official obligations (Gellér, 2022). This distinction contributed to the exceptional treatment of informal payments in healthcare, where certain forms of post-treatment payment were tolerated socially even if they remained difficult to justify legally.

Subsequent legislative amendments did not eliminate this uncertainty. Although the law later introduced the requirement that the advantage be “unlawful,” judicial and scholarly opinion remained divided as to whether this materially narrowed criminal liability (Inzelt, 2017; Gál, 2014; Hollán 2014). In practice, the decisive distinction increasingly turned on whether the payment had been requested, expected, or linked to the performance of the medical service. Requested payments, especially where connected to publicly funded treatment, were more readily treated as bribery, while voluntary post-treatment payments occupied a more ambiguous position (Gellér, 2022).

The structure of the current Criminal Code, which entered into force in 2013, further intensified the debate. The provision on passive bribery no longer made breach of duty part of the basic offence, which led some authors to argue that all forms of informal payment had effectively been criminalised (Tóth, 2014). Hungarian case law confirmed that healthcare providers who requested payment in connection with services financed by public health insurance could incur criminal liability for bribery (Bfv.III.1.336/2019/9., 2020). By contrast, on the side of the patient, active bribery generally required proof that the advantage was given in order to induce a breach of duty; without such purpose, criminal liability was less readily established.

Taken together, the pre-2021 framework was marked by doctrinal instability. Requested or solicited payments were increasingly treated as unlawful advantages, while genuinely voluntary post-treatment payments remained more difficult to classify. This uncertainty was one of the principal reasons why the legislature ultimately chose to intervene expressly through the 2020 reform.

The legal ambiguity surrounding informal payments was reinforced by labour-law regulation. Under [Act I of 2012 on the Labor Code](#), employees may not accept remuneration from a third person in connection with their employment without the employer’s prior consent (Ferencz & Nyerges, 2020). This rule was highly controversial in the context of informal payments in healthcare, because it raised the question whether employer consent could render such payments lawful (Horváth, 2012).

The dominant judicial position rejected that conclusion. The Curia held that employer consent under labour law could be relevant from a disciplinary or

employment-law perspective, but it did not remove the unlawfulness of the advantage for the purposes of criminal law. In other words, labour-law permission could not function as a statutory authorisation excluding criminal liability (Bhar.III.6/2015/20., 2015).

Although scholarly opinion was divided on this issue before criminalisation (Hollán, 2014; Inzelt, 2017; Móricz, 2020, Pincési, 2023), the matter has since become much clearer. From 1 January 2021, parasolvency-type payments qualify as unlawful advantages, and employer consent cannot serve as a basis for excluding criminal responsibility. The earlier labour-law debate is therefore mainly of historical significance, but it illustrates the fragmented and contradictory regulatory environment that existed before the explicit criminal-law reform.

#### 4. The 2020 Criminalisation Reform

Although several post-transition governments attempted to curb parasolvency in Hungarian healthcare (Ádám, 1986), the first decisive reform was introduced by Act C of 2020 on the Legal Status of Health Service Employees. The Act accepted the Hungarian Medical Chamber's proposal to combine a substantial wage reform with the elimination of informal payments and thereby brought an end to the previously uncertain legal framework. To ensure coherence across the legal system, the reform also removed gratitude payments from the category of lawful income under tax law. The lawful, efficient, and transparent use of public funds is a fundamental requirement of public governance (Hottó, 2025).

The reform amended the Criminal Code by creating a specific bribery-related offence for the healthcare sector. From 1 January 2021, any person who gives or promises an unlawful advantage in connection with healthcare services to a healthcare worker, or to another person in relation to such worker, may incur criminal liability, unless a more serious offence is made out (CC, § 290, para. 6). The significance of this amendment lies in its clear policy choice: in the field of healthcare, the legislature adopted a zero-tolerance approach to informal payments. As a result, the giving of money or other unlawful advantage is punishable even where it is not linked to a specific breach of duty.

This new offence is subsidiary in nature. Cases that already satisfied the general elements of active or passive bribery – most notably where the advantage was given, requested, or accepted in order to induce a breach of duty – continue to fall under the ordinary bribery provisions. At the same time, the healthcare-specific rule functions as a privileged offence, since it carries a lower penalty than the general bribery offence. Its purpose is therefore not to replace the

general anti-corruption framework, but to criminalise a broader category of conduct that had previously remained only partially covered.

On the passive side, the reform linked criminal liability to the concept of “unlawful advantage” as defined by Act CLIV of 1997 on Health (CC, § 291 para. 6). In this respect, the Criminal Code effectively became dependent on sector-specific regulation. Under the Health Act, healthcare workers may neither request nor accept any monetary payment, in-kind consideration, or other advantage in return for healthcare services (Ambrus, 2021). The only exception concerns small gifts in kind of limited value, given under strictly regulated conditions. These provisions make clear that money cannot qualify as a lawful gift, even if the amount is relatively modest.

From a practical perspective, the reform transformed the legal assessment of informal payments in healthcare. What had previously been treated as a socially tolerated but legally ambiguous practice became an expressly prohibited form of unlawful advantage. The reform thus resolved a long-standing contradiction in Hungarian law by aligning criminal law, healthcare regulation, and tax law around the same normative conclusion: parasolvency is unlawful.

## 5. Detection and Enforcement after Criminalisation: Integrity Testing and Judicial Review

The practical significance of the post-2020 reform lies not only in the formal criminalisation of informal payments, but also in the mechanisms through which the prohibition is detected and enforced. Once the legislature adopted a zero-tolerance model, the central question ceased to be whether *hálapénz* could still be accommodated within a legally exceptional category and became instead how the newly prohibited conduct could be uncovered in practice.

A key instrument of post-criminalisation enforcement is the Hungarian mechanism of integrity testing (*megbízhatósági vizsgálat*). This mechanism was introduced into Act XXXIV of 1994 on the Police with effect from 1 January 2011, and its scope was later extended so that, from 1 January 2021, it could also be applied to persons employed in the new healthcare service relationship. The purpose of integrity testing is to create a controlled situation in which compliance with professional duties may be observed, including in corruption-prone contexts. In the healthcare setting, this has obvious relevance to the detection of unlawful advantages linked to medical treatment. The practical attraction of the mechanism is equally clear: offences involving informal payments are often difficult to uncover through ordinary reporting channels, since both sides of the transaction may have an interest in concealment.

At the same time, the use of integrity testing in this field raises delicate fair-trial concerns. Its legitimacy depends on whether the authorities merely create an opportunity to reveal an existing willingness to engage in corruption or instead cross the line into inducement. In analytical terms, the distinction is between detection and provocation. If the tested person retains a real possibility of acting lawfully, the case for the use of the mechanism is stronger. If, however, the scenario is shaped in a way that exerts pressure, persistently offers money, or otherwise steers the individual towards the offence, the fairness of the process becomes far more doubtful. In cases involving informal payments, this issue is especially sensitive, because the factual setting itself may easily resemble the very social practices that the law now seeks to eradicate (Csák & Czebe, 2025).

Domestic constitutional review did not reject the extension of integrity testing to healthcare personnel. In 3484/2022. (XII. 20.) AB, the Constitutional Court accepted the new regulatory framework and treated the anti-corruption objective, including the suppression of informal payments in healthcare, as constitutionally legitimate. At the domestic level, therefore, integrity testing has been regarded as an available enforcement tool within the broader restructuring of the healthcare sector.

The European Court of Human Rights has nevertheless introduced an important qualification. In *Szelényi and Others v. Hungary*, decided on 3 February 2026, the Court examined the Hungarian integrity-testing framework as applied to categories of state employees that included healthcare personnel and found a violation of Article 8 of the Convention. The judgment did not call into question the legitimacy of combating corruption or eliminating informal payments in healthcare. Rather, its criticism was directed at the quality of the legal framework governing covert surveillance within integrity testing. In the Court's view, the domestic regime did not provide sufficiently precise safeguards against arbitrariness and therefore failed to satisfy the requirements of legality and necessity in a democratic society.

For the purposes of the present article, the significance of *Szelényi* is a cautious but important one. It does not follow from the judgment that integrity testing as such is incompatible with the Convention, nor that the criminal-law response to informal payments is illegitimate. What the judgment does suggest is that the future use of integrity testing in healthcare cannot be assessed solely from the perspective of anti-corruption effectiveness. It must also be examined in light of foreseeability, proportionality, and adequate procedural safeguards. Accordingly, integrity testing may remain a central instrument for the detection of informal-payment offences, but its continued use in this field is likely to depend on a more carefully delimited legal framework.

## 6. Comparative and International Perspectives

Informal payments in healthcare are not unique to Hungary. Comparative research has shown that they have been a persistent feature of many post-communist health systems in Central and Eastern Europe and parts of Central Asia, where they have often been linked to underfinancing, shortages, weak institutional trust, and the enduring social expectation that access to care must be supplemented by personal payment (Lewis, 2000; World Bank, 2000; Liu & Sun, 2012; Williams et al., 2016). In the international literature, a distinction is often drawn between gratitude money and broader informal or under-the-table payments, the latter terms emphasising the unofficial and potentially corrupt character of the transaction more clearly than the Hungarian expression *hálapénz* (Delcheva et al., 1997; Vian & Burak, 2006; Stepurko et al., 2017; Giannouchos et al., 2020).

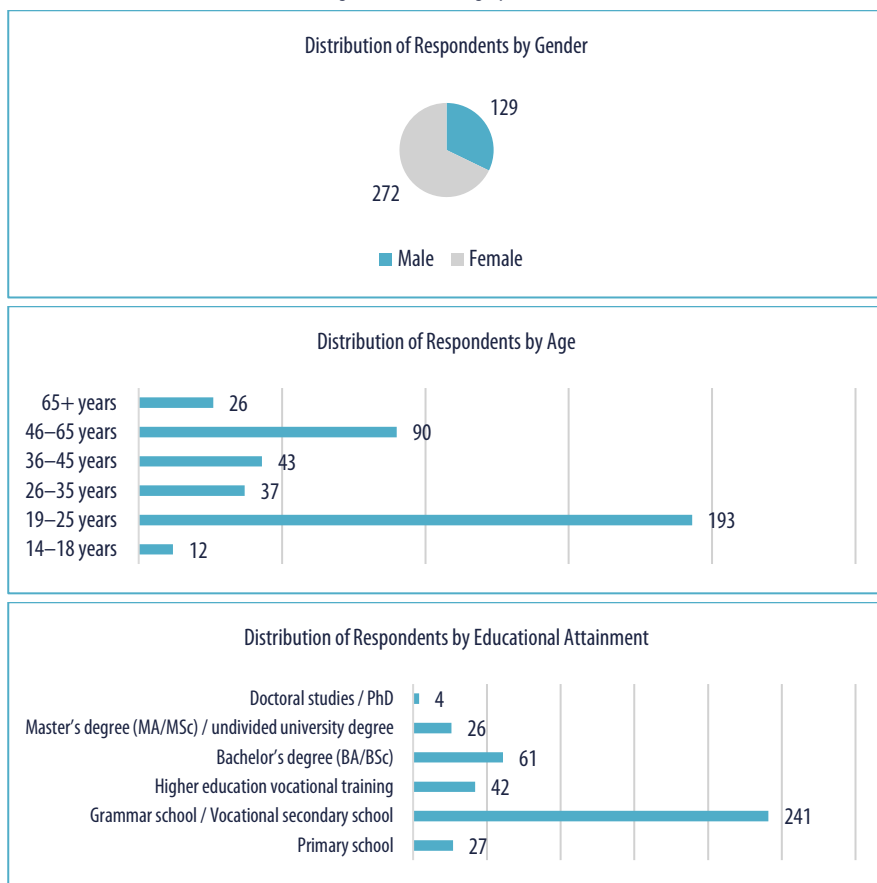
At the same time, some European systems demonstrate that healthcare can function with little or no reliance on such payments when financing is transparent and entitlements are clear. In Germany, compulsory health insurance is provided either through statutory or substitutive private insurance (Balázs, 2023), with statutory insurance covering roughly 90% of the population and offering the same broad range of benefits to those insured (Bundesministerium für Gesundheit, 2022); Germany also recorded the EU's highest current healthcare expenditure relative to GDP in 2024, at 12.2% (Eurostat, 2025). In the United Kingdom, the NHS Constitution states that access to NHS services is based on clinical need rather than ability to pay, and that NHS care should be free at the point of use except where charges are expressly provided by law (Tóth, 2024). These models do not eliminate all structural pressures in healthcare, but they significantly reduce the space for informal payment by making entitlement and financing more predictable.

No international treaty regulates “gratitude payment” as a distinct legal category. Nonetheless, the broader international and European legal framework is relevant. The United Nations Convention against Corruption requires States Parties to criminalise core bribery offences, thereby providing the anti-corruption baseline within which payments made to influence healthcare services can be assessed. At EU level, Article 35 of the Charter of Fundamental Rights guarantees access to preventive healthcare and medical treatment under national laws and practices, while Directive 2011/24/EU seeks to facilitate access to safe and high-quality cross-border healthcare and to strengthen patients’ rights to information and redress. Although these instruments do not directly regulate informal payments, they support the principles of equal access, transparency, and accountability that are incompatible with a system in which access to publicly funded care depends on unofficial payment.

## 7. Public Legal Consciousness and the Social Limits of Criminalisation

To assess how the criminalisation of informal payments is perceived in Hungarian society, a questionnaire-based legal-consciousness survey was carried out. The purpose of the survey was twofold: first, to examine the extent to which respondents were aware of the current legal regulation of informal payments, and second, to explore their attitudes towards the criminalisation of the practice. This perspective is particularly relevant because law is a social institution whose effectiveness depends not only on formal rules, but also on the attitudes, habits, and expectations of those subject to it. The survey was completed by 401 respondents through Google Forms (see Figure 1). Although the sample cannot be regarded as representative, it offers useful insight into the persistence of older social understandings of parasolvency.

Figure 1: Sociodemographic data



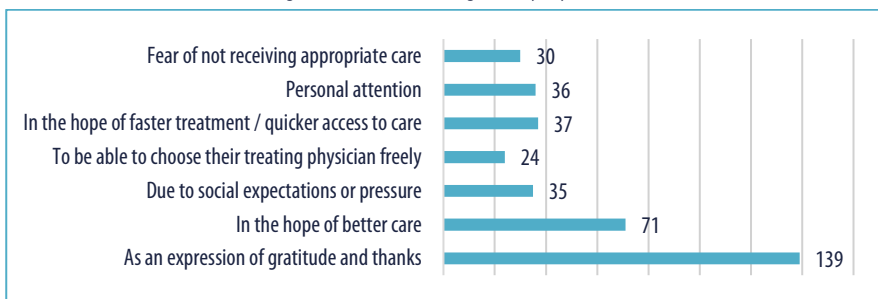
The initial hypothesis was that respondents would possess only fragmented knowledge of the current legal framework and that many would remain unaware that both the giving and the acceptance of informal payments have constituted criminal offences in Hungary since 1 January 2021. A further assumption was that respondents would be more likely to recognise as criminal those forms of conduct that had already been punishable under the pre-2021 framework, such as payments requested in advance by physicians. The results broadly support both assumptions.

### 7.1. Motivations Behind Informal Payments

Respondents most frequently identified gratitude as the primary motive behind informal payments (see Figure 2). This result is unsurprising given the Hungarian terminology itself, which frames the practice as a “gratitude payment.” At the same time, the survey also revealed more problematic motivations. Many respondents regarded the expectation of better treatment, quicker access, or more personal attention as an important reason why patients or relatives offer money to healthcare workers. In this respect, informal payment appears not merely as an expression of thanks, but as a mechanism through which patients attempt to secure access to the quality of care to which they are already formally entitled.

This finding suggests that the persistence of informal payments cannot be explained solely by cultural habit or symbolic gratitude. It is also connected to mistrust in the healthcare system, fear of inadequate treatment, and uncertainty about the practical availability of equal care (Baji et al., 2015). In that sense, the system of parasolvency appears to have been sustained not only by the economic position of healthcare workers, but also by patients’ insecurity and by entrenched social expectations.

Figure 2: Reasons for Giving Gratuity Payments

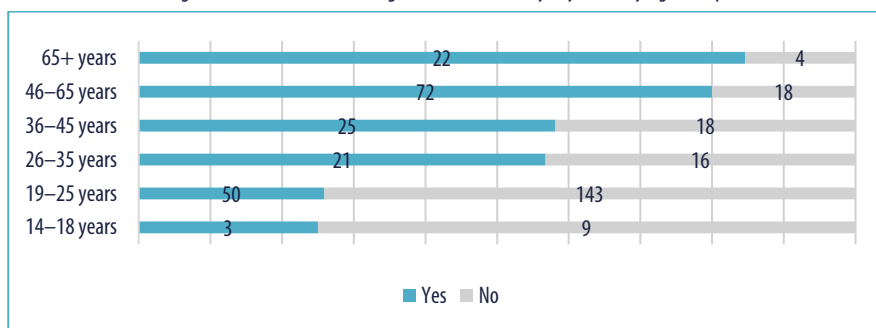


## 7.2. Payment Practices and Generational Differences

According to the survey, 48% of respondents had at some point given money to a healthcare provider, while 52% had never done so. The strongest variation appeared across age groups (see Figure 3). Among respondents under 25, only about one quarter had ever given an informal payment; among those aged 26 to 45, the figure rose to nearly 60%; and among respondents above 46, it exceeded 80%.

These results strongly suggest that parasolvency is linked to generational socialisation. Older respondents grew up in a system in which informal payment was widely regarded as a normal component of medical care, whereas younger respondents are less likely to perceive it as necessary and appear more inclined to choose private healthcare if dissatisfied with public services.

Figure 3: Distribution of Willingness to Give Gratuity Payments by Age Group



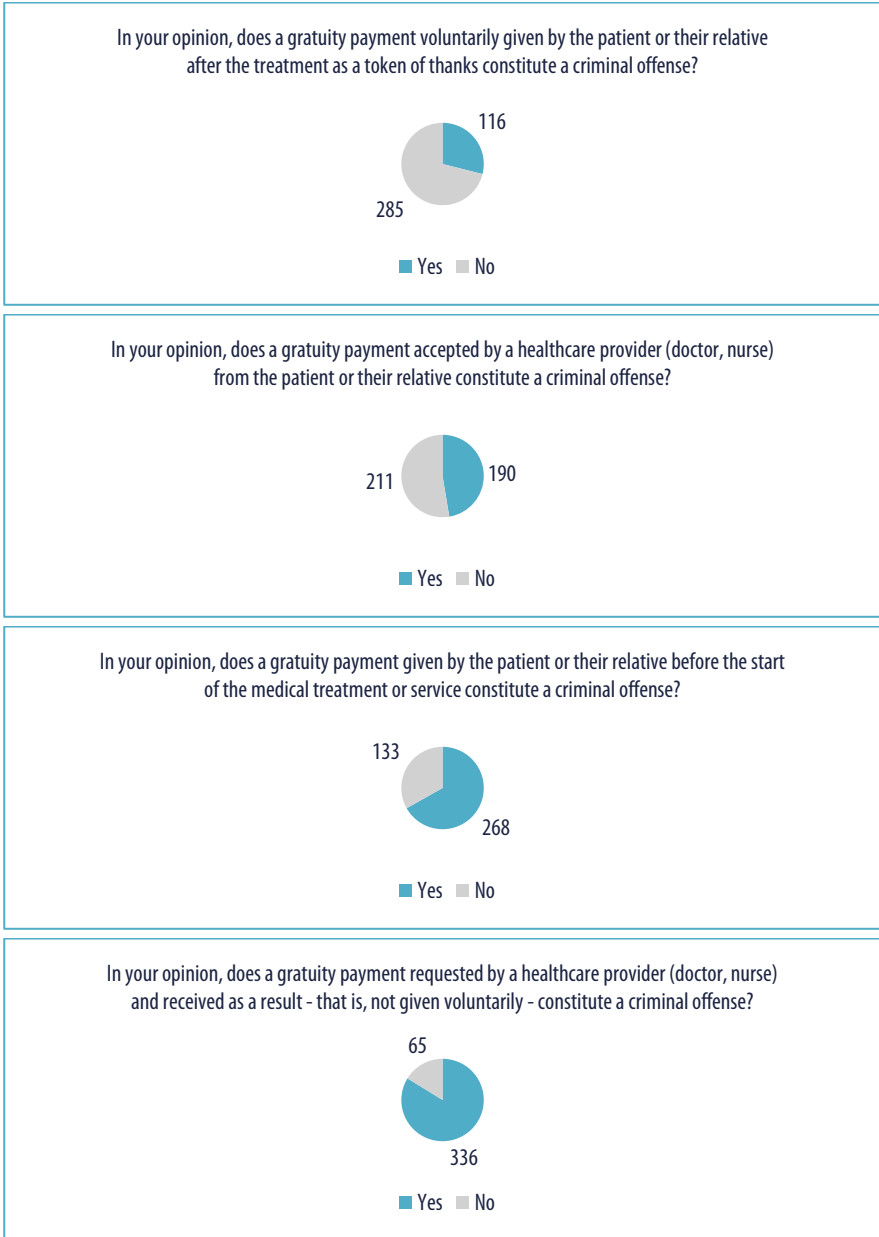
## 7.3. Knowledge of Criminal Liability

The survey also tested respondents' assessment of different factual situations involving informal payments. The results showed a clear gap between current law and public legal consciousness (see Figure 4). Nearly 70% of respondents considered it lawful if a patient voluntarily gave money after treatment, even though this conduct has been criminalised since 2021. By contrast, respondents were much more likely to recognise the criminal nature of conduct that had already been punishable before the reform. Approximately 67% correctly regarded payment given before treatment as criminal, and 84% correctly identified a physician's prior request for payment as punishable.

These results indicate that older legal and social distinctions remain deeply rooted in public consciousness. The formerly tolerated category of post-treatment gratitude payment still appears legitimate to many respondents, even after its formal criminalisation. This supports the broader conclusion that legal consciousness adjusts more slowly than legislation changes, and that long-

established social norms may continue to shape behaviour and judgment even after a clear legal prohibition has been enacted (H. Szilágyi, 2020).

Figure 4: Situational questions

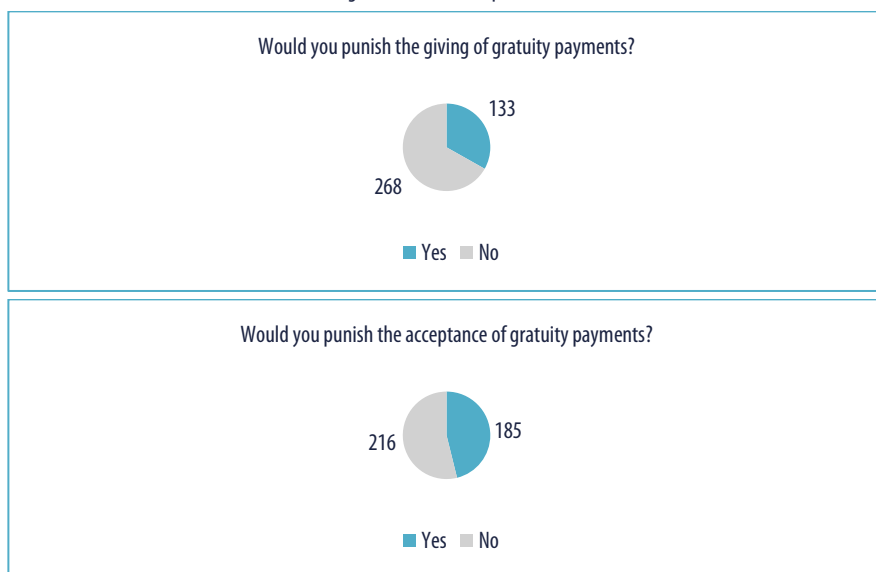


### 7.4. Attitudes Towards Criminalisation

Respondents' attitudes towards punishment also revealed substantial ambivalence (see Figure 5). Nearly 67% stated that the giving of informal payment should not be punished, and 54% took the same view regarding its acceptance. This is particularly striking given that the practice is now formally criminalised. The results suggest that many respondents continue to view the patient primarily as someone expressing gratitude or attempting to secure adequate treatment, rather than as an active participant in corruption. Physicians, by contrast, were judged more critically, presumably because respondents associated acceptance with financial gain rather than vulnerability or dependence.

Taken together, these findings show that the legal prohibition of informal payments has not yet been fully internalised at the level of public legal consciousness. While some clearly coercive or pre-arranged forms of parasolvency are widely recognised as criminal, the socially embedded idea of post-treatment gratitude payment remains resilient. From a policy perspective, this suggests that criminalisation alone is unlikely to eliminate the practice entirely. Lasting change also depends on broader shifts in social expectations, legal awareness, and trust in the fairness and quality of the healthcare system.

Figure 5: Situational questions

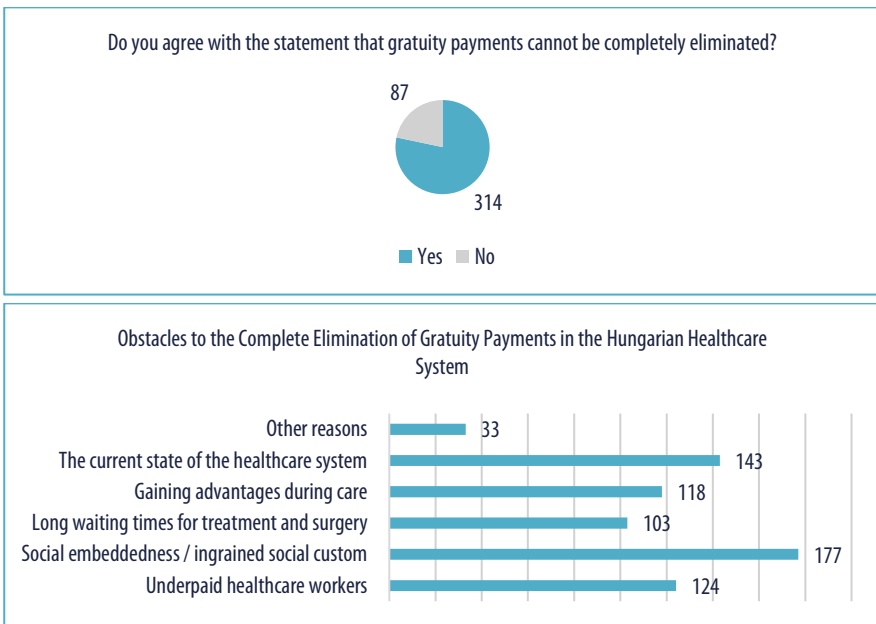


## 8. Conclusion

The reform that entered into force on 1 January 2021 clearly identified the elimination of parasolvency as a central policy objective. The legislative strategy combined three elements: the separation of public and private healthcare activity, wage increases for physicians, and the criminalisation of informal payments. Whether these measures will be sufficient to eliminate the practice in the longer term, however, remains uncertain.

The survey findings suggest considerable public scepticism. A substantial majority of respondents considered it unlikely that parasolvency could be fully eliminated from Hungarian healthcare, notwithstanding criminalisation. The most frequently identified obstacle was the deep social embeddedness of the practice. Informal payment appears to have become more than an occasional individual act; it has long functioned as a socially learned pattern of behaviour. In this respect, the findings are consistent with earlier sociological observations that the meaning of parasolvency gradually shifted from the expression of gratitude to a form of social compulsion and perceived necessity.

Figure 6: Perceived Obstacles to the Elimination of Gratuity Payments



The survey also suggests that criminalisation, while important, may address only part of the problem (see Figure 6). Wage reform may reduce the willingness of healthcare providers to accept informal payments, but it does not necessarily eliminate the patient-side motivations that sustain the practice. Many patients do not appear to view informal payment primarily as a means of securing an

unlawful advantage, but rather as a way of ensuring that they receive adequate care of a quality to which they believe they are already entitled. This perception is closely linked to broader concerns about the condition of the healthcare system, including staff shortages, uneven quality of care, and limited trust in the effective functioning of publicly funded services. From that perspective, the long-term success of criminalisation may depend not only on enforcement, but also on wider structural improvements in the healthcare system.

Comparative experience may offer some orientation, although direct institutional transplantation is unlikely to be feasible. The British and German systems suggest that informal payments are less likely to flourish where entitlement is clear, financing is transparent, and the boundary between public and private care is consistently maintained. These examples should be treated with caution, given the significant historical and institutional differences between those systems and Hungarian healthcare. Even so, the underlying principles of predictability, equal access, and institutional trust may still be relevant in thinking about future reform.

From a legislative perspective, several clarifications may be worth considering. The current Hungarian framework appears to raise interpretive difficulties regarding the relationship between the Criminal Code and the Health Act, including the practical addressees of the relevant norms and the precise role of the sector-specific definition of “unlawful advantage.” Greater doctrinal clarity might improve both legal certainty and compliance. Similar concerns arise in relation to the statutory exception for low-value gifts in kind, which may be difficult to apply in practice, and to the question whether the rules on unlimited mitigation available under the general bribery provision extend fully to the healthcare-specific privileged form. These are not merely technical issues: they bear directly on foreseeability, consistency, and the practical intelligibility of the prohibition.

Taken together, the available material does not support a simple answer to the question whether informal payments can be eliminated entirely. A cautious conclusion would be that criminalisation is capable of narrowing the space for parasolvency and may contribute to a gradual change in professional and social expectations. At the same time, legal prohibition alone is unlikely to produce a complete and lasting solution if broader structural causes remain unaddressed. The future of the Hungarian regulation may therefore depend on whether anti-corruption enforcement is accompanied by improvements in healthcare financing, access, quality, and public trust.

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# THE ROLE OF CORPORATE RESPONSIBILITY AND QUALITY LEGISLATION IN ACHIEVING THE SUSTAINABLE DEVELOPMENT GOALS: LEGAL AND PRACTICAL INTERCONNECTIONS AND HUNGARIAN LEGISLATION

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## ABSTRACT

The adoption of Directive (EU) 2024/1760 on Corporate Sustainability Due Diligence (CSDDD) constitutes a significant step in the EU's efforts to promote responsible business conduct. It imposes binding obligations on large companies to identify, prevent, and mitigate adverse human rights and environmental impacts throughout their operations and value chains. Member States must transpose the directive into national law within two years, raising important legal and practical challenges.

This paper provides a legal analysis of the CSDDD, focusing on its scope, enforcement mechanisms, and alignment with principles of legislative quality. It places the directive within the broader international sustainability agenda, particularly the UN Sustainable Development Goals (SDGs), highlighting the relevance of SDG 16 and SDG 17 to strengthening institutions and partnerships.

The study also explores the evolving concept of corporate due diligence as a cornerstone of ethical governance. In the Hungarian context, it examines Act CVII of 2023 on ESG, identifying overlaps and gaps in relation to the CSDDD. This comparison offers insights into Hungary's readiness for implementation.

In addition to normative analysis, the paper showcases best practices from companies engaged in responsible conduct, illustrating how legal compliance can go hand in hand with positive social and environmental impact. The study further examines how the new unified directive fits within the broader framework of previous regulatory efforts from a legal perspective.

**KEYWORDS** Sustainability, Corporate Social Responsibility (CSR), Due Diligence, Corporate Sustainability Due Diligence Directive (CSDDD), Sustainable Development Goals (SDGs)

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## 1. Introduction

This study explores the extent to which the existing legal framework advances the attainment of the United Nations Sustainable Development Goals (SDGs), the way these objectives are influenced, and illustrates the analysis through selected, already implemented, practical examples. It further examines the criteria of quality legislation, which exert a fundamental influence on contemporary law-making processes.

The principal aim of this research is to offer a legal analysis and interpretative assessment of Directive (EU) 2024/1760 of the European Parliament and of the Council – hereinafter referred to as the Corporate Sustainability Due Diligence Directive (CSDDD) – with particular regard to its structure, scope, sanctioning regime, and its conformity with the principles of quality legislation, as embedded in the “Better Regulation” agenda.

The topicality of this inquiry is underscored by the fact that the Directive entered into force on 13 June 2024, affording Member States a two-year period for its transposition into national law. The CSDDD inaugurates a new era in the European Union’s approach to corporate responsibility, seeking to secure the enforcement of human rights and environmental considerations across the entirety of corporate operations and value chains through binding legal obligations.

In addition, the study identifies and analyses best practices that may serve as instructive models for Member States, as well as for political and economic stakeholders.

By way of scholarly context, reference may be made to Silvia Ciacchi, who has examined the legislative process culminating in the adoption of the CSDDD and the principal amendments incorporated into the final text in comparison with the original Commission proposal (Ciacchi, 2024). Dirk Zetzsche has addressed the nexus between sustainability, FinTech, and financial inclusion (Arner et al., 2020). Julia Sinnig examines the CSDDD through the lens of the transition from mere disclosure obligations to the prevention of adverse sustainability impacts within supply chains (Sinnig & Zetzsche, 2025).

While much of the existing literature regards Corporate Social Responsibility (CSR) initiatives or ESG reporting obligations as ends in themselves, the present study advances the argument that an impact-oriented governance model is imperative, with institutional capacity and societal utility constituting the primary evaluative criteria.

Notably, the prevailing body of research tends to operate at the EU-wide or global level, paying comparatively little attention to the ways in which an individual Member State – in this instance, Hungary – might:

- fulfil the requirements of the CSDDD through coherent legal harmonisation; and
- identify and address the gaps and overlaps between its domestic ESG Act (Act CVIII of 2023) and the European legislative framework.

Most scholarly contributions approach the subject of sustainability either from a legal-compliance perspective or through the lens of corporate theory and management science. In contrast, this study endeavours to forge conceptual and practical linkages between:

- the principles of quality legislation (e.g., proportionality, enforceability, consistency),
- the operational realities of corporate responsibility, and
- the concrete preconditions for the achievement of the United Nations Sustainable Development Goals.

## 2. Methodology

For the purposes of this study, a systematic review of the relevant literature was undertaken. Emphasis was placed on the comparative analysis of legal norms. The study adopts an interdisciplinary approach, examining the Corporate Sustainability Due Diligence Directive (CSDDD) through both legal and policy lenses. The methodological framework is grounded in two principal components: comparative legal analysis and the examination of selected case studies.

The analysis draws upon a broad range of sources, including European Union and national legislation, preparatory documents and background materials issued by the European Commission, green papers, directives, scholarly literature, and authoritative legal commentaries. The analysis of legislative processes is further enhanced using tables that compare the pertinent legal norms in a structured manner.

In addition, the study integrates case studies highlighting exemplary corporate practices in the fields of Corporate Social Responsibility (CSR) and sustainability. These are examined in detail to demonstrate the way legislative provisions are implemented in practice.

The legal framework, conceptual underpinnings, and historical context of the study are developed through desk research, relying on the primary and secondary sources. This multi-faceted approach enables a comprehensive

understanding of both the normative structure and the practical application of the CSDDD within the broader context of European and national governance

### 3. The Evolution of the Concept of Sustainable Development, Its Social and Political Origins, and Historical Background

The social and political transformations of the 20th century gave rise to global thinking about sustainable development. This collective reflection led to the production of various international documents. In 1969, UN Secretary-General U Thant called upon Member States to engage in this shared discourse, stating at the 17th session of the UN Economic and Social Council:

*“For the first time in the history of humankind, we are witnessing the unfolding of a worldwide crisis that affects both developed and developing countries; this is the crisis of the human environment.” (U Thant, 1969)*

As a result of this call, the decision was made to convene an international conference, with Sweden volunteering to host it. Officially entitled The United Nations Conference on the Human Environment, the conference was held in June 1972, with delegations from 113 states in attendance. This was the first global environmental conference to highlight the link between environmental protection and economic development. Although the expression “sustainable development” did not yet appear in the conference documents, the participants adopted the decision to launch the UN Environment Programme (UNEP).

The report prepared by the UN World Commission on Environment and Development in 1987 – *Our Common Future*, also known as the Brundtland Report – introduced the concept of “sustainable development”. According to the report, this is development that meets the needs of the present without jeopardising the ability of future generations to meet their own needs. The authors stressed that the pace at which humanity was consuming the Earth’s resources could not be sustained. Sustainable development means that growth should, ideally, not be based on the depletion of physical resources, but rather on their regeneration while keeping environmental pollution at a minimum.

The criteria of sustainable development include the use of renewable resources to support economic growth, the protection of species and biodiversity in general, and the commitment to maintaining the purity of air, water, and soil.

The report summarised the social conditions necessary for achieving sustainability as follows:

- the establishment of a political system enabling participation in decision-making;
- the existence of a sustainably functioning economic system;

- a social system capable of resolving tensions arising from unequal development;
- a production system mindful of environmental protection;
- an innovative technological system;
- sustainable trading systems;
- a flexible administrative system.

The next major milestone was the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992. At this event, the document titled *Agenda 21 – Programme of Action for Sustainable Development* was adopted, providing a comprehensive action plan for achieving sustainability at global, national, and local levels.

The document essentially offered a structured summary of environmental and related socio-economic problems, including recommendations and lists of programmes, as well as estimates of the resources necessary for implementation. It consisted of four major sections. The first part addressed fundamental social and economic themes of sustainable development, such as promoting development, combating poverty in developing countries, transforming consumption patterns in line with sustainability considerations, and population policy. The second section dealt with environmental and natural issues, focusing on mitigating or eliminating harmful impacts on the environment. Major topics included atmospheric protection, oceans, desertification and drought, deforestation, freshwater resources, biodiversity protection, biotechnology, and the management of hazardous and nuclear waste.

The third section reviewed the roles, tasks, and needs of key social groups in implementing sustainable development. These groups, examined in separate chapters, included children, women, indigenous peoples, local governments, trade unions, and non-governmental organisations.

The final part addressed the tools necessary for development, discussing financial resources and institutions, the transfer of environmentally sound technologies and procedures, the role of science, education, and training, the international institutional framework required for implementation (including organisations and legal instruments), and, finally, the appropriate national decision-making institutions and procedures for resolving specific tasks related to sustainable development.

It is noteworthy that, regarding financial frameworks, the final text reflected a compromise. Instead of the previously proposed solution of allocating 0.7% of gross national product to aid developing countries, the document ultimately recommended other, more flexible arrangements (United Nations, 1993).

Commitment to sustainable development is a goal that is intended to ensure that future generations do not inherit the damage caused by poverty and environmental degradation. It is essential to secure economic and social development, protect the environment, and advance the interdependent pillars of sustainable development at local, national, regional, and global levels.

Eradicating poverty, reducing inequalities, bridging gaps, preserving biodiversity, and supporting developing countries all represent significant challenges. Simultaneously, efforts must be made to combat armed conflicts, natural disasters, terrorism, infectious and chronic diseases, and to protect the rights of women. The document emphasised the need to involve the private sector and small businesses to accelerate and expand these processes.

At the Sustainable Development Summit held in New York from 25–27 September 2015, the 193 Member States of the UN unanimously adopted Agenda 2030 and the Sustainable Development Goals (SDGs), which represent a continuation and evolution of Agenda 21 from Rio de Janeiro. Among the 17 objectives, several directly relate to law and institutional frameworks.

Agenda 2030 defines a global framework for sustainable development, aiming to eradicate poverty and build a sustainable future by 2030.

The document seeks comprehensive solutions that account for the interaction of natural systems with each other and with social systems. It clearly states that there are not two separate crises – one environmental and one social – but rather a single, complex socio-environmental crisis. The proposed solutions demand holistic approaches to overcoming poverty, restoring the dignity of those who are excluded, and caring for nature at the same time.

The Sustainable Development Goals adopted under the auspices of the United Nations involve the entire UN community, including UNESCO, which is fully committed to supporting national governments and societies in implementing these objectives. Implementation of Agenda 2030 began on 1 January 2016. Each country pursues these goals with consideration of its own national and regional development levels and capacities.

## 4. National Initiatives and Legislative Solutions to Promote Sustainability Efforts

Within the European Union, numerous Member States have launched national initiatives aimed at advancing sustainability. These initiatives are diverse in scope, ranging from the expansion of renewable energy sources and the transition to a circular economy, to the promotion of sustainable transport, afforestation, and the protection of biodiversity.

Since 2016, the German Sustainability Strategy has been aligned with internationally adopted frameworks. One of its goals is for the country to achieve carbon neutrality by 2050. In connection with this strategy, various measures are underway, including the development of renewable energy sources, improvements in energy efficiency, and the transformation of the transport sector.

Germany also adopted the *Lieferkettensorgfaltspflichtengesetz* (Supply Chain Due Diligence Act) in 2021. This legislation requires large companies to ensure compliance with human rights and environmental standards across their supply chains. Companies must comply with human rights and environmental due diligence obligations within their supply chains. To fulfil these obligations, companies are required to establish adequate and effective risk management systems. This includes defining internal responsibilities for monitoring compliance with due diligence obligations, for example by appointing a human rights officer.

The French law adopted in 2015, the *Loi de Transition Énergétique pour la Croissance Verte* (Energy Transition Law for Green Growth), aimed to reduce carbon dioxide emissions, improve energy efficiency, and increase the use of renewable energy sources.

The *Loi sur le devoir de vigilance*, the French Duty of Vigilance Law adopted in 2017, was pioneering: it established the legal liability of French multinational companies for human rights and environmental damage caused by their activities, both in France and abroad. Under this law, large companies are obliged to identify and address the human rights and environmental risks arising from their global operations.

## 5. The Historical Development of the Concept of Corporate Social Responsibility

David Korten drew attention to an interesting fact: until 1855 in North America, every registered company was subject to a strict legal requirement to serve the public good. Compliance with this expectation was regularly monitored by the state authority issuing the operating licence, and if a company failed to fulfil this obligation, its licence could be revoked (Korten, 1996).

However, after the Civil War of 1865, the increasingly powerful corporations, through lobbying activities and significant economic influence, succeeded in replacing unlimited liability with limited liability.

At the beginning of the 20th century, a renewed demand emerged for companies to bear greater responsibility towards the societies affected by their operations. Howard R. Bowen's 1953 work, *Social Responsibilities of the*

Businessman, was the first major publication to address corporate social responsibility (Bowen, 1953).

Initially, corporate responsibility emerged as a form of managerial practice, embodied in the expectation of stewardship or trusteeship. Rooted in Protestant ethics, this approach entailed conduct akin to the maxim “noblesse oblige”, paraphrased as “wealth obliges”. In other words, it presupposed that owners had received wealth in order to serve both God and society.

In 1970, Milton Friedman formulated his view, which later became known as the Friedman Doctrine. According to this doctrine:

*“There is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud.” (Friedman, 1970)*

The essence of the Friedman Doctrine is that business decision-makers have merely a fiduciary responsibility: they act exclusively on behalf of and in the interests of the owners.

According to the World Business Council for Sustainable Development, CSR reflects the business community’s commitment to contributing to sustainable economic development, working with employees, their families, the local community, and society at large to improve quality of life.

The Business World for CSR organisation defines CSR as a business practice that goes beyond the ethical, legal, commercial, and public expectations that society has of businesses. This interpretation broadens the concept of CSR and links CSR strategy directly to business decision-making.

From the 1990s onwards, companies increasingly integrated environmental and social considerations into their strategies, recognising the importance of sustainability. As this process accelerated, the European Commission adopted the Green Paper on Corporate Social Responsibility in 2001. Through this document, the EU formally acknowledged the significance of CSR and encouraged companies to assume social and environmental responsibility (European Commission, 2001a).

## 6. The Development of CSR Regulation in the European Union

Due to differences in national legislation and the complexity of global supply chains, the EU recognised the need for a unified, binding regulatory framework to ensure corporate responsibility for the protection of human rights and the environment.

In 2001, the European Commission published the Green Paper on Corporate Social Responsibility (CSR), defining CSR as the voluntary integration by companies of social and environmental concerns into their business operations and interactions with stakeholders (European Commission, 2001b). In line with the EU's Green Paper tradition, the main aim was to launch a broad societal and professional debate on the development and tasks of consumer protection. To align consumer protection with the internal market, the Commission set the goal of issuing a comprehensive consumer protection directive. Planned measures also included harmonising regulations affecting consumer interests more directly in Member States' competition law and identifying necessary responses to the new challenges of e-commerce. As part of the modernisation process of EU regulation, the introduction of regulations (instead of directives) in the field of consumer protection was also among the objectives of the Green Paper.

In 2011, the Commission provided a new definition of CSR, emphasising companies' responsibility for their impact on society, and introduced an action plan covering the period 2011–2014 (European Commission, 2011). According to the Commission's earlier definition, corporate social responsibility was understood as a business concept whereby companies, on a voluntary basis, integrate social and environmental concerns into their business activities and relationships with stakeholders. CSR concerns the responsibility of enterprises for their impact on society and the environment beyond the legal obligations imposed upon them. Certain regulatory measures create a more favourable environment for companies that voluntarily assume social responsibility.

The EU adopted Directive 2014/95/EU (Non-Financial Reporting Directive – NFRD), requiring large companies to disclose non-financial information, including environmental, social, and human rights matters.

To improve the consistency and comparability of published non-financial information within the Union, certain large undertakings were required to prepare a non-financial statement containing information relating to environmental, social, and employee matters, respect for human rights, anti-corruption, and bribery issues. This statement, to be included in the management report, had to describe the policies pursued, the outcomes of those policies, and the related risks. Furthermore, to identify, prevent, and mitigate existing or potential adverse impacts, the statement needed to include information on due diligence processes applied by the undertaking, including, where relevant and proportionate, its supply and subcontracting chains.

The next milestone was the adoption in 2022 of the Corporate Sustainability Reporting Directive (CSRD). The CSRD (Directive (EU) 2022/2464) replaced the

NFRD. As a result, the legislation governing sustainability reporting underwent a fundamental update. The scope was significantly broadened: the CSRD applies to all large undertakings and to SMEs listed on regulated markets, as well as to certain non-EU companies. Under the CSRD, companies began reporting in 2024 in accordance with mandatory EU sustainability reporting standards.

Alongside CSRD reporting, companies were also required to have their reports externally assured by a third party. The CSRD supports the European Green Deal, the policy package intended to transform the EU into a modern, resource-efficient, and competitive economy, with net greenhouse gas emissions reduced to zero by 2050.

The legal framework reached its current complexity in 2024 with the adoption of the Corporate Sustainability Due Diligence Directive (CSDDD or CS3D). Directive (EU) 2024/1760, widely referred to as the CSDDD, is a comprehensive regulatory instrument aiming to promote sustainable corporate conduct and responsibility. The legislative objectives go beyond technical regulation: they lay the foundations for a structural and conceptual shift in EU corporate governance.

Through this directive, such ambitions become legal obligations: it is no longer sufficient to “report in good faith” or operate “voluntary CSR programmes” – specific expectations are set, with concrete sanctions attached.

Companies are required to identify, prevent, and mitigate potential human rights infringements within their own activities, those of their subsidiaries, and across their entire value chains. The aim is to promote ethical and responsible conduct, even when it conflicts with short-term economic interests.

The directive is closely linked to the EU Green Deal and the Paris Climate Agreement and requires companies to integrate environmental considerations into their operations. Its objectives include eliminating regulatory fragmentation among Member States and ensuring a level playing field for companies operating across the Union. To incentivise long-term value creation, the directive calls for a shift from short-term profit orientation towards business models centred on sustainability, social responsibility, and stakeholder interests.

## 7. The Concept and Practice of Due Diligence

The term “due diligence” traditionally denotes the level of care expected of a reasonably acting company to prevent unlawful, risky, or ethically questionable conduct. Originally, the concept emerged in financial and investment contexts, but today it has also become a key concept in the field of human rights, environmental, and social responsibility.

According to the OECD (Organisation for Economic Co-operation and Development's) 2011 definition, due diligence is a process through which companies can identify, prevent, mitigate, and account for actual or potential adverse impacts (OECD, 2011).

The OECD Guidelines for Multinational Enterprises (the Guidelines) are government-backed recommendations addressed to multinational enterprises. Their objective is to enhance corporate contributions to sustainable development and to reduce the adverse impacts of business activities on the planet, society, and people.

The implementation of the Guidelines is supported by a special mechanism: the network of National Contact Points (NCPs) for Responsible Business Conduct, which was established by adhering countries to promote the Guidelines and support their application. Since their introduction in 1976, the Guidelines have been continuously updated as evolving societal challenges and the changing international business environment have necessitated adjustments.

The 2023 revision reflects the experience gained since the last comprehensive update in 2011 and responds to urgent social, environmental, and technological priorities confronting societies and businesses alike. The most significant elements of the update include:

- recommendations for companies to align with internationally agreed goals on climate change and biodiversity;
- the integration of due diligence expectations into processes related to the development, financing, sale, licensing, trade, and use of technology, including data collection and use;
- recommendations concerning the management of the impacts of companies' products and services and the exercise of due diligence across business relationships;
- stronger protection for vulnerable individuals and groups, including those raising concerns about business conduct;
- updated recommendations regarding the disclosure of information on responsible business conduct;
- the extension of due diligence recommendations to all forms of corruption;
- recommendations aimed at aligning lobbying activities with the Guidelines;
- strengthened procedures to enhance the visibility, effectiveness, and functional equivalence of National Contact Points dealing with responsible business conduct (OECD, 2023).

The UN Guiding Principles on Business and Human Rights (2011) represent the next level of legal sources. They constitute the globally recognised framework

for the human rights obligations of businesses. Adopted in 2011 by the UN Human Rights Council, the principles rest on the tripartite pillars of “protect, respect, and remedy”. This means that governments have a duty to protect human rights, businesses must respect them, and any harm caused must be remedied.

Governments are responsible for protecting human rights, including in relation to business conduct. This involves developing legislation on human rights, adopting measures to safeguard human rights, and ensuring the enforcement of relevant laws. Businesses have an obligation to respect human rights. This entails understanding human rights risks, taking measures to prevent violations, and remedying any harm caused.

The principles emphasise the importance of effective remedy mechanisms. These include both judicial and non-judicial processes that enable victims of human rights violations to access justice and reparation.

The UN Guiding Principles constitute the foundational framework for companies’ human rights obligations, encouraging them to consider human rights across their business operations.

The European Union has also adopted these principles, which have been incorporated into the national laws and policies of numerous countries. Previously, the EU issued soft law instruments and documents in this area (e.g., Guidance on Human Rights, 2016). However, the CSDDD Directive is the first binding EU legislation on due diligence.

Table 1 presents the due diligence steps as structured under the CSDDD Directive:

Table 1: Due Diligence Steps under the CSDDD Directive

Step	Content
<b>Risk Identification</b>	Identifying potential negative human rights and environmental impacts
<b>Prevention and Mitigation</b>	Introducing mechanisms to prevent harmful impacts
<b>Monitoring and Follow-up</b>	The company is obliged to monitor the effects of its measures
<b>Disclosure and Reporting</b>	Informing the public and ensuring transparency
<b>Complaint Handling</b>	Providing accessible procedures for stakeholders to report grievances

## 8. The Structure and Sanctioning System of the CSDDD Directive

The Directive establishes a clearly defined scope of application regarding the legal entities falling within its ambit. Within the European Union, it applies to undertakings that employ more than 1,000 persons and that generate an annual net worldwide turnover in excess of EUR 450 million, as well as to the ultimate parent companies of corporate groups meeting these thresholds.

In addition, the Directive extends its applicability to undertakings operating under franchise or licensing agreements, where the criteria for inclusion are determined by reference to the level of annual royalty payments in conjunction with the undertaking's net worldwide turnover.

The entry into force of the CSDDD Directive also merits particular attention. The entry into force of the CSDDD Directive presents several notable features.

First, in temporal terms, the Directive becomes legally binding on the twentieth day following its publication in the *Official Journal of the European Union*. Member States are then granted a two-year period to transpose its provisions into their national legal orders.

Second, company size is a determining factor in the timing of application. The obligations are introduced progressively rather than uniformly, with the earliest compliance deadlines applying to the largest undertakings – those employing more than 5,000 persons and generating substantial turnover. Subsequent phases extend the requirements to medium-sized undertakings with significant turnover, while smaller undertakings meeting the prescribed thresholds become subject to the Directive only at the final stage.

Third, the Directive prescribes a sector-specific sequencing. In certain high-risk sectors, such as mining and the textile industry, obligations may be imposed earlier or enforced more stringently. By contrast, undertakings operating in lower-risk sectors benefit from a longer preparatory period before full compliance is required. The duplicated sentence fragment has been removed here.

Finally, the Directive provides for an impact assessment mechanism. Several years after implementation, the European Commission must review its application and, where appropriate, propose amendments to ensure that its objectives are effectively achieved.

## 9. Substantive Obligations and Liability Regime under the CSDDD Directive

The Directive extends its scope to non-EU undertakings that generate an annual net turnover of at least EUR 450 million within the European Union. In such cases, its provisions also apply to the ultimate parent companies of groups meeting this threshold, as well as to undertakings operating within the EU under franchise or licensing agreements.

It imposes a dual obligation: (i) to conduct sustainability-related due diligence and (ii) to adopt a transition plan aimed at mitigating climate change. In meeting the due diligence requirement, undertakings must assess their compliance with the human rights and environmental provisions set out in the Annex to the Directive. This process must cover the entire chain of activities, including both upstream (supply) and downstream (product-related) segments, extending to the end of the product's life cycle.

Undertakings are also required to establish a complaint-handling mechanism enabling a broad range of stakeholders to report adverse impacts they have observed. Where such a mechanism already exists, it must be expanded to encompass environmental and human rights concerns. In addition, undertakings must regularly evaluate the adequacy and effectiveness of their measures and – unless already subject to the CSRD sustainability reporting regime – publish annual reports on their websites detailing relevant activities. Furthermore, they are obliged to take appropriate measures to prevent potential adverse impacts identified through risk assessments and to remedy any actual adverse impacts.

The enforcement architecture combines administrative and civil liability mechanisms. Alongside administrative sanctions – such as fines – imposed during official inspections, the Directive provides for civil liability. Undertakings may be held liable for damage suffered by natural or legal persons resulting from their failure to prevent or remedy harmful impacts and may be required to provide full compensation. Importantly, the Directive authorises trade unions and non-governmental human rights and environmental organisations to act on behalf of affected parties in bringing claims for the enforcement of these rights.

## 10. The Significance of the CSDDD Directive in Legal Development

The adoption of the CSDDD Directive represents a turning point in the development of European economic and corporate law. Instead of the former shareholder-focused perspective, the regulation introduces a stakeholder-

based approach that redefines normative expectations regarding the social role of companies. Stakeholder value theory prioritises responsibility over profitability, viewing the company as a coalition that must serve the benefit of all participants.

For a long time, the field of sustainability, human rights, and environmental protection was dominated by soft law instruments. The CSDDD is the first to codify these principles in a binding EU legal source, thereby setting a precedent for the incorporation of soft law norms into hard law frameworks.

The CSDDD goes beyond the classical framework of delictual liability by introducing preventive liability. Under this system, a company can be held responsible even if it fails to take the necessary measures to prevent harm, regardless of whether it directly caused the damage itself. Through the CSDDD Directive, the boundary between law and ethics is becoming blurred. Expectations that were previously considered ethical norms – such as respecting workers’ rights – are now becoming legal obligations, thereby imparting a new moral dimension to legal practice.

The CSDDD provides a model example of how complex, value-based challenges – such as sustainability or human rights – can be addressed through legal instruments. This approach is likely to serve as guidance for other EU regulations in the long term.

Table 2 compares the characteristics of Directive (EU) 2024/1760 (CSDDD) with previous, mainly voluntary corporate responsibility initiatives and certain national regulations. The aim is to demonstrate the progress represented by the CSDDD within the EU regulatory framework for corporate sustainability.

Table 2: Comparison of the CSDDD with Previous Corporate Responsibility Initiatives and National Regulations

Element	Previous Initiatives (CSR, NFRD, National Rules)	CSDDD (EU 2024/1760)
<b>Legal Nature</b>	Mostly soft law, voluntary schemes, or national legislation	Binding EU directive
<b>Scope of Application</b>	Varying by Member State, sector-specific	Uniform application in all Member States
<b>Content of Corporate Responsibility</b>	Non-financial reporting, ethical codes	Risk assessment, prevention, intervention, legal liability
<b>Sanctionability</b>	Generally, none, with reputational consequences at most	Specific fines, liability for damages
<b>Regulation of the Supply Chain</b>	Typically limited to internal company operations	Covers the entire supply and value chain

In legal dogmatic terms, the CSDDD Directive can be summarised as situated at the intersection of classical delictual liability and proactive corporate conduct. Under the CSDDD, companies can be held responsible not only for their own activities but also for abuses occurring within their supply chains. Due diligence becomes one of the cornerstones of 21st-century corporate governance. The directive elevates the concept of due diligence beyond a mere legal mechanism, transforming it into a normative expectation under EU law. This requires companies to adopt new ways of thinking and operating, centred on prevention, transparency, and accountability.

## 11. Better Regulation Tools: Quality Guarantees in EU Legislation

Two fundamental principles underpin the European Union's Better Regulation policy: legislative consistency and transparency. Below, the historical and institutional context of these efforts is outlined.

The European Commission's Better Regulation Agenda aims to ensure that EU legislation is more transparent, effective, evidence-based, and targeted.

Historically, EU law-making focused primarily on economic integration. However, since the 2000s, increasing attention has been paid to the quality of legislation. The Better Regulation Agenda, launched in 2002, sought to ensure that legal norms are well-founded, coherent, and transparent. The CSDDD is the first comprehensive ESG-related directive prepared in accordance with these principles, based on multi-level scrutiny and extensive public consultation.

The principles of Better Regulation include:

- Transparency – public consultations and impact assessments
- Evidence-based decision-making – relying on data and research
- Proportionality – avoiding excessive administrative burdens
- Coherence – consistency with other EU legislation
- Subsidiarity – regulating at EU level only when genuinely necessary

The goal of legislative consistency is to ensure that new EU rules align with existing legal frameworks, avoiding overlaps, gaps, or contradictions. The Better Regulation Guidelines require an examination of the coherence of any new legal act with existing EU and national legislation.

In the case of the CSDDD, this was especially important since it is closely linked to the CSRD, the NFRD, and Directive 2019/1937 on whistleblowing. This ensures that companies can operate within a uniform, coherent regulatory environment.

According to the principle of transparency, legislation must be publicly accessible, justified, and traceable for society. During the legislative process for

the CSDDD, several rounds of public consultation were conducted, involving civil society organisations and economic actors. The European Commission published the related impact assessment documents, which were also reviewed by the Regulatory Scrutiny Board. These procedures contributed to the CSDDD's broad social legitimacy as a legislative instrument.

The directive obliges Member States to establish supervisory authorities and enables stakeholders to enforce their rights, ensuring practical enforceability. These objectives closely align with the UN Sustainable Development Goals (SDGs 16 and 17).

## 12. How were the Better Regulation principles applied in drafting the CSDDD?

The CSDDD is the first comprehensive ESG-related directive to systematically employ Better Regulation principles and tools. This approach ensures that the directive is well-prepared, targeted, and proportionate, thereby increasing its acceptance among Member States and companies.

During the preparation of the Corporate Sustainability Due Diligence Directive, these tools played a prominent role.

Table 3 below sets out the most important Better Regulation tools and their specific application in the context of the CSDDD:

Table 3: Key Better Regulation Tools and Their Application in the Context of the CSDDD

Tool	Content	Connection to the CSDDD
<b>Impact Assessment (IA)</b>	Assessing the impact before legislation is adopted	The CSDDD impact assessment examined effects on companies, workers, the environment, and consumers.
<b>Public Consultation</b>	Open social consultation process	Multiple consultation rounds were conducted with civil organisations and industry representatives.
<b>Evaluation / Fitness Check</b>	Evaluation of prior legislation	The effectiveness of the CSR and NFRD directives was assessed to identify shortcomings.
<b>Regulatory Scrutiny Board (RSB)</b>	Independent body reviewing impact assessments	The CSDDD preparatory materials were evaluated by the RSB.
<b>REFIT Programme</b>	Simplification and deregulation efforts	The CSDDD was designed to avoid unnecessary administrative burdens.

(REFIT aims to ensure EU regulation does not exceed what is necessary.)

### 13. Hungarian CSR and ESG Regulation in the Context of EU Law

Act CVIII of 2023 on the Rules of Corporate Social Responsibility Promoting Sustainable Finance and Unified Corporate Responsibility – taking into account environmental, social, and societal considerations, and amending other related legislation – entered into force on 1 January 2024.

The EU's Corporate Sustainability Reporting Directive (CSRD) and the ESG (Environmental, Social, Governance) framework are closely interlinked. The CSRD requires large undertakings to prepare transparent and detailed reports on their sustainability performance, thereby effectively requiring disclosure in accordance with ESG criteria. Under Hungarian law, ESG is defined as *“a set of criteria relating to sustainability issues that, for a given enterprise, assess environmental, social, and governance impacts and factors from a sustainability perspective.”*

The preamble of the Hungarian Act expressly establishes a connection with EU legislation, stating that its objective is to ensure that the activities of individual economic operators, or certain segments thereof, can be objectively assessed based on sustainability considerations, and to support the implementation of the European Green Deal. A comparison with the preamble of the CSRD reveals full alignment with the objectives pursued at EU level, indicating that at the level of the normative text, the Hungarian regulation reflects the same legislative intent.

A systematic analysis of the Hungarian Act yields the following observations. Article 29a of Directive (EU) 2022/2464 (CSRD) sets out provisions on consolidated sustainability reporting, while Article 29b establishes the standards applicable to small and medium-sized enterprises. Accordingly, Chapter III of the Hungarian Act defines the obligations of companies, including sustainability due diligence, risk management and risk assessment, preventive and corrective measures, ESG reporting requirements, and complaint-handling mechanisms. Both in terms of general principles and in its detailed provisions, the domestic regulation closely follows EU requirements without substantive deviation.

Chapter II of the Act assigns responsibilities to the Minister for Economic Development and to the Supervisory Authority for Regulated Activities. The National ESG Council – established and chaired by the Minister – serves as a professional advisory body and participates in determining the minimum requirements for ESG reporting. At the request of the President of the Supervisory Authority for Regulated Activities, the Council issues professional opinions.

The mandate of the Supervisory Authority for Regulated Activities, created under Act XXXII of 2021, has been expanded to include the establishment of the ESG Accreditation Committee.

Enforcement is addressed at several levels within the Hungarian regulation. The first level consists of supervisory and monitoring powers. Compliance with ESG reporting obligations and corporate sustainability reports is subject to official oversight, primarily by the Hungarian National Bank and, in certain cases, by other designated authorities depending on the nature of the undertaking (e.g. listed companies, financial institutions).

Sanctions and administrative fines are directly linked to these supervisory powers. Incomplete or missing ESG reports, or the provision of false information, may result in fines proportionate to the company's turnover and the seriousness of the infringement, with amounts potentially reaching several million forints. Authorities may also impose corrective measures, such as requiring the supplementation, amendment, or resubmission of the report within a prescribed period. Repeated non-compliance may lead to increased penalties.

The Act also affords legal protection to entities subject to its provisions: administrative decisions may be challenged before the courts in administrative proceedings, thereby enabling companies to contest the legality of fines or corrective orders.

The Corporate Sustainability Due Diligence Directive (CSDDD) was adopted at EU level on 24 May 2024. Member States are granted a two-year period to transpose its provisions into national law and establish the necessary administrative procedures. As of the date of writing, Hungary has not yet enacted domestic legislation implementing the CSDDD.

## 14. Corporate Social Responsibility: Conceptual Framework, Strategic Importance, and International Practice

Corporate Social Responsibility (CSR) constitutes a strategic approach whereby enterprises voluntarily incorporate social and environmental considerations into their business operations and interactions with stakeholders. The underlying objective of CSR is for companies to acknowledge and assume responsibility not only for their economic performance but also for their social and environmental impacts. CSR thus entails corporate accountability for organisational conduct and its consequences for society, encompassing – inter alia – employment conditions and labour standards, freedom of association, workplace wellbeing, non-discrimination and gender balance, stakeholder engagement, respect for human rights, prevention of environmental harm

(including emission and pollution reduction), and the elimination of bribery and corruption.

Empirical evidence demonstrates that CSR can significantly enhance corporate competitiveness, generating tangible benefits in areas such as risk management, cost reduction, access to capital, customer relations, human resource development, and innovation capacity. In its 2011 CSR Strategy, the European Commission urged companies to work in close collaboration with stakeholders to embed social, environmental, ethical, human rights, and consumer concerns into both core business strategies and day-to-day operations.

Globally, the practical implementation of CSR is increasingly widespread, with diverse examples illustrating how businesses can create societal and environmental value. Corporate social marketing represents one such instrument, whereby companies design and execute campaigns aimed at fostering behavioural change in domains including public health, public safety, environmental protection, and community wellbeing.

CSR initiatives are typically categorised into four principal domains:

- Environmental responsibility
- Human rights responsibility
- Philanthropic responsibility
- Economic responsibility

When developing or expanding CSR strategies, enterprises generally seek to evaluate their impacts on three fundamental stakeholder groups: customers, employees, and society at large.

In the contemporary, rapidly evolving business landscape, innovative corporate models are indispensable for enabling adaptation to technological advances, shifting market demands, and heightened sustainability expectations. CSR is increasingly interpreted as a novel business model that enables corporate contributions to sustainable development by striking a balance among economic interests, environmental imperatives, and social objectives. This model integrates environmental and social considerations, stakeholder perspectives, and ethical conduct into strategic decision-making. In this respect, CSR can be regarded as a form of social innovation, insofar as it represents a new business paradigm whose outcomes advance societal progress.

The fair-trade movement constitutes a prominent illustration of CSR in practice. Originating primarily from development agencies and religious organisations, it later expanded to include a broad range of civil society actors. In partnership with producers in disadvantaged regions, these actors established southern fair-trade organisations – associations that facilitated the organisation of production

and the provision of basic social services, enabling producers to export goods to developed economies on equitable terms.

By the mid-1980s, the movement had acquired formal institutional structures through the establishment of registered cooperatives, most notably the European Fair-Trade Association (EFTA) and the World Fair Trade Organisation (WFTO). Since its inception, the WFTO has encompassed some of the most prominent European cooperatives and has evolved into one of the world's most comprehensive fair-trade networks, spanning the entire value chain from production to retail, and promoting fairness, sustainability, and ethical trade at every stage.

Below, selected international examples are presented to demonstrate the broad public visibility of such business conduct:

- *TOMS Shoes – “One for One” programme*  
For every pair of shoes sold, the company donates a pair to a child in need. The programme integrates social responsibility directly into the company's brand strategy.
- *Dove – “Real Beauty” campaign*  
The campaign aims to promote a positive self-image and acceptance of diverse beauty ideals among women and girls. In cooperation with the World Association of Girl Guides and Girl Scouts (WAGGGS), Dove developed free educational materials for parents and teachers.
- *LEGO*  
The company has committed to manufacturing all its products from sustainable materials by 2030.
- *Starbucks – “Greener Stores” programme*  
The goal is to create eco-friendly outlets that consume less energy and enable more sustainable operations.
- *NIVEA*  
Key CSR initiatives include “NIVEA Cares for Family” and “Mom Was Right.” The “NIVEA Cares for Family” programme was available in 12 countries, with campaigns adapted to local contexts. The “#MomWasRight” initiative was implemented in 16 countries with a unified message, while in India, Indonesia, and Brazil, NIVEA developed unique local campaigns. The “NIVEA Cares for Family” programme focuses on supporting families. According to the programme description, “families are the true mirrors of society, and these values strengthen individuals, local communities, and society as a whole.”

## 15. Conclusion

This study has shown that the adoption of the CSRD and CSDDD Directives reflects a broader transformation in corporate regulation, driven by evolving concepts of responsible management and intergenerational social responsibility. Legislative trends now extend beyond the encouragement of “good practices” to the sanctioning of irresponsible conduct, marking a clear transition from voluntary commitments to the mandatory enforcement of binding rules. Sustainability objectives are thus understood not only as aspirational principles but as a normative operational framework within corporate governance.

In Hungary, the CSRD will become applicable to companies from January 2025, in alignment with EU commitments. While the long-term effectiveness and verifiability of its implementation can only be evaluated over time, its mandatory nature is expected to encourage broader engagement, particularly among domestic enterprises. Although current examples are drawn primarily from multinational practices, changes in the legal environment are likely to strengthen ESG-driven activities in the Hungarian business sector.

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# TOWARDS A SUSTAINABLE OCCUPATIONAL SAFETY GOVERNANCE: THE ROLE OF DIGITALISATION AND STAKEHOLDER ATTITUDES

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## ABSTRACT

The aim of the study is to examine how sustainable occupational safety and health (OSH) practices, digitalisation, and corporate and employee attitudes contribute to economic and social sustainability. The research is justified by the fact that global sustainability expectations and technological development are increasingly linked to the issue of occupational safety, while the expectations of companies and employees are also constantly changing. The study was based on secondary research analysing international reports, scientific studies, and statistical data (e.g. ILO, EU-OSHA, European Commission, KPMG, Porter Novelli). The qualitative methodology used focused content analysis, with a focus on the prevalence of digital occupational safety technologies, the integration of sustainability management, and the attitude of stakeholders. The results show that the use of digital technologies such as sensors, wearables, and predictive analytics significantly increases compliance with occupational safety and health regulations, while integrating sustainability aspects reduces the number of accidents and costs for companies in the long run. Employer engagement and a positive corporate culture are critical factors in the success of sustainable occupational safety and health, while employees increasingly demand ethical and responsible corporate operations. The originality of the research lies in the fact that it examines the relationship between occupational safety and health digitalisation and the Sustainable Development Goals in an integrated way. Its findings are of practical application both in the field of corporate governance and in the development of occupational safety strategies.

**KEYWORDS** Economic growth, health, sustainability, technological changes, workplace safety

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## 1. Introduction

The principles of sustainable development have become decisive in almost all areas of corporate operation, including occupational safety. The development of a safe and healthy working environment is not only a legal obligation, but also a basic condition for economic, social, and environmental sustainability. The latest reports from the International Labour Organization (ILO, 2023a) and the European Commission (European Commission, 2025) also highlight that the development of occupational safety practices contributes to reducing workplace accidents, increasing employee satisfaction, and strengthening company competitiveness.

Digitalisation offers new tools to support compliance with occupational safety and health rules, while the integration of sustainability aspects is increasingly expected of companies, not only from the regulatory perspective, but also from that of employees and consumers. The aim of the study is to show how the use of digital technologies, the sustainability integration of OSH systems, and corporate and employee attitudes contribute to economic and social sustainability.

The relationship between sustainable development and occupational safety and health has received special attention in the international literature in recent years. The International Labour Organization's (ILO) Global Report 2023 emphasizes that a safe and healthy working environment is a critical factor not only for ensuring the well-being of workers but also for improving economic performance (ILO, 2023b). The data show that every euro spent on OSH can lead to a twofold return in the long run.

## 2. Literature review

According to a 2023 report by the European Commission, around 50% of companies have integrated their sustainability management systems into their occupational safety practices, which has also resulted in a reduction in the number of workplace accidents (European Commission, 2025). Digitalisation trends have also brought about significant changes: according to EU-OSHA, almost 40% of companies are already using sensors, predictive analytics, and other digital tools to support occupational safety and health (EU-OSHA, 2023a).

From a social point of view, the expectations of employees have also changed significantly. According to research by Porter Novelli (2020), 88% of employees prefer a workplace that pays attention not only to economic performance, but also to social impact. Sustainable OSH practices are thus directly linked to corporate attractiveness and employee engagement. KPMG's 2022 survey also

confirms that the vast majority of large companies are already reporting on their sustainability performance at a strategic level (KPMG, 2022).

### 3. Methodology

The aim of the study was to examine the economic and social impacts of sustainable OSH practices, with a particular focus on the use of digital technologies and the role of corporate and employee attitudes. The research employed secondary data collection, which was based on the analysis of international reports, research studies, and statistical analyses.

Sources analysed included the International Labour Organization's global reports (ILO, 2023a), the European Commission's Sustainability and Safety at Work Reports (European Commission, 2025), and EU-OSHA's studies on digitalisation (EU-OSHA, 2024). In addition, the study took into account surveys on corporate sustainability, such as KPMG's report (2022) and the research on employee attitudes conducted by Porter Novelli (2020).

The research used a qualitative analysis, in which the content of the sources was explored through comparative analysis. The focus was on the degree of digitalisation of occupational safety and health systems, the level of sustainability integration, and the development of employer and employee attitudes. When evaluating the results, the study also took into account their consistency with the Sustainable Development Goals (SDGs), with a particular focus on promoting a safe and healthy working environment.

## 4. Results and Discussion

### 4.1. Employers' attitudes in sustainable OSH

#### 4.1.1. Economic incentives

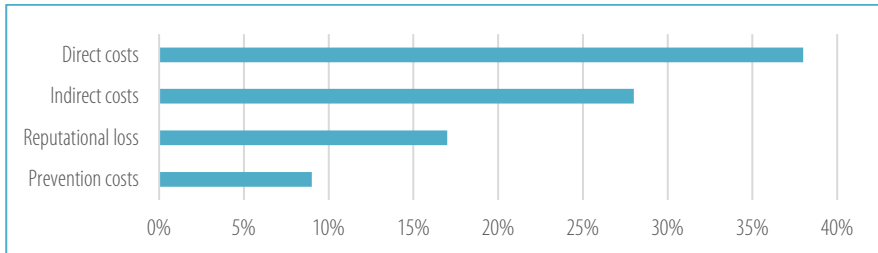
Employers' attitudes play a fundamental role in achieving sustainable OSH, as they have a direct impact on compliance with OSH rules and on the creation of a safe working environment. Employers' attitudes are shaped by several factors, including economic incentives.

Many companies evaluate OSH measures primarily from the point of view of cost-effectiveness and competitiveness. Employers who recognise that adequate occupational safety and health systems can reduce losses resulting from accidents and occupational diseases in the long term are more likely to invest in creating a safe working environment (EU-OSHA, 2024).

The costs generated by occupational accidents and diseases impose a significant financial burden on companies (see Figure 1), not only directly (e.g.

compensation, health care costs) but also indirectly (e.g. production losses, replacement labour costs, reputational damage) (ILO, 2023a). Research shows that a single serious workplace accident can consume a significant part of a company's annual revenue, especially for small and medium-sized enterprises (EU-OSHA, 2024). By contrast, investments in prevention have been shown to yield positive returns: it is estimated that every €1 invested in health can lead to cost savings of up to €2.2 for companies (EU-OSHA, 2023).

Figure 1: Cost distribution of occupational accidents at company level



#### 4.1.2. Analysis of the cost structure of occupational accidents at company level

Occupational accidents impose a significant financial burden on organisations at the company level, which is reflected in different cost components. An analysis of the distribution of costs reveals that the magnitude of direct, indirect, and reputational damage exceeds the proportion of resources spent on prevention, although the latter could significantly reduce such losses.

Direct costs, such as compensation paid to workers and the costs of medical treatment, account for 40% of the total costs. These expenses are directly measurable and are reflected in the company's budget immediately after accidents occur (ILO, 2023a).

Indirect costs, such as production losses and the costs of training temporary workers or new workers, represent 30% of the total costs. These expenses are less tangible, but they have a serious impact on the company's efficiency and competitiveness in the long term (EU-OSHA, 2024).

Reputational losses, which result from the deterioration of a company's reputation, the loss of customers, and the weakening of its market position, account for 20% of costs. These indirect impacts are often more difficult to quantify, but they can also jeopardise the sustainability of the company in the long term (KPMG, 2023).

Interestingly, prevention costs, which include OSH training, the provision of protective equipment, and other investments to reduce workplace risks, account for only 10% of the costs. This relatively low outlay could result in disproportionately high savings if companies were to pay more attention to

prevention proactively. According to numerous studies, every €1 spent on prevention can result in a cost reduction of up to €2.2 (European Commission, 2025).

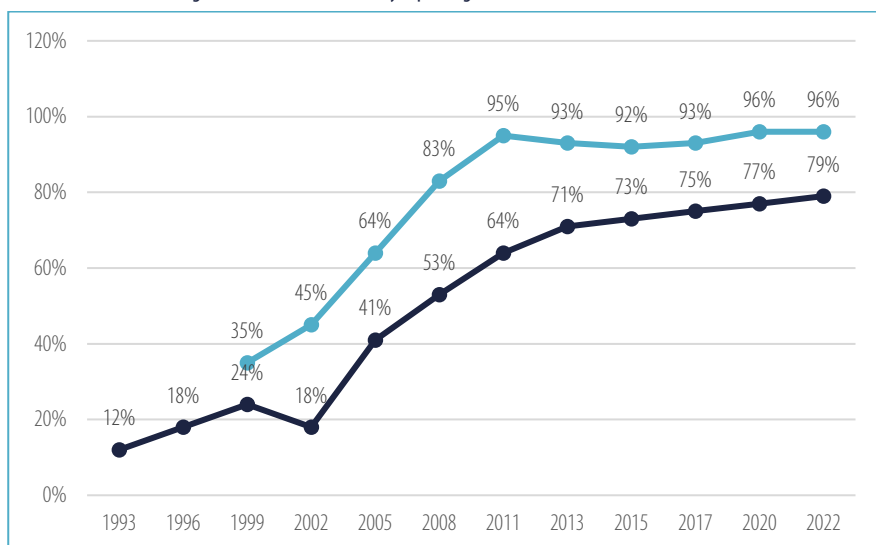
Overall, the cost structure clearly supports the argument that the prevention of occupational accidents is not only an ethical and legal imperative but also a serious economic interest for companies. Increasing the proportion of preventive measures can lead to significant cost savings and more sustainable operation in the long term.

#### 4.1.3. The role of corporate culture in sustainable OSH

The corporate culture and the commitment of management are decisive factors in complying with occupational safety regulations and implementing sustainable occupational safety and health. Organizations that place a strong emphasis on protecting the health and safety of employees tend also to have a more positive attitude towards sustainability principles (EU-OSHA, 2024).

Corporate sustainability programs have become almost the norm by now (see Figure 2). According to a 2022 survey by KPMG, 96% of the world's 250 largest companies already report regularly on their sustainability activities (KPMG, 2022). Professor Klaus Schwab, founder and executive chairman of the World Economic Forum, highlighted that environmental, social, and other non-financial factors have received increasing attention in recent years, as they fundamentally affect the long-term business viability and success of companies (World Economic Forum, 2023).

Figure 2: Global sustainability reporting rates (1993-2022) (KPMG, 2022)

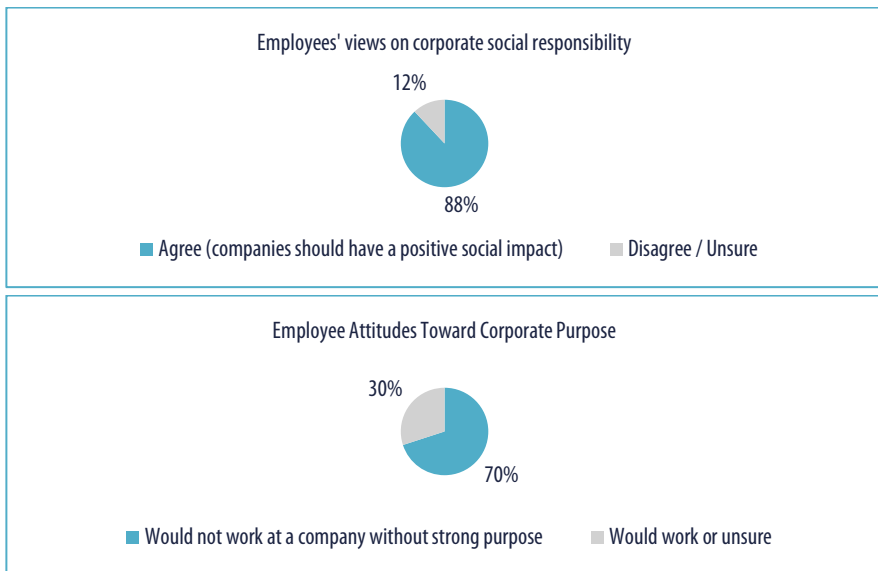


Global paradigm shifts, as well as the transformation of consumer attitudes towards climate change, also play a significant role in driving companies to become increasingly active in achieving their environmental sustainability and occupational safety and health objectives (European Commission, 2025). In addition, employee expectations are also changing: the younger generations, in particular, expect companies to take meaningful measures not only to generate profit but also to protect the environment and promote social responsibility. Thus, companies can gain a competitive advantage from taking environmental initiatives seriously, while indifference to them can entail the risk of losing talent (KPMG, 2022; World Economic Forum, 2023).

#### 4.1.4. The role of company culture from the perspective of employees

Employee perceptions of workplace sustainability are increasingly shaping companies' corporate social responsibility strategies and sustainability practices. The data show that the majority of employees expect their employer not only to achieve economic results, but also to have a positive impact on society (see Figure 3).

Figure 3: Employee Perspectives on Corporate Social Responsibility and Purpose (Porter Novelli, 2020)



According to a survey conducted in 2020, 88% of employees believe that it is no longer enough for companies to pursue profits alone; they are also expected to play a positive role in society (Porter Novelli, 2020). The study involved 1,003 full-time U.S. workers, all of whom worked for companies that employ more than 500 people.

The study also found that 70% of employees would be reluctant to work for an organisation that lacks a clear and strong sense of purpose (Porter Novelli, 2020). These findings highlight that a commitment to workplace sustainability is not only a matter of reputation, but also a critical factor in attracting and retaining talent.

## 4.2. *Employee attitudes in sustainable OSH*

Employee attitudes play a key role in the success of sustainable OSH practices. There are many factors that influence the willingness of workers to comply with occupational safety regulations and support the creation of a safe working environment.

Firstly, the OSH awareness and training of workers are essential. Regularly organised training sessions and awareness-raising programmes promote understanding of the rules and strengthen the importance of following them (EU-OSHA, 2024). Through training, employees not only acquire knowledge of the rules, but also become able to recognize and prevent risks.

Secondly, the use of appropriate motivational tools can also contribute to compliance with occupational safety and health rules. Reward systems, recognition, and promotion opportunities can have an incentivising effect: employees who receive recognition for their work are more likely to show a responsible attitude towards OSH requirements (Porter Novelli, 2020).

Thirdly, the quality of the working environment and working conditions are also fundamental factors influencing employee attitudes. A safe, ergonomic environment, the provision of appropriate protective equipment, and the availability of occupational health services all contribute to employee well-being, satisfaction, and sustainable engagement (ILO, 2023).

Taken together, these factors determine how workers relate to OSH and to what extent they contribute to maintaining a sustainable and safe working environment.

## 4.3. *Main obstacles to compliance*

### 4.3.1. *Cost barriers to compliance with OSH rules in the EU*

According to research conducted in the European Union, one of the main obstacles for companies to comply with occupational safety and health regulations is the high level of costs. According to Eurostat data, around 45% of European companies cite OSH costs as an obstacle (Eurostat, 2020). The problem mainly affects small and medium-sized enterprises (SMEs), but sectoral specificities also play a significant role in the extent of the impact. In micro and

small enterprises, it is particularly common for costs to influence compliance with OSH requirements as a significant constraint (EU-OSHA, 2020a).

Eurofound has come to a similar conclusion, finding that many companies face barriers to compliance with OSH standards mainly for financial reasons (Eurofound, 2019). According to the results of the ad-hoc module related to the 2019 Labour Force Survey, a significant number of respondents highlighted high investment costs, such as the cost of protective equipment and OSH training, as a problem factor (Eurostat, 2020).

The OECD's analysis confirms that compliance with OSH standards in some sectors, in particular construction and agriculture, can have disproportionately high-cost implications (OECD, 2018). In the age of digitalisation, the increase in OSH requirements has also led to increased costs for businesses (EU-OSHA, 2020b). Work-related illnesses resulting from deficiencies in OSH measures also indirectly generate significant costs for companies (Eurostat, 2020).

In addition to costs, the complexity of the regulatory environment is another obstacle, which also makes compliance difficult for companies (EU-OSHA, 2019). However, it is important to emphasize that, based on long-term analyses, investments in occupational safety and health not only serve to prevent accidents and damage to health, but can ultimately also result in cost savings and improved performance for businesses (ILO, 2021).

Overall, research clearly shows that a significant number of companies, especially smaller ones, consider costs to be the main obstacle to compliance with OSH rules. In addition, new requirements imposed by technological developments, administrative burdens, and the complexity of the regulatory environment also increase compliance difficulties.

#### 4.3.2. *Social and cultural barriers*

Promoting occupational safety and health is of paramount importance for both workers' wellbeing and economic efficiency. In order to prevent workplace accidents and health damage, it is essential to provide adequate education, increase awareness, and strengthen occupational safety culture. International surveys and research highlight the factors that hinder the implementation of effective OSH measures, in particular the role of insufficient training and cultural resistance.

Lack of awareness and training is a major problem in the field of occupational safety and health. According to the European Agency for Safety and Health at Work's third European survey (ESENER-3), around 30% of European workers are not adequately trained to recognise or avert workplace hazards (EU-OSHA, 2019). Lack of training and worker participation has also been directly linked to

an increase in the number of workplace accidents (EU-OSHA, 2020c). These figures show that proper education and awareness-raising are essential to improve safety at work.

Another significant factor is cultural resistance, which affects about 25% of workers globally. According to the ILO's findings, cultural customs and social norms are often an obstacle to full compliance with OSH standards. This phenomenon is particularly pronounced in the agricultural and construction sectors, where OSH culture is traditionally weaker (ILO, 2021). Cultural factors therefore have a fundamental influence on the practical enforcement of occupational safety and health rules, especially in environments where the norms of safe work are not properly established.

Overall, a lack of awareness and training affects one in three workers in the European Union, while cultural resistance is characteristic of one in four workers globally. Both factors are closely related to an increased risk of workplace accidents. Strengthening occupational safety culture, continuous education, and the application of measures developed with cultural specificities in mind are essential conditions for making the workplaces of the future safer and healthier.

#### 4.3.3. *Technology barriers*

Digitalisation is significantly transforming occupational safety and health systems worldwide. The use of new technologies not only increases the efficiency of work processes but also creates an opportunity to improve compliance with occupational safety requirements. At the same time, the lack of technological development can be a serious obstacle to achieving these goals.

According to a survey by the European Agency for Safety and Health at Work, 20% of European companies cite technological barriers, such as old machinery and outdated technologies, as major obstacles to the implementation of OSH rules (EU-OSHA, 2020c). This is a serious risk, especially in the manufacturing and processing sectors, where technological obsolescence can directly increase the number of accidents and diseases at work.

Similar problems are highlighted by the International Labour Organization's Global Business Survey, which shows that 15% of companies around the world do not have adequate digital tools, such as risk analysis software or real-time monitoring systems, to monitor and enforce occupational safety and health rules (ILO, 2023a). The lack of digital tools significantly reduces the effectiveness of occupational safety compliance, making it difficult to identify violations promptly and take the necessary measures without delay.

Overall, the presence of outdated technologies and the lack of digital tools both create serious obstacles to the effective application of OSH rules (see Figure 4).

Encouraging technological development and increasing the availability of digital solutions is therefore essential to increase occupational safety and prevent occupational diseases.

Figure 4: Technological barriers to maintaining safety at work



## 4.4. Best practices

### 4.4.1. The role of OSH training in the prevention of occupational accidents

OSH training plays a central role in creating a safe working environment, protecting workers' health, and preventing workplace accidents. According to a 2022 report by the European Union Agency for Safety and Health at Work, positive attitudes towards regular training are widespread among employers: 70% of those surveyed believe that regular OSH training reduces the number of occupational accidents and illnesses (EU-OSHA, 2024).

The effectiveness of training is also supported by practical experience. According to the European Survey of Enterprises on New and Emerging Risks conducted by EU-OSHA (EU-OSHA, 2019), 77% of companies regularly provide OSH training to their employees. This shows that most companies recognise the preventive importance of training and integrate it into their occupational health and safety management systems.

Regular and targeted occupational safety training not only contributes to the reduction of accident risks, but also increases the risk assessment skills of employees, promoting more conscious and safer work. The knowledge gained during such training helps workers to identify hazards more easily and to take preventive measures more effectively.

Overall, it can be stated that the regular and systematic implementation of occupational safety and health training is essential for maintaining the level of occupational health and safety and for the prevention of accidents and occupational diseases. Research data clearly show that the shared commitment of employers and employees to training plays a key role in creating safe workplaces (EU-OSHA, 2022; EU-OSHA, 2019).

#### *4.4.2. The role of OSH incentive schemes in reducing occupational accidents in European small and medium-sized enterprises*

The development of occupational safety is of paramount importance for European small and medium-sized enterprises (SMEs), and one effective tool in this regard is the use of occupational safety incentive schemes. Research in recent years has clearly confirmed that such programs make a significant contribution to reducing the number of accidents.

Based on EU-OSHA's Healthy Workplaces LIGHTEN THE LOAD campaign (2022), a comprehensive European survey found that 37% of SMEs surveyed reported a reduction in accidents following the introduction of OSH incentive schemes (EU-OSHA, 2022). Similar results were reported by Eurofound (2021), which found that companies with formal safety incentive programmes had a 25-45% lower rate of serious accidents. The OECD report (2022) also highlighted that employee recognition, even in non-monetary form, resulted in a 30% reduction in the number of accidents among small businesses.

Longitudinal studies also support the effectiveness of incentive systems. In research conducted by Gómez et al. (2023) among Spanish SMEs, the authors found that rewarding safe behaviour reduced accident frequency by 18% over 28 months. Similar results were reported by Cappelletti et al. (2021), who examined Italian businesses and showed that incentive schemes combined with safety training resulted in a 32% reduction in accidents.

Furthermore, Brun et al. (2023) pointed out that the use of positive reinforcement (rewards and recognition) had a greater impact on the reduction of accident rates in SMEs than in large enterprises. According to EU-OSHA's ESENER survey (2023a), 34% of respondents highlighted the importance of OSH incentive schemes in improving occupational safety. The research of Neal & Griffin (2022) further reinforced these findings, as systems that reward safe behaviour increased employee safety awareness by 31%.

Overall, current research shows that various incentive schemes, whether cash rewards, days off, or recognition, can lead to a 20-40% reduction in accidents among European SMEs. Longer-term programs (longer than 12 months) are particularly effective, especially if they are combined with training or continuous feedback, which further increases safety awareness and supports the development of a safe working culture.

#### *4.4.3. The role of ergonomic working environments in European companies*

Health and safety at work is a priority in the European Union, especially in the development of modern working environments. The integration of ergonomic aspects not only increases the wellbeing of employees but also has a positive

impact on organisational efficiency and the reduction of sickness absence. According to Eurostat data, around 60% of EU companies are already using ergonomic solutions to improve the working environment.

The importance of ergonomic improvements is supported by several studies. According to Eurofound's Sixth European Working Conditions Survey (6th EWCS), factors such as adjustable chairs, height-adjustable desks, adequate lighting, and screen placement make a significant contribution to reducing musculoskeletal disorders. Data from the Living, working and COVID-19 survey conducted during the COVID-19 pandemic also confirm that the use of ergonomic solutions has increased in parallel with the spread of teleworking, as employers have sought to make the home working environment ergonomic as well (Eurofound, 2021).

Statistics on workplace accidents and health impairments also highlight the importance of ergonomic improvements. Eurostat's 2022 report, Accidents at work and other work-related health problems, clearly states that the use of ergonomic measures contributes to reducing the incidence of work-related injuries and illnesses (Eurostat, 2024).

Further evidence of the positive effects of ergonomic improvements can be found in research on musculoskeletal disorders published by the European Agency for Safety and Health at Work. Data from the European Survey of Enterprises on New and Emerging Risks also show that companies are becoming more aware of identifying and managing ergonomic risks.

Overall, the use of ergonomic solutions among European companies not only serves to preserve the health of employees but also provides significant benefits in terms of economic efficiency. In the future, ergonomics is expected to become even more important, especially with the spread of flexible forms of work (Baghdadi, 2024).

#### *4.4.4. Successful initiatives: Integrating digital technologies and sustainability aspects in OSH*

The development of digital technology and the emergence of sustainability aspects at the company level have a significant impact on occupational safety and health systems worldwide. Reports from recent years at international and European level confirm that the use of technological tools and the integration of sustainability management in the field of occupational safety and health are becoming increasingly widespread.

The International Labour Organization's (2023) Global Report (Safety and Health at the Heart of the Future of Work) highlights that digital technologies – such as sensors, artificial intelligence, and wearables – are rapidly spreading across

industries to monitor and support compliance with occupational safety and health rules (ILO, 2023b). A similar finding is presented in the 2023 report by EU-OSHA, which shows that 38-42% of European companies are already using digital solutions – such as sensors, smart devices, and predictive analytics – to support compliance with OSH rules (EU-OSHA, 2024).

In addition to the use of digital tools, the integration of sustainability aspects is also playing an increasingly important role in occupational safety and health systems. According to the European Commission's 2023 Sustainability and Occupational Safety report, around 50% of companies have already integrated their sustainability management systems into their occupational safety practices, which is also linked to a decrease in the number of workplace accidents and injuries (European Commission, 2025). Based on the sustainability reporting framework, many organisations – for instance, in line with ISO 45001 – manage sustainability and occupational safety requirements in an integrated way, helping to create a safer and more responsible working environment (Obasi & Benson, 2025).

Overall, the combined use of digital technology and sustainability management systems has a significant positive impact on occupational safety and health. Based on these trends, it is expected that these integrated approaches will continue to strengthen in the near future, contributing to the development of safer, more sustainable workplaces.

## 5. Conclusion

The results of the research confirm that compliance with OSH rules and sustainable OSH practices play a central role in promoting sustainable development. A safe and healthy working environment reduces the incidence of accidents and occupational diseases at work, while also offering direct economic benefits: every euro invested in preventive measures can result in cost reductions of up to €2.2 (ILO, 2023).

From the perspective of economic sustainability, OSH investments contribute to increasing productivity, reducing job losses, and improving the competitiveness of companies (European Commission, 2023). In terms of social sustainability, a safe working environment has a positive impact on employee satisfaction, health, and long-term commitment. This is supported by the fact that 88% of employees expect their employer to create social value, while 70% do not want to work for a company that does not have a strong sense of purpose (Porter Novelli, 2020).

The intertwining of occupational safety and health and sustainability goals can also be demonstrated in the field of environmental sustainability: sustainable

occupational safety and health systems often support environmentally friendly work processes and a responsible approach to material handling (KPMG, 2022). Technological innovations such as sensors, wearables, and predictive analytics systems are also driving occupational safety and health. According to EU-OSHA, almost 40% of European companies are already using digital solutions to identify and mitigate occupational safety and health risks (EU-OSHA, 2023c).

In conclusion, sustainable OSH is not only a means of compliance with legislation, but also a strategic factor in ensuring corporate responsibility, long-term competitiveness, and socio-economic sustainability. The practical applicability of the research lies in the fact that it demonstrates that the integration of occupational safety investments and sustainability aspects is a value-creating investment that can constitute a decisive competitive advantage for the companies of the future.

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# REGULATORY APPROACHES TO FINTECH AND THE CHALLENGES OF FINTECH-REGULATION ON EXAMPLE OF SLOVAKIA\*

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## ABSTRACT

The article summarizes existing regulatory approaches to FinTech-based financial innovation. In this context, it is important to point out that, in general, there is no legal regulation at the EU level that would impose on Member States which regulatory approach they should choose and apply in relation to FinTech. The choice of the appropriate regulatory approach is therefore left to the Member States. Against this background, the author identifies the regulatory approach to FinTech applied in the Slovak Republic, while the platforms for institutional dialogue between the national regulator (National Bank of Slovakia) and FinTech companies are analyzed separately. The article also illustrates the regulatory trend within the EU that may prove decisive for the field of FinTech by reference to a specific regulatory instrument (the EU Regulation on Markets in Crypto-assets – MiCAR).

**KEYWORDS** FinTech Regulation, Slovakia, National Bank of Slovakia (NBS), Regulatory Sandbox, Markets in Crypto-assets Regulation (MiCAR)

## 1. Introduction

This article addresses two areas of financial market regulation. Accordingly, the article is divided into two relatively independent parts. In the first part, the author presents regulatory issues and demonstrates a new regulatory trend in the EU in the field of FinTech and the way in which it is addressed in the Slovak Republic through the so-called Implementation Act, using the example of a specific instrument of EU regulation in the field of crypto-assets (MiCAR). The author seeks to define the basic features of such regulation and its contribution to the regulation of the financial market. The main hypothesis of this part of the

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article is formulated as follows: “MiCAR represents a new generation of EU regulatory instruments that can be referred to as regulatory codes.”

In the second part, the author examines existing regulatory approaches to financial innovation, abbreviated as FinTech. In this context, it is important to note that, in general, there is no legislation at EU level that would impose on Member States the regulatory approach to be chosen and applied in relation to FinTech. For this reason, the choice of the appropriate regulatory approach is currently left to the Member State or its national financial market regulator<sup>2</sup>; accordingly, the author seeks to identify the regulatory approach to FinTech adopted in the Slovak Republic. The author analyses the approaches through which the national regulator addresses FinTech regulatory issues, specifically by examining the so-called platforms for institutional dialogue between the national regulator and FinTech companies, their effectiveness, and the reasons for their creation (i.e. the Centre for Financial Innovation, the Innovation Hub, and the Regulatory Sandbox). The main hypothesis of this part of the article is as follows: “The chosen regulatory approach of the National Bank of Slovakia (NBS) is adequate and sufficient for FinTech companies in the Slovak Republic.”

The following scientific methods were used in the article: the analysis of relevant legislative texts and publicly available documents of the NBS, the description and synthesis of the legal situation, and deduction. The article is primarily an abstract-analytical contribution, without any claim to predict future developments.

## 2. FinTech and FinTech regulatory issues

The fundamental problem of regulation is the definition of its subject matter, i.e. the identification of what constitutes financial innovations (Ford, 2021, p. 69). The NBS defines financial innovation as a new technology-based approach to finance that can lead to a new business model, workable solution, process, or product and can have a significant impact on financial markets, institutions, and the provision of financial services to clients. “FinTech” is a shortened version of the term “Financial Technology” and generally refers to technological innovation applied to the provision of a diverse range of financial services (e.g. payment services, banking, investment services, or insurance). Substantively, the NBS distinguishes within FinTech between business models (alternative payment methods, crowdfunding, robo-advice, crypto-assets, InsurTech insurance, algorithmic trading) and technologies (smart contracts, biometrics, artificial

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<sup>2</sup> The financial market regulatory authorities in the Slovak Republic are the Ministry of Finance and the National Bank of Slovakia, the latter of which is also the financial market supervisory authority. Both bodies are legislative institutions that participate in the legislative process of law-making. In addition, they are bodies of secondary regulation, which they are empowered to issue directly *ex constitutione*. (Constitution of the Slovak Republic, art. 56, para. 1; art. 123; See also Bujňák et al., 2023, pp. 51–52, 66; Čunderlík, 2024, p. 1505)

intelligence, big data, distributed ledger technology (DLT), mobile wallets, and cloud computing) (Národná banka Slovenska, 2025a)<sup>3</sup>.

The Ministry of Finance defines FinTech as any financial innovation, regardless of the technology used, that may lead to new business models, applications, processes, or products that have a significant impact on financial markets, financial institutions, and the delivery of financial services. In this context, it identifies areas with potential for growth in FinTech innovation (e.g. payment services, banking, and insurance) (Ministerstvo financií Slovenskej republiky, 2025).

The growth of FinTech has been fuelled by start-ups taking advantage of the distrust of the public and financial markets towards the financial services industry following the 2008 financial crisis and the associated rise in unemployed professionals looking for new ways to apply their skills (Toman, 2022, p. 266). Not every financial innovation is technology-based and may therefore not fall under the term FinTech<sup>4</sup>. The decisive criterion for determining whether a financial service falls under FinTech is not solely the fact that it is innovative or atypical. An innovative (and atypical) business model is an enhancement of an existing model or a modernised renewal of a defunct model (a “renaissance” of the business model) (Čunderlík & Čunderlík Čerbová, 2019, p. 17).

The long-term problem with FinTech regulation is the vagueness of its subject matter, which remains difficult to identify despite the above definitions provided by the regulatory and supervisory authorities. Innovations can take different forms (such as artificial intelligence (“AI”)) and may even be disruptive. However, not all innovation is necessarily disruptive. As Jongmoo and Ozkan observe, innovations can occur as part of an evolutionary progression based on existing ideas or processes rather than as a result of a revolutionary overhaul of existing systems. In ordinary communicative usage, either type of innovation can be disruptive if it leads to rapid change in business that can dramatically alter the market (Jongmoo J. & Ozkan, 2019, p. 4). On the other hand, Bower and Christensen argue that disruptive innovation must create new markets before challenging the mainstream market (Bower & Christensen, 1995).

In contrast, it can be argued that FinTech, in principle, does not (yet) have the potential to be a disruptive technology because individual financial technologies cannot, for example, pose a threat to the financial system,

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<sup>3</sup> Omarova stated that FinTech is an umbrella term for a wide range of recent technological innovations, e.g. digital crowdfunding, cryptocurrencies, blockchain or distributed ledger technology (DLT), artificial intelligence and machine learning, and big data analytics. (Omarova, 2021, p. 44)

<sup>4</sup> In this context, Heseková Bojmírová argues that the term FinTech is narrower than the term financial innovation (Heseková Bojmírová, 2023, p. 142).

although they can disrupt the smooth functioning of a segment of it in the event of a technical failure or a cyber-attack<sup>5</sup>, given that the rather traditional way of delivering financial services<sup>6</sup> is still prevalent. However, it is clear that financial innovation can be a double-edged sword. For the purposes of regulation, therefore, the immediate enactment of appropriate legislation is neither theoretically nor practically ruled out as a means of regulation. Nevertheless, a more plausible method is to adopt incremental partial regulations, test them in practice, then evaluate them and modify them if necessary (Hodás, 2022, p. 87).

The implementation of FinTech, or of any financial innovation in general, does not automatically mean that existing ways of providing financial services are sidelined or disappear altogether. While this is a revolutionary process, as mentioned above, it cannot be compared to the introduction of the Dreadnought battleship before World War One<sup>7</sup>. Ultimately, it is also a democratising process, for example because it increases the range of channels for the distribution of financial services, the use of financial services, or the trading of financial products. In the following, the terms FinTech and financial innovation are used synonymously.

The second problem relates to technology per se: how can technology be regulated in such a way that legal regulation does not limit innovation? Too much regulation has the potential to “kill” the development of a new technology at birth. Conversely, under-regulation inevitably sets the stage for compromising the full range of values that the regulator is supposed to protect (Hodás, 2022, pp. 9, 28). In delineating existing regulatory approaches as applied to FinTech, traditional research on methods of regulation in financial market law as part of financial law recedes into the background (Mrkývka, 2012, pp. 66–70, 197–198; Čunderlík, 2017, p. 17; Karfíková et al., 2018, pp. 31–46), as it may appear to be purely theoretical and suitable only for pedagogical purposes. This research is based on the description of financial law rules and their characteristics. In practice, the applied classification of regulatory methods is based on the criterion of which approach (rules of conduct) most effectively achieves the goal of the regulation in question. Such a classification emphasizes

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<sup>5</sup> An example would be a hacker attack or a prolonged outage of the internet banking system of a systemically important credit institution. The situation does not change even with the introduction of partial regulation of selected areas of FinTech for crypto-assets (MiCAR) or crowdfunding (ECSP-Regulation), as these are still not major investment channels.

<sup>6</sup> In the Slovak Republic, the above statement is also related to the fact that banks are the dominant service providers on the financial market.

<sup>7</sup> The launch of the battleship HMS Dreadnought in September 1906 in Great Britain made all previous battleships immediately technologically obsolete. The aforementioned battleship caused a technical revolution in the construction of battleships by all major naval powers, with its name coming to be used to designate that type of battleship (Hynek & Klučina, 1986, p. 37; Burt, 2022, pp. 20–41)

the achievement of the objective of regulation, and its methods are still evolving in practice.

In Western financial theory, Omarova refers to the technocratic regulatory paradigm in the context of financial regulation: at the core of this paradigm is the fundamental division of powers and responsibilities between private market participants and the sovereign public acting through various government agencies. She defines it as the “New Deal settlement in finance”. She considers this regulatory model to be no longer adequate today, as private innovation is pushing financial markets beyond the ability of technocrats to provide the expected level of oversight (Omarova, 2021, p. 46). For the purposes of the present analysis, however, her model appears too abstract to be suitable for our research purposes.

Naturally, the national choice of regulation, especially in financial market law, is based predominantly on EU regulation and the need for approximation of legal rules in the Member States. Financial market law should therefore be thought of as the Community regulation of financial markets, which is determined by a specific legislative process in the financial services sector, referred to as the “Lamfalussy process”. The different methods of harmonization are based on EU regulatory instruments. Accordingly, we can distinguish between the transposition and implementation of European rules with minimum standards and so-called full harmonization, which aims at unification.

In recent years, an increasing trend towards the adoption of European regulations (EU-regulations) instead of European directives can be identified in the norm-setting regulation of EU law. A regulation is adopted when a unified (uniform) regulation is needed throughout the EU, as no transposition into national law is required; moreover, such a regulation eliminates regulatory arbitrage caused by different degrees of harmonization. In certain areas, pressure to adopt a new EU regulatory framework represented by code-type regulations is remarkable. The adoption of such new comprehensive provisions in the form of regulations is a new regulatory trend that has emerged in the regulation of financial services, specifically within the FinTech sector. These regulations stipulate their own definitions, procedures, sanctioning regimes, conduct of business requirements, market transparency rules, rules relating to clients, and so forth. Typical elements of such code-type regulation are already recognizable in the Regulation on OTC derivatives, central counterparties and trade repositories (EMIR) or in the Regulation on market abuse (MAR). Examples of code-type regulations in the FinTech area include the Markets in Crypto-assets Regulation (MiCAR), the Regulation on European Crowdfunding Service Providers (ECSP), and the Regulation on digital operational resilience for the financial sector (Digital Operational Resilience Act/DORA).

In the Slovak Republic, it is interesting to demonstrate the implementation of this type of regulation, which is the result of this European regulatory trend. The implementation of an EU regulation is generally carried out through legislative amendments, as stipulated in the annex to the Legislative Rules of the Slovak Government (that is, a reference to the relevant EU-Regulation is introduced as a special regulation). However, in the case of MiCAR, a specific act (with its own title and a separate legislative article) has been adopted to implement the aforementioned regulation. This is Act No 248/2024 Coll. on Certain Obligations and Competencies in the Field of Crypto-assets and on Amendments and Supplements to Certain Acts (the so-called Implementation Act). In our opinion, this is a case of “appropriate adaptation” of national norm-setting to the regulatory trend in the EU.

### 3. Regulatory approaches to FinTech-based financial innovation

In the financial services sector, regulatory practice is determined by the way in which the objective of regulation is achieved, i.e. the construction of the legal norm that the legislator intends to employ is decisive. From this perspective, in the financial services sector we distinguish between rule-based (Mazúr, 2017, pp. 27–29)<sup>8</sup> and goals-based regulatory methods (the latter also being referred to as principle-based, outcome-based, or performance-based), or even a combination of these (a hybrid regulatory method). According to the theoretical classification of legal norms in our legal environment, in contrast to norms of a classical structure (used in the rule-based method), teleological (final) norms are applied in the goals-based method. Teleological norms do not directly determine the rule of conduct but only set the goal to be achieved. The method of achieving the goal is left to the addressee of the norm. This type of regulatory standard is typical of EU law (Fábry et al., 2019, pp. 88–89; Gerloch, 2021, p. 75), which leave room for Member States to decide how to achieve the objective. On the other hand, in our legal environment the use of such standards is neither common nor desirable.

The difference between rules and principles lies in their specificity, which results in a different degree of discretion for the regulator. Principles serve as interpretative tools; they enshrine abstract objectives, outputs, and outcomes that the regulator expects (hence the terms outcome-based and performance-based). Principles make it possible to achieve the “spirit of the law”. Rules determine a precise standard of behaviour. However, it may not be obvious from the wording of the rules what objectives are pursued by the behavioural rule.

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<sup>8</sup> Similarly, performative regulation and impact assessment regulation have been cited as alternatives to traditional prescriptive regulation (Hodás, 2022, pp. 29–32).

Moreover, compliance with exact rules may degrade to “mindless” compliance with a standard (legal norm). They are therefore less suitable for regulating dynamic phenomena because they can easily be circumvented by changing behaviour. Regulation by rules is always “ex post” in relation to new phenomena (Mazúr, 2017, pp. 28–29).

Sejkora summarizes the specific advantages and disadvantages of both methods. For the rule-based method, he lists the following advantages: higher rigidity, case-by-case consideration, detail and predictability of adopted legal acts, which lead to legal certainty, improve the planning of the regulated entity's activities, simplify and accelerate the application of the law (thereby saving time), and reduce the subjective bias of the public authority (arbitrariness). Detailed regulation allows the involvement of less educated or experienced personnel in the application process (thereby saving personnel costs). He mentions as disadvantages, for example, the lack of possibility for the legal order to adapt to changed conditions, whereby a strict rule may create an obstacle to innovation; regulated entities are not forced to think about the objectives of such regulation, but instead just blindly and formally comply with it; there is little discretion for the public authority; and regulated entities have the possibility to circumvent strict rules by adopting different forms of behaviour (Sejkora, 2023, pp. 29–32).

It is typical for the goals-based method that the standard contains a broadly defined goal. It has the advantage of forcing the addressees to think more about how to achieve the regulatory goal, creating room for experimentation with innovation, and requiring less need for amendments to statutory provisions (thus enhancing flexibility). Among the disadvantages Sejkora includes, for example, the potential vagueness of the defined rule of conduct, the related lack of legal certainty, the potentially increased cost of legal advice, and the related problems of interpretation and application of the rule (Sejkora, 2023, pp. 32–37).

Above all, the choice of the appropriate method must be technologically and ideologically neutral. At the same time, we share the view that the use of technology in general must be subject to the ethical principles that are the essential features of ‘good’ innovation (i.e. transparency, inclusion, responsibility, impartiality, reliability, security, and privacy) (Čunderlík Čerbová, 2021, pp. 27–28). As mentioned above, the choice of an appropriate regulatory method in the FinTech sector must not stifle or hinder the development of this phenomenon and should, where possible, encourage it, insofar as it is aimed at improving financial infrastructure and the position of investors (financial consumers). In this context, the best methodological approach for selecting the appropriate regulatory method appears to be to divide it into rule-based, goals-based, and hybrid methods. In our legal environment, a combination of the two methods

mentioned above (a hybrid method) may be considered appropriate, with the predominance of the rule-based method, the application of which is traditional in the continental legal environment.

Specific regulatory approaches to financial innovation that combine a normative approach with an institutional and functional approach should also be mentioned in this context. Thus, it is not necessary to explicitly adopt normative approaches as a *conditio sine qua non*. In relation to AI, the following are mentioned as methodological regulatory approaches: regulation through law (hard law), regulation through soft law, and regulation through technical norms (standards). Regulatory approaches to AI through hard law can take different forms: 1. a risk-based model, 2. a general principles-based model, 3. a sectoral model, 4. a hybrid approach (Mesarčík et al., 2024, pp. 36–40). However, we do not consider this classification to be critical for the purposes of our research, because by its nature, financial services regulation is sectoral regulation, and this approach does not define the mode or methods of regulation to be applied in that sector (meaning the financial services sector) to achieve the objective.

Sejkora lists five regulatory approaches to financial innovation: 1. leaving financial innovation out of regulation (*laissez-faire*), 2. a formal approach based on specific regulation, 3. a supervisory discretion approach, 4. an experimental approach, 5. smart regulation (mutual learning between the supervisory authority and financial service providers, which is a combination of the previous approaches) (Sejkora, 2023, p. 40). It is essential to state that the first approach stands outside the goals-based and rule-based regulatory approaches. Some of these approaches build on both methods and a combination of them, but can also be the basis for the next stages of regulation. For example, the experimental approach is the basis for the creation of regulatory sandboxes.

Heseková Bojmírová adopts from the World Bank's report *Regulators' Responses to FinTech* four basic approaches of regulators to FinTech: 1. wait and see, 2. test and learn, 3. an approach based on innovation intermediaries, 4. an approach based on direct regulation. The wait and see approach is based on monitoring FinTech without regulatory intervention, the test and learn approach is based on testing innovation, but the degree of regulation is determined by the financial market itself, the innovation intermediaries approach (innovation hub, regulatory sandbox) is managed directly by the regulator, and finally the direct regulation approach is based on two options: modification of the existing regulatory framework or the adoption of a new regulatory framework (Heseková Bojmírová, 2023, pp. 164–172).

The aforementioned classifications of regulatory approaches to FinTech overlap in content across types and are interchangeable and applicable for the purposes of our research.

We will make particular mention of “innovation intermediaries” (innovation hub, regulatory sandbox). This experimental approach allows the regulator to test whether a financial innovation falls under existing regulation in the state, or whether specific regulation for financial innovation must be adopted. The innovation hub is intended to serve as a contact point for communicating with the relevant supervisory authority and for obtaining non-binding advice (guidelines) on the application of regulatory requirements (e.g. licensing or registration requirements, supervisory expectations). A regulatory sandbox is an environment that allows for the testing of innovative financial products, financial services, and business models in accordance with a testing plan approved by the supervisory authority (financial market regulator). A regulatory sandbox may also allow for the use of statutory supervisory discretion (depending on the relevant EU or national law), but it cannot waive regulatory requirements (European Supervisory Authorities [ESAs], 2018, p. 5).

A regulatory sandbox creates room for experimentation in the regulatory area and allows for institutional control over sandbox participants, while participation in this environment is time-limited. The specific scope and stages of the regulatory sandbox cycle may vary from state to state.

Sejkora stresses that the innovation hub is usually the first step in institutionalising the regulatory environment in relation to innovation, and its establishment is a signal to the market that the supervisor is ready to discuss innovation with the market. Sejkora's definition of a regulatory sandbox is taken from the cited ESAs report, stating that this instrument of regulatory access cannot be described as an instrument of deregulation or of lowering the standards of the legal framework (Sejkora, 2023, pp. 1–3). The roles and competences of the regulatory sandbox and the innovation hub may differ between EU Member States, while there is also no common view in the EU on their creation and legal anchoring.

The advantages of regulatory sandboxes are undoubted and can be summarized as follows:

- supporting the development of innovative technologies and stimulating their use,
- reducing regulatory arbitrage,
- reducing information asymmetries between the regulator and financial market participants,

- the use of a regulatory sandbox enhances the credibility of the participating financial services provider,
- the opportunity to test innovations in a safe and isolated environment (Heseková Bojmírová, 2023, pp. 151–153).

We can also summarize the disadvantages of using a regulatory sandbox as follows:

- it allows only a limited number of entities to be tested and therefore may potentially distort competition,
- it is problematic to set non-discriminatory and transparent entry criteria,
- it is questionable whether the regulatory sandbox can provide a realistic picture of the actual impact of the tested financial innovations when used in practice,
- participation in a regulatory sandbox may give the impression that the participant is a fully regulated entity (riskwashing) (Heseková Bojmírová, 2023, p. 153).

In the following, we will focus on the approach chosen for FinTech by the Slovak Republic.

## 4. Regulatory approach to FinTech in the Slovak Republic

The NBS is undoubtedly the regulator of the financial market in the Slovak Republic. As a central bank, it performs a number of tasks and competences. In theory (Nagy, 2022, p. 28), the basic functions of a central bank today include the following:

- a) bank of issue (administrative monopoly on the issue of legal tender),
- b) the supreme monetary policy authority (manages monetary developments by regulating the quantity of money in circulation and determining the exchange rate of the domestic currency against foreign currencies, with the objective of price stability),
- c) bank of banks (bank for the commercial banks: sets reserve requirements, lends as lender of last resort, acts as a clearing house),
- d) bank of the state (maintains treasury accounts, represents the state in negotiations with supranational banks and monetary institutions),
- e) banking regulation and supervision (authorization to enter the financial market),
- f) currency reserve manager (management of gold and foreign currency claims),
- g) coordination and supervision of payment systems.

These functions are sometimes supplemented by other functions, or some of these functions are not performed by the central bank because they are not recognized by national law (banking supervision) or because, as a result of

membership in a monetary union, the central bank's activities have been transferred to another entity (activities of the bank of issue and the conduct of monetary policy).

In the FinTech context, the above classification shows that the functions of a central bank per se do not include the regulation of financial innovation. The substantive link between financial services and new technologies logically requires that the entity called upon to address this challenge be the financial market regulator (i.e. the NBS and the Ministry of Finance).

In the process of creating a functional and organizational framework for the implementation of FinTech in the Slovak Republic, there were professional-level discussions with the regulator in May 2020 as to whether a legislative change to Act No. 566/1992 Coll. on the National Bank of Slovakia was also necessary for the NBS to perform its tasks in this area<sup>9</sup>. The need for a legislative amendment was eventually abandoned. The provision in § 2(1)(e) of the Act on the NBS foresees that other activities of the NBS are regulated by special acts (to which, inter alia, reference is also made to Act No. 747/2004 Coll. on Financial Market Supervision). Act No 747/2004 Coll. on Financial Market Supervision is therefore generally accepted as the legal basis for the tasks of the NBS in the area of FinTech. In particular, this is the case under § 1(3)(a) point 1 and 2 of the Supervision Act, according to which the NBS, when supervising supervised entities, establishes prudential rules, safe operation rules and other requirements for the business of supervised entities, and supervises compliance with the provisions of legislation applicable to supervised entities or their activities. In addition, § 1(3)(j) states that the NBS shall carry out other activities and powers in the financial market area pursuant to this Act and special regulations. The FinTech issue can thus be subsumed under the subject matter of the Supervision Act. This legal framework determines the competence of the NBS exclusively in relation to supervised entities. The subsequent internal organisational and functional arrangement of the competences of the relevant organisational units of the NBS therefore focuses precisely on such supervised (regulated) entities.

Although the Ministry of Finance established the Centre for Financial Innovation in February 2018, which serves as a platform for the exchange of information and experience between the Ministry, other public authorities, entrepreneurs in the financial sector and interest associations, its role in the FinTech field is currently only complementary, and the regulatory leader in this issue is the NBS.

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<sup>9</sup> In relation to the Innovation Hub, consideration was given to adding a new paragraph 4 to § 2 (defining the tasks of the NBS in the field of financial innovation, legally defining the concept of financial innovation, and providing for cooperation with other national and EU authorities) and to introducing a new § 35b (establishing a contact point for financial innovation, formalising the Innovation Hub, and regulating cooperation in the provision of information).



The declared priority activity of the Centre is to map the environment influencing the introduction of new technologies in the financial market, to identify shortcomings or opportunities for improvement in this environment, and to actively remove barriers to the establishment and operation of FinTech companies in Slovakia ([Ministerstvo financií Slovenskej republiky, 2025](#)).

The NBS has established the Innovation Hub of the NBS as of 1 April 2019. The Innovation Hub provides those with a genuine FinTech business plan, as well as established financial market players, with the opportunity to have a dialogue with NBS experts from various fields who will help them understand and properly implement innovations in financial market regulation. A contact form is used to start communication, allowing the NBS to get a basic overview of the FinTech intent of the interested service provider. The dialogue is two-way, and therefore the regulator also receives information on the state of FinTech and its development. In doing so, the NBS has chosen an innovation intermediary-based approach in practice, combined with elements of the experimental and direct regulation approaches. Communication through this contact point is not a substitute for, and does not constitute, the provision of legal services, nor can it be used for self-promotion of the interested service provider (applicant) and its services. The NBS has established evaluation criteria for admittance to the Innovation Hub; these criteria are distinctiveness and innovation, knowledge of the applicable regulatory framework, the need to cooperate with the Innovation Hub, and the benefit to the consumer and the financial system ([Národná banka Slovenska, 2025a](#)). The evaluation of the criteria implies answering all the key questions in the contact form. Complex enquiries may take up to 90 days to be processed. To help assess the criteria, positive indicators (e.g. whether the intended service meets the definition of financial innovation or will increase competition in the financial system, or whether the applicant has demonstrated that it has examined the service's compliance with the existing regulatory framework) and negative indicators are defined (e.g. the provision of the intended service will have an adverse impact on consumers or tends to circumvent regulation). An applicant's submission will be addressed if all positive indicators are met ([Národná banka Slovenska, 2025a](#)).

From January 2022, the NBS has launched the Regulatory Sandbox of the NBS. The regulatory sandbox is a platform that helps a participant (natural person or legal entity) to set up a financial innovation in accordance with the generally binding legislation under the NBS's jurisdiction on a consultative basis and allows it to be tested ([Národná banka Slovenska, 2022, point 3\(a\)](#)). The aim of the platform is to facilitate the implementation of financial innovations on the Slovak financial market and to help the regulator better understand financial

innovations. It is a regulatory compliance space, hence the use of the adjective “regulatory” in its name.

A crucial practical aspect of the regulatory sandbox is that potential regulatory breaches that could constitute administrative offences are communicated during the conduct of tested services based on financial innovation, giving the FinTech entity space to remediate. Within the traditional supervisory model, regulatory breaches are communicated by the supervisory authority to the relevant entity ex post, when the breach has already occurred and has been detected by the supervisory authority (regulator), with the associated mandatory sanctioning.

Prior to the establishment of the regulatory sandbox, the NBS conducted a public consultation ([Národná banka Slovenska, 2020, p. 32](#)). As part of its evaluation, the issue of the participation of unsupervised entities in the regulatory sandbox was discussed. According to the responses received, the added value of the participation of these entities would be to improve their position on the financial market as well as to deepen the NBS's knowledge of their activities. On the other hand, there was a reputational threat to the NBS arising from the risk that an unsupervised entity could not be held liable for the tort of unauthorized business, even if it carried out a regulated activity. Finally, the design of the regulatory sandbox is based on its partial opening also to those participants that are not supervised entities (*numerus clausus*). These are the following categories of participants: 1. the applicant for authorization (later the supervised entity), 2. an entity supervised pro futuro (carries out an activity that will be subject to national/European legislation that has not yet entered into force or is not yet applied), 3. a service provider (third party which, on the basis of an outsourcing contract concluded with the supervised entity, applies a procedure, provides a service or performs an activity for which the supervised entity is authorized). In addition to these entities, a supervised entity and a foreign supervised entity may naturally also be participants ([Národná banka Slovenska, 2022, point 4](#)).

It follows that the regulatory sandbox in the NBS ecosystem is tied to the relevant licence and is cross-sectoral (its scope is defined as extending to all sectors of the financial market). This factual situation is justified by the relatively small Slovak financial market and the integration of supervision into the NBS ([Štrkolec, 2022, p. 410](#)). In this context, it should be noted that regulatory sandboxes in larger countries may also be limited to selected sectors of the financial market and may not cover the entire financial market ([Sejkora, 2023, p. 5](#)).

The functioning of the regulatory sandbox in the NBS is regulated by procedural rules adopted as non-legislative material of the NBS, which is in line with Act No. 747/2004 Coll. on Financial Market Supervision (the compliance of the rules with this Act is declared in point 1 of the rules) (Národná banka Slovenska, 2022). The condition of admission to the sandbox is the submission of an application form by the interested party, which may be a natural person or a legal entity, which becomes a participant of the sandbox after being granted access to it. The operation of the regulatory sandbox means the process of the NBS related to the assessment of the application. The process takes place in five phases: 1. submission of the application, 2. information meeting, assessment and decision on the application, 3. preparation phase (consultation and determination of the testing process - testing plan), 4. testing, 5. termination of participation.

Entry into the regulatory sandbox is subject to the capacity of the NBS, which may postpone entry to a later date if several participants are in the sandbox at the same time. Within two months of receipt of the application, the NBS will make a decision on the application and inform the applicant whether they can enter the sandbox. After the application has been submitted, the NBS will convene an information meeting with the applicant to obtain more detailed information. Entry into the regulatory sandbox is subject to the fulfilment of the conditions for participation, which include in particular the fulfilment of the entry criteria:

- readiness of the candidate to participate in the regulatory sandbox and readiness of the financial innovation for testing (e.g. the candidate demonstrates technical readiness, security measures, an early exit plan, and the ability to meet regulatory requirements, and also identifies risks and mitigation measures),
- the existence of a need for testing,
- innovativeness,
- positive impacts on clients in the Slovak financial market and the absence of significant negative impacts on financial stability (Národná banka Slovenska, 2022, point 9).

The preparation phase lasts a maximum of 6 months but can be extended. It allows the participant to carry out consultations with the NBS and to determine the course of testing in the form of a testing plan. Consultations are not a substitute for case law interpretation by courts or for the work of professionally authorized advisers. Upon completion of the consultation, the NBS shall invite the participant to submit a testing plan, which shall be binding on the date on which the participant receives notification that the NBS has approved it.

The actual testing lasts for a maximum of 6 months, with the possibility of extension for a further 6 months upon request. The aim is to implement the financial innovation according to the testing plan.

Upon completion of the testing, the participant shall send a final report to the NBS within 1 month with a summary of the testing process. Within 1 month of receipt of the final report, the NBS shall organize a final meeting to discuss the report or send written comments on the report. Participation in the sandbox will therefore cease either on the date of the final meeting or on the date on which the participant receives the written statement from the NBS.

The Slovak Central Bank publishes reports on the functioning of its innovation hub and regulatory sandbox. The Innovation Hub has been operating in the regulator's environment (NBS) for 6 years (since 2019) and has handled 116 inquiries during this period. The regulatory sandbox has been operating for 3 years, and the number of participants is significantly lower, due to the higher requirements for participation in the sandbox. In 2024, the NBS handled 31 cases in the innovation hub (26 of which were related to crypto-assets, which was related to market preparation for the implementation of MiCAR; the others were from the payment services and securities sectors); the regulatory sandbox in 2024 was in the preparatory phase for a participant, namely a crowdfunding service provider (Crowdberry Investment Platform j.s.a.) as a supervised entity ([Národná banka Slovenska, 2025b, p. 5](#))<sup>10</sup>.

These data show that there is a steady interest in communicating with the national regulator (NBS) in the FinTech field. The Innovation Hub serves as a "big funnel" for selecting those interested in entering the regulatory sandbox. The regulatory sandbox therefore represents a higher level of cooperation with the regulator linked to the innovation hub.

## 5. Conclusion

Both general and specific European legislation (with exceptions for areas such as crypto-assets and crowdfunding) and national FinTech legislation (with the exception of implementation acts) are still absent. Following the regulatory trends in European law (adoption of EU-regulations replacing directives), it can be stated that the position of the national regulator in the normative area is rather one of wait-and-see, i.e. waiting for further specific EU legislation in this area.

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<sup>10</sup> For comparison, in 2023 the NBS dealt with 19 cases in the innovation hub, of which 13 were related to crypto-assets, and 2 cases in the regulatory sandbox in the area of crowdfunding ([Národná banka Slovenska, 2024, p. 4](#)). In 2022, the innovation hub handled 15 cases and there was 1 case in the regulatory sandbox ([Národná banka Slovenska, 2023, p. 4](#)).

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Following the adoption of specific EU-regulations for FinTech (e.g. MiCAR), the Slovak legislator has chosen to implement them through the so-called Implementation Act (the MiCAR-Implementation Act), which, although it enshrines national specifics, fully refers to the text of the implemented regulation. It should be noted that such comprehensive regulations do not need any further national legal reception because of their nature as regulatory codes. We confirm the hypothesis of this part of the article.

As mentioned above, the traditional rule-based method of regulating financial services will prevail in Slovakia. As a result of the penetration of elements of European financial services regulation (currently based more on the principle-based method) into Slovak financial market regulation, provisions based on the goals-based method can also be identified in Slovak regulation. Therefore, we conclude that Slovak financial market regulation, although dominated by the rule-based method, applies a hybrid method of regulation.

From the point of view of the choice of regulatory approach to FinTech, some authors characterize the situation in Slovakia as a “wait and see” approach<sup>11</sup>. Apart from that, we are of the opinion that the Slovak Republic is dominated by the experimental approach (or the approach based on innovation intermediaries), as we have identified its main features above – namely, the active role of the NBS in communication with FinTech companies, which led to the creation of the Innovation Hub and the Regulatory Sandbox within the NBS. Although we can state that the Slovak Republic has chosen a non-legislative approach to FinTech issues, the legal basis for the NBS competences in this area is, in our opinion, Act No. 747/2004 Coll. on Financial Market Supervision. Accordingly, the NBS's personal competence in the FinTech area is primarily aimed at the so-called supervised entities, or at entities that will acquire such status pro futuro, or at entities that cooperate with supervised entities in the area of innovation implementation.

The basic difference between the functioning of an innovation hub and a regulatory sandbox is that an innovation hub serves as a short-term and one-off consultation (a contact point for answering specific questions). On the other hand, the role of the regulatory sandbox is to provide recurrent consultations on setting up a financial innovation and testing it in the financial market under the control of the NBS (a process of several months). A narrower range of actors can participate in the regulatory sandbox than in the innovation hub, through which practically anyone may submit an inquiry. The opinion of the NBS provided through the innovation hub or as an output of participation in the regulatory sandbox does not replace the licensing procedure for the issuance of a license

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<sup>11</sup> In relation to crowdfunding (Heseková Bojmírová, 2023, p. 167).

to carry out the regulated activity with which the financial technology has been tested. As a FinTech regulator, the NBS principally acts as an innovation facilitator through varying degrees of consultation and testing, depending on whether it is through an innovation hub or a regulatory sandbox, but these activities also benefit the regulator itself. The latter receives information on the state of the FinTech market and its evolution. The NBS is perceived very positively and proactively as a national “innovation facilitator” by the proactive creation of innovation intermediaries (the use of innovation intermediaries is demonstrated by the reports on the activities of the NBS Innovation Hub and Regulatory Sandbox). We consider the experimental approach (based on innovation intermediaries) to be dynamic, flexible, and adaptive, as it creates space for the application of multiple regulatory approaches to FinTech. Subsequently, if necessary, the regulator can resort to the use of a hybrid method with the prevalence of the rule-based method. Therefore, we conclude the verification of the first hypothesis formulated by us in the introduction.

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# THE PRESENCE OF NONVERBAL COMMUNICATION IN (PROCEDURAL) LAW

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## ABSTRACT

This study examines the role of nonverbal communication in legal contexts, with particular attention to its significance in Hungarian law and international jurisprudence. It argues that gestures, facial expressions, posture, eye contact, and vocal cues can provide valuable insight into emotions, intentions, and credibility, even though they are not formally recognized as independent means of proof. The paper first outlines the theoretical relationship between communication and nonverbal communication, then explores the growing relevance of nonverbal signals in areas such as mediation, civil procedure, criminal procedure, labour law, and family law. It also reviews selected international cases in which nonverbal behaviour influenced investigations, public perception, or judicial evaluation. The study concludes that nonverbal communication can support legal decision-making, but its interpretation remains complex due to subjectivity, cultural variation, and the effects of digitalisation. Therefore, greater professional awareness and training are needed to ensure its careful and responsible use in the service of justice.

**KEYWORDS** Nonverbal communication, legal proceedings, witness credibility, mediation, judicial decision-making

## 1. Introduction

Communication stands as a fundamental aspect of human connection, enabling the exchange of ideas, feelings, and concepts among individuals. This exchange transcends verbal articulation, as nonverbal cues play a critical role in conveying meaning. Elements such as body language, facial expressions, hand movements, eye contact, vocal tone, and personal space contribute significantly to interpersonal interactions. These nonverbal signals can be more telling than

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words, often conveying the most profound and nuanced messages within our communications.

Nonverbal communication predates spoken language, emerging from the earliest human behaviours and evolving through natural selection to facilitate the expression of feelings and intentions. This silent form of interaction is intrinsic to how we connect with one another, often occurring instinctively and below the threshold of our awareness. Despite this lack of conscious recognition, the silent messages conveyed through our gestures, facial expressions, and posture are powerful communicators. Simple actions like a smile, a nod, or a handshake carry layered meanings that can reinforce or negate spoken words. Nonverbal cues play a crucial role in enhancing comprehension, fostering trust, and nurturing relationships. Their significance is particularly pronounced in close relationships, where emotional understanding and the interpretation of body language form the cornerstone of such connections. Acts of physical touch, such as a gentle handhold or an embrace, can communicate profound sentiments that words alone may fail to capture (Birkenbihl, 2007). Facial expressions, like a smile or a frown, can convey emotions quickly and effectively and help people respond instantly to each other's feelings. Nonverbal communication also plays an important role in social interactions, where body language and behaviour patterns can help people understand social hierarchies and relationships. The use of gaze, posture, and spacing can all communicate power, subordination, friendship, or hostility (Allison, 1990). Understanding nonverbal communication can help people respond appropriately to different social situations and navigate the complex world of social interactions more effectively. The importance of nonverbal communication is also evident in the work environment, where body language and facial expressions can be key to teamwork and leadership. A leader's posture and gaze can convey confidence and determination, which can increase team members' trust and commitment. Nonverbal communication between co-workers can help foster teamwork and collaboration and create a positive work atmosphere (Hengl, 2023).

In legal proceedings, where the precise meaning of words and the interpretation of evidence are key, the role of nonverbal communication has long been underestimated. However, in modern jurisprudence, it is increasingly recognized that body language, facial expressions, gestures, and other nonverbal signs can be important sources of information (Argyle, 1988). Lawyers, judges, and investigators alike know that the truth behind words is often revealed by telltale signs of nonverbal communication. A glance out of the corner of a witness's eye during testimony, a suspect's clenched lips, or a small nod of a judge's head can all contribute to uncovering the truth. For legal

professionals, these signs can help them better understand the emotions, intentions, and credibility of witnesses, suspects, and others involved.

However, analysing nonverbal communication is not an easy task. Body language interpretation can be subjective and can carry different meanings in different cultures. For this reason, the evaluation of nonverbal communication in legal proceedings requires serious expertise and often requires the involvement of experts who are able to interpret observed signals with the help of behavioural science.

In addition to the relevant domestic legal requirements, this study presents international legal cases where nonverbal communication played a decisive role in the outcome. These cases demonstrate that nonverbal communication in legal decision-making is not only ancillary information, but often an essential element in understanding the whole picture. When analysing relevant laws and cases, we can see how nonverbal cues can influence judgment, witness credibility, and final judgment. The study of cases provides valuable insights not only for legal professionals, but also for anyone interested in the relationship between human behaviour and legal processes.

## 2. The Relationship Between Communication and Nonverbal Communication

Communication and law are inseparable (Hengl, 2023). Human communication is much more than just words or sentences, and consequently the importance of nonverbal communication is unquestionable. From the appearance of the human intellect, human beings have communicated with one another, and this communication can be both one-way and two-way. From the very beginning, oral communication could not be separated from nonverbal communication. People and even animals instinctively communicate with nonverbal signals, because joy, pain, and emotions are also conveyed by people with their faces, hands, and entire bodies. Even before the formation of speech, people communicated using nonverbal signals. Nonverbal communication is therefore an integral part of verbal communication. Before we begin to deal with modern theories, especially their use in official proceedings, it is important to have an accurate picture of communication beforehand (Ambady & Rosenthal, 1992). It is through the concept, development, and dimensions of communication that we get to know nonverbal communication best. The word communication comes from the Latin word *communis*, which also has a corresponding meaning in the Hungarian language. This means community, but communication requires at least two participants. Receiving and transmitting information is as fundamental to life as breathing, metabolism, and reproduction. The timely transmission and receipt of detected distress signals, along with everything else,

can be categorized in the same way as the survival of individuals and species. Thanks to the development of science, we now know that not only people and animals, but also plants communicate and send signals to each other (Buda & László, 1981). Nonverbal communication appeared almost simultaneously with the development of life. This is explained by the fact that for the survival and reproduction of two individuals, it is necessary to establish some kind of relationship in advance, that is, the functioning of a signalling system, that is, communication (Wilhelm, 2015).

Through communication, we can use this system to understand what is happening around us. The basic elements of this communication system are the rules for the use of signs and signals. Signs are distinguished by their origin as natural or artificial signs. For communication to take place, a transmitter, a receiver, a channel or medium that connects the transmitter and receiver, and a common code that provides information and understanding are required (Horányi, 2003). Communication can be one-way or two-way, depending on the direction of the process. If there is no way for the receiver to respond to the transmitter, as in reading or watching TV, the communication is one-way. If it is possible for the transmitter and receiver to switch roles so that a dialogue can develop, then we can talk about two-way communication (Bajner, 2008). It can be distinguished whether communication is indirect or direct. Direct communication means that the transmitter and receiver are simultaneously involved in the process and are spatially close to each other. In all other cases, we are talking about indirect communication. Indirect communication also occurs when we make a memo note for ourselves or when information reaches the recipient through a third party. Communication is carried out through several channels. We distinguish verbal, vocal, and nonverbal communication. The entire communication system is about 7% verbal, 38% audible, and 55% nonverbal (Wilhelm, 2015).

Since the formation of human society, nonverbal and verbal communication has become increasingly important and sophisticated. Smart people soon realized that good communication skills allowed people to be manipulated and could serve as a tool for dominance. Influencing and deceiving others, however, is not necessarily selfish, but an essential means of survival. Higher-level communication is no longer about receiving or transmitting information, but about communication itself, when a person feels the need to communicate and share feelings. It is a fact that conscious control of communication is of great benefit to those who have the ability, and practice proves this.

The word communication comes from the Latin word *communis*, which also has a common meaning in the Hungarian language. This means community, but communication requires at least two participants. Communication basically

means the exchange of information using a common sign system, such as language or sign language. The latter refers to different forms of gestures, such as eye contact, facial expression, posture, intonation, tone of voice, and volume (Thompson, 2015).

There are various barriers to communication, including external, physical, and internal, that is, intellectual, conceptual, and language barriers. Physical barriers include many factors that impede external communication, such as distance, amount of information, speed, and background noise, but even more disruptive are internal conflicts between communicators. For example, communicators may have different levels of understanding and experience or interpret the meaning of words differently. All these factors have influenced the historical development of communication, from the appearance of sound signals (e.g. drumming, shouting, whistling) and visual signals (e.g. smoke, flags, mirrors) to printing and modern fibre-optic mass communication.

Good self-expression and the ability to structure and convey speech have been of great importance since ancient times. These qualities were first mentioned in the ancient Greek epic poem *The Iliad*. In this poem, Homer explains why and how important it is to know the science of rhetoric (eloquence) (Wilhelm, 2015). Rhetoric was originally associated only with speeches on solemn occasions, but gradually expanded to all areas of communication, showing that cultural conversation depends on participants mastering the art of reasoning and debate. In ancient times, lawyers were experts in rhetoric. Even today, we can see in many courtroom films how important the phrases and subtle language invented by lawyers are in sentencing, and how they carry as much, and in some cases more, weight than the physical evidence and witness statements themselves. We can observe how important they are in the decision-making process. With the advent of democracy, the ability of those in power to communicate effectively became increasingly important, and those who did not have such skills sought to learn them. In ancient democratic city-states, it soon became clear that popular assemblies sometimes did not have enough information. Those in power realized very early on that silence, like communication, was just as effective a means of communication. From silence developed secrecy, and from this emerged censorship, which is still used today. Thus, people recognized the importance of communication thousands of years ago. Over time, people have mastered the art of communication, acquiring and possessing the knowledge to maximize its effectiveness.

In the modern world, a new term has appeared to describe the science of communication: public relations. Public relations is a management and control activity. According to Wikipedia's definition, the goal of public relations (PR) is to achieve mutual understanding between people, organizations, and their

environment, and to build mutually beneficial relationships through two-way communication. However, the extent to which "mutually beneficial" relationships are in fact created and maintained in reality is a complex question.

Today, when we live in a communicative society, it is more important than ever to familiarize people with the mechanisms of communication. It is becoming increasingly obvious that one-way communication plays an increasing role in everyday life, where the listener does not have the opportunity to reflect and react to what has been said, as opposed to two-way communication, where, thanks to mass media, people have the opportunity to give seemingly immediate feedback and express their opinions. However, even in two-way communication, it is easy to be deceived if you do not know the basic principles of how communication works, so you may not find out the truth.

Since the advent of humankind, communication has had four epochs: speech, writing, printing, and electronic communication, more precisely, four revolutions in the means of communication (technology) (Wilhelm, 2015).

### 3. Nonverbal Communication and Law

The study of the relationship between nonverbal communication and law is an extremely complex area that is receiving increasing attention in legal practice and in the administration of justice. Although nonverbal communication is not explicitly recognized as a means of proof by either domestic or international jurisprudence, its significance is indisputable. In legal proceedings, judges, lawyers, and other legal professionals often face the challenge of interpreting the nonverbal communication of witnesses, suspects, and other participants, with all its complexity and hidden meaning. The complexity of nonverbal communication arises from the fact that it encompasses many forms of human behaviour, such as facial expressions, posture, gestures, gaze, and tone of voice. These signals often convey emotions, intentions, and attitudes both instinctively and unconsciously (Fisher et al., 1991). For legal professionals, these signs can help them better understand the emotions, intentions, and credibility of witnesses, suspects, and others involved. However, the interpretation of nonverbal communication can be subjective and can carry different meanings in different cultures, which further complicates the legal assessment.

The importance of nonverbal communication and the use of such signals is growing in areas such as labour law, family law, and specifically procedural law. In labour law, nonverbal communication can play an important role, for example in cases of harassment or discrimination in the workplace. Courts often investigate workplace interactions, including nonverbal communication, to determine whether there has been a violation. Body language, facial expressions, and other nonverbal cues can help the court better understand

workplace dynamics and the credibility of the complainant's claims. In the area of family law, especially in custody cases, nonverbal communication can also play an important role. Courts often consider nonverbal interactions between parents and children as indicators of attachment and relationship quality. The body language and facial expressions of parents can help the court judge the parent-child relationship and determine what best serves the child's interests (Vanderkool & Pearson, 1983).

With the rise of alternative dispute resolution procedures, especially mediation, nonverbal communication is making its way into legal regulation (Allison, 1990). In the next section, the procedural, and potentially broader legal, aspects of nonverbal communication in Hungary are examined, focusing on mediation, civil, and criminal procedure.

#### 4. Nonverbal Communication in Hungarian Law

The Hungarian legal system, like all modern legal systems, relies primarily on oral and written communication. Laws, regulations, and legal documents are recorded in written form, and legal reasoning is also primarily expressed on paper. However, in legal practice, especially in litigious and non-contentious proceedings, nonverbal communication also plays a significant role. In these procedures, interactions between participants involve forms of communication that go beyond words and carry important information that can influence the outcome of the proceedings.

Alternative Dispute Resolution (ADR) is an increasingly popular method of handling and resolving legal disputes in Hungary outside of traditional court proceedings. ADR is an umbrella term that encompasses methods operating in parallel with the judicial system to resolve disputes. Its most important feature is that it places those concerned in a situation in which the conditions are in place for them to try to settle the dispute between them themselves and find a solution that is acceptable to both parties. ADR also differs from traditional litigation in that it seeks to resolve disputes while taking into account the interests and needs of the parties, which increases participants' confidence in the dispute-resolution process. ADR methods most often involve a person or body that is impartial and chosen by, or at least mutually agreed upon by, the disputing parties. The various forms of ADR include mediation, arbitration, conciliation, and conciliation procedures. These procedures allow parties to find more cost-effective and often faster solutions to their disputes, while giving the parties more control over the outcome (Hengl, 2023). The use of alternative dispute resolution (ADR) can bring benefits to both the judicial system and the parties to the conflict. Related procedures tend to be less formal, less costly, and less time-consuming than litigation and negotiation. ADR may be more suitable

for multilateral disputes. The procedure is more confidential and less stressful than traditional court proceedings. In ADR procedures, parties play an important role in resolving their own disputes, which often leads to more creative solutions, more lasting results, greater satisfaction, and better relationships. ADR should allow for a more complete resolution of conflicts, whereas in court proceedings the parties are bound to specific claims. Due to this, it can resolve disputes more thoroughly, since it addresses the causes of the emergence of conflict, unlike traditional judicial systems in democratic states, in which the rules of the rule of law prevail. Thanks to this, they deal only with the symptoms. ADR procedures can lead to long-term and more stable, creative, and mutually satisfactory conflict resolutions (Orlando, n.d.).

In Hungary, ADR methods have grown in popularity in recent years, partly because of increasing legal awareness, the need to reduce high litigation costs, and efforts to reduce the burden on court proceedings. Mediation is particularly popular in family law cases, such as divorce or custody, where the parties must maintain a long-term relationship. Arbitration is often used in commercial disputes, especially where parties want a quick and expert decision. Both the Hungarian government and legislators support the use of ADR methods and seek to further improve the legal framework to make ADR more effective and accessible to the public. The advantages of ADR methods include less formal and less confrontational resolution of conflicts, as well as the long-term preservation of relations between the parties. It is important that with the spread of ADR methods, more attention is also focused on nonverbal signals.

According to the preamble to Act LV of 2002 on Mediation Activities (Közv. tv.), Parliament enacted the Act in order to facilitate the out-of-court settlement of civil disputes. Mediation is a conciliation, conflict-resolution, or dispute-settlement procedure conducted under this Act to facilitate the completion of a specific pre-litigation, judicial, or official procedure, the purpose of which is to facilitate, by mutual agreement of the parties to the dispute, the conclusion of a written agreement containing the resolution of the dispute with the involvement of a third party who is not a party to the dispute, namely a mediator (Közv. tv., § 2).

The family law section of Act V of 2013 on the Civil Code also contains detailed rules on mediation. Before divorce proceedings are initiated or during divorce proceedings, the spouses may, of their own accord or at the initiative of the court, use mediation in order to resolve their relationship or disputes relating to the divorce by agreement. They may set out their agreement resulting from mediation in a court settlement (Ptk. § 4:22).

The court may, in justified cases, order the parents to use mediation in order to ensure the proper exercise of parental authority and the necessary cooperation, including contact between the separated parent and the child (Ptk. § 4:172).

The guardianship authority may, upon request or ex officio in the interests of the child, order the parents to have recourse to mediation in order to establish appropriate cooperation between the parent exercising parental responsibility and the parent who is separated from the child, in order to ensure the rights of the separated parent, including contact between the separated parent and the child (Ptk. § 4:177).

As noted above, nonverbal communication is not explicitly recognised as a means of proof either in domestic or international jurisprudence. This is due to the extreme complexity of nonverbal communication. It is difficult even for professionals to study all nonverbal communication channels and draw appropriate conclusions. In addition to the lack of the necessary professional background, the technical conditions do not allow nonverbal communication to be conclusive, as professionals often work from recordings, which can only be analysed after watching and slowing them down several times. This technique is extremely time-consuming and costly, and privacy legislation does not allow it to be incorporated into the system of evidence. However, it is important to emphasise that the current procedural law gives the judge enough leeway to take into account nonverbal communication when evaluating witness statements (Tremmel, 1993).

According to Section 283 (1) of Act CXXX of 2016 on the Code of Civil Procedure (Pp.), the court determines the facts on the basis of a comparison of the parties' presentations with the evidence presented during the evidentiary procedure; it evaluates the evidence as a whole and judges it according to its convictions. It is clear from the cited legal provisions that, in order to establish the facts forming the basis of the judgment, it is necessary for the court to establish the credibility and strength of the evidence and then its significance for the facts. In taking evidence, the court weighs each piece of evidence, determining its probative value, or in other words, its evidentiary weight. However, it weighs the evidence not only individually, but also as a whole, examining whether the facts to be proved are proven or not. The freedom of the judge is therefore reflected in both criminal and civil procedure, so it is important what kind of overall picture the witness presents during testimony.

Act XC of 2017 on Criminal Procedure (Be.), Section 167(1), provides for the evaluation of evidence. According to it: „*In criminal proceedings, all means of evidence laid down by law may be freely used and all evidentiary procedures may be freely applied. However, the law may provide for the use of certain means of proof.*“ The law clearly states that in criminal proceedings “[...] *all means of evidence provided for by law may be freely used*“. The means of proof are listed exhaustively in Section 167(2), including witness testimony and the testimony of the accused. The law stipulates that all evidentiary procedures may be freely applied and declares that all evidentiary procedures may be freely used. This means that the means of proof are defined by law, whereas their assessment is completely free and depends solely on the authority as to what it accepts as evidence and when, how it evaluates it, and when it considers the fact to be proved as established. If the trial judge considers that the testimony was problematic and that there were discrepancies either in its content or in the relationship between behaviour and content, he or she may disregard the testimony.

Taking a step back from criminal proceedings, it is important to analyse nonverbal communication even during criminal investigations, as it can help investigators assess the credibility of suspects and witnesses. By observing body language, facial expressions, and vocal cues, investigators can gain valuable information about the emotional state and intentions of those involved. For example, the FBI employs specialists who specialize in facial and body language analysis to assist with investigations.

## 5. Nonverbal Communication in Jurisprudence

In the following, this study presents some international cases in which nonverbal communication played a prominent role in the outcome of the proceedings. The Amanda Knox case in Italy in 2007 is one such case. American student Amanda Knox and her friend Raffaele Sollecito were charged by Italian authorities with the murder of Meredith Kercher in Perugia. The case took many turns and received considerable media coverage. Italian police and prosecutors also took nonverbal signals into account during the investigation. During Amanda Knox's interrogations, police monitored her body language and facial expressions. Knox's behaviour, which authorities found strange and unusual, contributed to suspicion. During interrogations, investigators observed that Knox often avoided eye contact and made nervous gestures. These nonverbal cues contributed to investigators' belief that Knox was lying or hiding something. Although the nonverbal cues alone did not provide clear evidence, they contributed to the development of the charges against Knox and Sollecito. The case was finally closed after numerous appeals, and Knox was ultimately acquitted in 2015.

In the 1998 Bill Clinton and Monica Lewinsky case in the United States, US President Bill Clinton was accused of lying about his relationship with Monica Lewinsky. During the investigation into the case, Clinton testified under oath. During Clinton's testimony, his body language also received a great deal of attention. One of the most well-known moments was when Clinton denied the affair and declared, "*I did not have sexual relations with that woman, Miss Lewinsky.*" Investigators and the public watched Clinton's facial expressions, posture, and vocal cues. Many believed that his avoidance of eye contact and tense posture during the statement indicated deception. The case eventually served as a tool for Clinton's political opponents and led to impeachment proceedings. Although Clinton ultimately retained office, the role of nonverbal cues in shaping public opinion and influencing perceptions of the case was of great importance (Ekman, 2003).

The Jodi Arias case also arose in the United States in 2008. Jodi Arias was charged with the murder of her friend Travis Alexander in Arizona. The media coverage of the case was enormous, and Arias' behaviour during the trial received a great deal of attention. During Arias' interrogations and testimony at trial, investigators and judges watched her body language and facial expressions. Arias often changed her story, and her behaviour was often perceived as inconsistent. During interrogations, investigators noticed that Arias often made nervous gestures, such as playing with her hair and avoiding eye contact. These nonverbal cues contributed to the impression that Arias was lying. At the end of the case, Arias was found guilty of first-degree murder and sentenced to life imprisonment. Analysis of the nonverbal cues helped investigators and the court understand Arias' emotional state and the credibility of her statements.

The Harold Shipman case attracted public attention in the United Kingdom in 2000. Dr Harold Shipman, a British general practitioner, became notorious when it was revealed that he had murdered more than 200 of his patients. Shipman's case is one of the most serious serial murder cases in the UK. During Shipman's interrogations, police monitored his body language and facial expressions. Investigators noticed that Shipman remained calm and indifferent during interrogation, which was not consistent with the seriousness of the crimes he was accused of. Nonverbal cues, such as minimal facial expressions and a relaxed posture, helped investigators determine that Shipman was emotionally distancing himself from his crimes. At the end of the case, Shipman was found guilty of committing more than 200 murders and sentenced to life imprisonment. Analysis of the nonverbal cues helped investigators, and the court understand Shipman's emotional state and credibility.

The Oscar Pistorius case took place in South Africa in 2013. Oscar Pistorius, a Paralympic athlete from South Africa, shot his girlfriend, Reeva Steenkamp.

Pistorius claimed that he believed Steenkamp to be a burglar and acted in self-defence. During the trial, Pistorius' behaviour received much attention. The court watched his body language, facial expressions, and vocal cues. Pistorius often cried during the trial and seemed visibly emotionally broken. Nonverbal cues, such as crying and a trembling voice, appeared to validate his emotional responses. Although the court ultimately found Pistorius guilty of culpable homicide, analysis of nonverbal cues contributed to the decision. Pistorius' behaviour suggested that he felt deep emotional grief, which influenced the court's verdict (Darwin, 1872).

In the Elizabeth Holmes case, also in the United States, Elizabeth Holmes, founder of a biotech company called Theranos, was accused of misleading investors and patients about the effectiveness of the company's blood-test technology. The case came before the court in 2021. During Holmes' interrogations and trial, investigators and the court monitored her body language and facial expressions. Holmes often wore black turtlenecks, which indicated her admiration for Steve Jobs, and this was seen by many as a form of image management. During the trial, the court monitored Holmes' nonverbal signals, such as avoiding eye contact and nervous gestures. These signs contributed to the court's doubts about Holmes' sincerity. At the end of the case, Holmes was found guilty of fraud and misleading investors. Analysis of nonverbal cues helped the court understand Holmes' emotional state and authenticity.

The presented legal cases illustrate the importance of nonverbal communication in criminal investigations and court proceedings. Body language, facial expressions, gestures, and vocal cues can all help uncover truth and judge authenticity. However, it is important to remember that nonverbal cues alone cannot serve as clear evidence and should always be evaluated in conjunction with other evidence.

## 6. Conclusion

The use of nonverbal communication in legal proceedings is a complex and multifaceted issue. While it can make a significant contribution to uncovering the truth, legal professionals need to be aware of the limitations of interpreting nonverbal cues and the effects of cultural differences. Understanding and correctly applying nonverbal communication is essential to legal decision-making, and it is important for the legal profession to further develop its expertise in this area. In legal training and practice, increasing emphasis should be placed on the study and understanding of nonverbal communication so that lawyers are able to use this tool effectively in the service of justice.

It is important to note, however, the difficulties posed by cultural challenges and increasing digitalisation. Nonverbal cues may have different meanings in different cultures, which can lead to misunderstandings in international legal procedures. In addition, the interpretation of body language can be subjective and depends on the prejudices and experiences of the observer. Taking cultural differences into account is vital in interpreting nonverbal communication. What is considered polite and respectful in one culture may be perceived as suspicious or disrespectful in another. Legal professionals therefore need to be aware of the communication habits of different cultures in order to avoid misunderstandings and misinterpretations. Interpretive challenges add further complexity to the legal application of nonverbal communication. Legal professionals need critical thinking and the contextualization of nonverbal cues to accurately interpret behaviour. In addition, when interpreting nonverbal communication, legal professionals must take into account individual differences, such as personality traits and behavioural patterns.

The advent of digitalisation and the proliferation of the internet have revolutionised traditional modes of communication. Face-to-face interactions are increasingly being supplanted by digital communication platforms. This shift has profound implications for nonverbal communication, which has long been a cornerstone of human interaction. As technology continues to reshape the landscape, even conventional legal processes are undergoing transformation, complicating the recognition and interpretation of nonverbal cues as interactions migrate to the digital realm.

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# ENVIRONMENTAL GOVERNANCE AND LEGAL INTEGRATION IN THE EUROPEAN UNION UNDER DIGITAL TRANSFORMATION

HOTTÓ, ISTVÁN<sup>1</sup>

## ABSTRACT

This paper examines how the European Union's environmental governance and legal harmonisation are being reshaped by digital transformation. Using legal analysis, it explores how core environmental principles – such as the precautionary principle, the polluter pays principle, and the integration principle – are being operationalised through data-driven regulation, real-time environmental monitoring and cross-border digital cooperation. It analyses how these digital mechanisms can make regulation more targeted and adaptive, enhance compliance and transparency, and require new legal instruments for cross-border coordination. The findings suggest that digital tools have the potential to strengthen both environmental protection and legal harmonisation, while also posing challenges of data standardisation, interoperability, and institutional capacity. The paper concludes that EU environmental law can remain effective only if its legal frameworks are adapted to integrate these emerging digital instruments in a coherent and principle-based manner.

**KEYWORDS** EU environmental law, sustainable development, governance, legal harmonisation, digital transformation

## 1. Introduction

Environmental law in the European Union (EU) has developed as a response to domestic challenges and international obligations. Initially, the Treaties establishing the European Community did not contain any provisions concerning environmental protection. However, the need for unified standards became increasingly pressing due to the differing environmental regulations across Member States, which created uneven competitive conditions and hindered the free movement of goods. Over time, the EU incorporated environmental goals into primary law, enabling the adoption of both horizontal

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and vertical legislation. The latter addresses specific environmental elements such as air, water, and soil, while the former takes an integrated approach to protect all components of the environment. One of the key goals of EU environmental policy is to ensure sustainable development by minimizing irreversible environmental damage and promoting responsible resource use.

In recent years, the rise of digital transformation has introduced new tools and challenges for environmental governance. These include real-time environmental monitoring, data-driven regulation, and cross-border enforcement mechanisms. While these innovations offer the potential for greater transparency and efficiency, they also raise questions about implementation, standardisation, and legal adaptation.

This paper explores in detail how digitalisation intersects with environmental law and governance in the European Union. In particular, it examines the impact of digital tools on the implementation of key environmental principles, the operation of both horizontal and sectoral legislation, and the prospects for legal harmonisation across Member States. By doing so, the paper not only identifies opportunities for more effective and transparent governance but also highlights the legal and institutional challenges that arise in adapting traditional frameworks to a digital era.

## 2. Basic Principles of European Union Environmental Law

Environmental legislation within the European Union is structured around two complementary approaches: vertical and horizontal legislation. This dual structure reflects the complexity of environmental protection, which requires both targeted and integrated legal responses. Vertical legislation focuses on specific environmental components, such as water, air, or waste, while horizontal legislation provides general mechanisms applicable across sectors.

In the context of digital transformation, the effectiveness of both legislative types increasingly depends on technological capacities such as real-time data collection, interoperable databases, and automated compliance systems. For example, horizontal instruments like environmental impact assessments (EIA) and public access to environmental information are now frequently implemented through online platforms, which raises questions about the standardisation of reporting formats and the digital divide in access to information. Similarly, vertical directives on pollution control or waste management rely increasingly on electronic monitoring and reporting systems, which enhance transparency but also require significant investment from national authorities to ensure compatibility with EU-wide databases.

This section therefore not only outlines the dual legislative structure but also analyses how digitalisation reshapes its operation, highlighting both the opportunities for greater harmonisation and the risks of fragmentation if technological infrastructures are not aligned across Member States.

### *2.1. Objectives and Principles*

The environmental objectives of the EU include preserving, protecting, and improving the quality of the environment, protecting human health, the prudent and rational use of natural resources, and promoting measures at the international level to deal with regional or worldwide environmental problems (TEC, art. 174, para. 1). These aims are equally important and must be pursued in parallel.

Digitalisation is increasingly shaping how these objectives are pursued in practice. Real-time environmental monitoring networks, large-scale data platforms such as the European Environment Agency's Eionet system, and satellite-based observation tools like Copernicus make it possible to collect and analyse environmental data across the EU with unprecedented speed and precision. This enables policymakers to identify trends earlier, respond more rapidly to emerging threats, and better integrate environmental and human health considerations into decision-making. At the same time, the growing reliance on digital infrastructure highlights disparities in Member States' technical capacities and raises concerns over data quality, accessibility, and long-term interoperability. Thus, while digital transformation offers powerful tools to advance the EU's environmental objectives, it also creates new legal and institutional challenges that require coordinated governance.

### *2.2. High Level of Protection*

According to Articles 174(2) and 95(3) of the EC Treaty, the EU's environmental policy must pursue a high level of protection while taking into account the differing conditions across the Union's regions. This objective also guides the legislative process: when preparing harmonisation proposals, the European Commission must ensure a high level of protection, and the same standard must be upheld by the Council and the European Parliament.

Digital transformation is playing an increasingly important role in achieving a high level of protection across the EU. Real-time data collection systems, remote sensing technologies (such as the Copernicus satellite programme), and centralised EU-wide databases enable a more accurate assessment of environmental risks and a more consistent application of protective measures. This helps ensure that high protection standards are maintained even in regions

with differing capacities or environmental pressures. At the same time, the uneven availability of digital infrastructure among Member States can threaten this uniformity, potentially leading to gaps in implementation or enforcement. Moreover, heavy reliance on automated data systems raises questions about data accuracy, validation procedures, and legal accountability. Therefore, while digital tools can support the realisation of a high level of protection, they also require coordinated legal and technical frameworks to prevent new disparities and ensure consistent environmental safeguards.

### *2.3. Precautionary and Preventive Principles*

The precautionary principle and the principle of prevention are embedded in Article 174(2). The precautionary principle ensures that a lack of complete scientific certainty shall not be used as a reason for postponing measures to prevent environmental degradation. The preventive principle emphasizes acting before damage occurs. These principles underpin much of EU environmental legislation (Lee, 2014).

In the context of digitalisation, these principles gain new practical dimensions. Real-time environmental monitoring systems – such as the Copernicus satellite programme or national air and water quality sensor networks – allow regulators to detect emerging risks much earlier than traditional reporting systems. This enables authorities to take precautionary or preventive action before damage occurs, thereby strengthening the effectiveness of these principles. At the same time, the reliance on large and often automated datasets raises challenges relating to data accuracy, interoperability between national systems, and legal accountability: if decisions are based on incomplete or biased data, precautionary measures may be misapplied, or preventive actions may become disproportionate. Thus, digital tools can both reinforce and complicate the application of the precautionary and preventive principles within EU environmental law.

### *2.4. Source Principle*

Also included in Article 174(2), the source principle asserts that environmental damage should be rectified at its source. This principle is closely related to prevention and precaution and supports the concept of proximity in time and space for ecological interventions (Jans & Vedder, 2012)

In a digital context, the source principle can be implemented more effectively through advanced monitoring and geolocation technologies. Remote sensing systems and sensor-based networks – for example those coordinated through the European Environment Agency's Eionet data infrastructure – make it possible to detect the exact geographic and temporal origin of pollution in near

real-time. This allows authorities to intervene directly at the source rather than addressing only downstream impacts. However, this approach depends on the availability of interoperable data and reliable attribution models: inaccurate or fragmented datasets can lead to misidentifying the actual source of harm, creating legal disputes over responsibility. Thus, digital tools can enhance the enforceability of the source principle but also create new challenges regarding data reliability and legal accountability.

### **2.5. Polluter Pays Principle**

The polluter pays principle assigns financial responsibility for environmental harm to the party that caused it. According to Article 174(2), this principle ensures that the responsible economic actor internalizes the costs of pollution prevention and remediation ([Directive 2004/35/EC, preamble and art. 1](#)). It applies to lawful and unlawful activities and is a core component of the EU's environmental liability regime.

Digital technologies are increasingly transforming how the polluter pays principle is enforced. Data-driven monitoring systems and automated reporting platforms make it possible to trace emissions and discharges more accurately to specific operators, which strengthens the legal basis for assigning liability. For example, the Environmental Liability Directive may rely on geolocated sensor data, satellite imagery from the Copernicus programme, and digital emissions registries to establish causal links between polluting activities and environmental harm. This enhances transparency and can speed up the process of imposing financial responsibility. However, the use of complex datasets and algorithmic risk assessments also raises questions about data accuracy, the burden of proof, and the legal admissibility of digital evidence in cross-border cases. Thus, while digitalisation can significantly improve the practical enforcement of the polluter pays principle, it also introduces new legal and evidentiary challenges.

### **2.6. Integration Principle**

The integration principle, laid down in Article 6 of the EC Treaty, requires that environmental protection requirements be integrated into the definition and implementation of other EU policies and activities. This principle acknowledges that ecological goals cannot be pursued in isolation but must be considered in fields such as agriculture, energy, transport, and industry ([Krämer, 2020](#)). The Amsterdam Treaty elevated this principle by making sustainable development a general objective of EU action.

Digital transformation is creating new opportunities and challenges for the practical implementation of the integration principle. Digital data platforms, such as the European Environment Agency's Eionet network and the Copernicus satellite programme, allow environmental indicators to be systematically embedded into other policy domains – for example, by integrating real-time emissions data into agricultural or transport planning systems. This supports evidence-based policymaking and helps ensure that environmental objectives are considered in all relevant sectors. However, integration through digital systems also requires interoperability between policy-specific data infrastructures, standardised data formats, and common legal safeguards on data use and access. Without these, the inclusion of environmental criteria risks becoming inconsistent or purely symbolic. Thus, digitalisation can significantly enhance the integration principle, but only if it is accompanied by strong legal frameworks ensuring coherent data governance across policy areas.

### 2.7. *Subsidiarity Principle*

According to Article 5 of the EC Treaty, the subsidiarity principle stipulates that action at the EU level is justified only when objectives cannot be sufficiently achieved by the Member States alone and can, therefore, be better accomplished by the Union. This ensures that decision-making remains as close as possible to citizens and that EU intervention is proportionate to the need.

Digitalisation is reshaping how the subsidiarity principle operates in practice. On the one hand, advanced digital tools – such as EU-wide data platforms, cross-border monitoring systems, and shared environmental information networks (e.g. Eionet) – enable Member States to address many environmental issues more effectively at the national level, thereby supporting decentralised action in line with subsidiarity. On the other hand, these same technologies reveal the cross-border nature of many environmental problems, such as air pollution or river basin management, which often require coordinated EU-level responses. This creates a tension: while digital systems empower local authorities, they also strengthen the case for more centralised EU intervention. Furthermore, the uneven digital capacities of Member States risk undermining this balance, as weaker systems may struggle to contribute to or benefit from shared platforms. Thus, digitalisation both reinforces and challenges the subsidiarity principle, highlighting the need for clearer legal guidance on the appropriate level of decision-making in a data-driven governance context.

## 3. Horizontal and Vertical Legislation

Environmental legislation within the EU is structured around two complementary approaches: vertical and horizontal legislation. This dual

structure reflects the complexity of environmental protection, which requires both targeted and integrated legal responses. Vertical legislation focuses on specific environmental components such as water, air, or waste, while horizontal legislation provides general mechanisms applicable across sectors. In the context of digital transformation, the effectiveness of both legislative types increasingly depends on technological capacities. Real-time data collection, interoperable databases, and automated compliance systems are now embedded in many legal instruments. For instance, horizontal mechanisms like environmental impact assessments (EIA) and public access to environmental information are often implemented through digital platforms, raising questions about standardisation and equal accessibility. Similarly, vertical directives on pollution control or waste management increasingly rely on electronic monitoring and reporting mechanisms, which enhance transparency but also require significant investment and common technical standards.

This section therefore not only outlines the dual legislative structure but also analyses how digitalisation is reshaping it, highlighting how digital tools can strengthen harmonisation across Member States, while also creating new risks of fragmentation if legal and technical infrastructures are not aligned.

### 3.1. Vertical Legislation

Vertical legislation refers to legal acts that address specific environmental components or issues – such as air, water, soil, or waste. These instruments often set emission limits, product standards, or sector-specific obligations (Hilson, 2023). For example, the Water Framework Directive (2000/60/EC) sets a comprehensive framework for water quality management across the EU. Similarly, directives on air quality, waste management, and noise pollution are all examples of vertical regulation (Directive 2000/60/EC; Directive 96/62/EC; Directive 2008/98/EC).

Vertical legislation helps achieve clear, measurable goals in distinct environmental sectors. However, the compartmentalised nature of these regulations may sometimes result in policy conflicts or inefficiencies when multiple ecological issues intersect.

Digital transformation is increasingly reshaping how vertical legislation is implemented and enforced. Many sectoral directives now rely on digital monitoring systems, automated reporting platforms, and interoperable databases to collect and verify compliance data. For example, air quality directives are supported by real-time sensor networks managed through the European Environment Agency's Eionet system, while water and waste directives require electronic registers and geospatial data reporting. These tools

enable faster detection of non-compliance, more transparent enforcement, and better comparability of data across Member States. At the same time, they also create challenges: they demand significant technical and financial capacity from national authorities, and disparities in digital infrastructure risk producing uneven enforcement across the EU. Furthermore, reliance on automated data flows raises legal concerns about data accuracy, validation, and the admissibility of digital evidence. Thus, while digitalisation strengthens the effectiveness of vertical legislation, it also requires robust legal and institutional safeguards to ensure consistent implementation.

### 3.2. *Horizontal Legislation*

Horizontal legislation, by contrast, aims to regulate multiple environmental components simultaneously. It provides tools and procedures applicable across various sectors and ecological elements (Lenaerts, 2011). These instruments often reflect broader policy objectives and integrate different aspects of environmental governance.

Digitalisation is profoundly changing how horizontal environmental legislation operates in practice. Many horizontal instruments – such as the Environmental Impact Assessment Directive (EIA) and the Access to Environmental Information Directive – are now implemented through digital platforms that allow for real-time data sharing, online public participation, and automated reporting across policy areas. These systems enhance transparency, improve the comparability of environmental data, and facilitate cross-sectoral coordination. For example, the European Environment Agency's Eionet network provides a unified data infrastructure that supports both national- and EU-level decision-making. At the same time, the integration of diverse data sources also raises challenges related to standardisation, data interoperability, and the digital divide between Member States with differing technical capacities. Therefore, while digital tools can significantly strengthen the integrative function of horizontal legislation, they also require common legal safeguards to ensure equal accessibility, data quality, and coherent application across the European Union.

#### 3.2.1. *Key Areas of Horizontal Regulation*

- a. Environmental impact assessment (EIA) and strategic environmental assessment (SEA) are central instruments that ensure that environmental considerations are included in the early phases of project planning and policy development.

Digitalisation has significantly changed how these assessments are conducted. Most EIA and SEA procedures are now supported by online platforms that integrate real-time environmental data from sources such as the Copernicus satellite programme and national monitoring networks.

This allows faster data processing, more accurate impact modelling, and earlier detection of risks. At the same time, reliance on complex datasets creates challenges related to data quality, interoperability between Member States' systems, and the legal accountability of automated assessments.

- b. Public participation and access to environmental information are guaranteed by Directive 2003/4/EC and Directive 2003/35/EC, reflecting the principles of transparency and democratic engagement. Digital platforms have expanded public participation by enabling online consultations, e-submissions, and interactive access to environmental datasets. For example, the European Environment Agency's Eionet network provides open access to EU-wide environmental data, making it easier for stakeholders and citizens to engage in decision-making. However, this shift also raises concerns about the digital divide between regions, data privacy, and the long-term accessibility of digital archives.
- c. Eco-labelling systems, environmental management and audit schemes (EMAS), and environmental liability (under Directive 2004/35/EC) also fall under this category. These schemes increasingly rely on digital reporting systems and big-data-based risk assessments. Companies can submit EMAS audits electronically, while liability cases are often supported by geolocated monitoring data and digital evidence. This improves transparency and comparability across Member States but also creates legal challenges regarding the verification and admissibility of digital data in liability procedures.

### 3.2.2. *Integration and Coordination*

The need for horizontal legislation emerged from the realization that vertical approaches alone were insufficient for addressing complex, interrelated environmental issues. Integrated instruments help avoid conflicting policies and promote sustainable development across sectors. Horizontal regulation thus embodies the integration and precautionary principles ([Directive 2004/35/EC](#)).

Horizontal legislation plays a key role in legal harmonization across the EU, enhancing legal certainty and facilitating the internal market. It also fosters consistency in enforcement, particularly in transboundary environmental matters.

Digital transformation is profoundly reshaping how integration and coordination are achieved within EU environmental governance. EU-wide data platforms, such as the European Environment Agency's Eionet network and the

Copernicus Earth observation programme, allow environmental data from different sectors (such as energy, transport, agriculture, and industry) to be combined and compared in real time. This supports integrated policymaking and helps align environmental objectives with other policy domains, strengthening legal harmonisation across Member States. However, this also creates new challenges: ensuring interoperability between sectoral data systems, safeguarding data quality and security, and addressing disparities in digital capacity between Member States. Therefore, while digital tools can significantly enhance integration and coordination, they also require common technical standards and legal frameworks to prevent fragmentation and ensure coherent implementation throughout the EU.

## 4. Responsibility for the Environment and the Sectoral Legislation

Environmental responsibility is a cornerstone of environmental governance in the European Union. The EU's legal framework obliges both public and private actors to prevent environmental harm, remedy damage, and internalise environmental costs, and these obligations are implemented through horizontal and sector-specific legal instruments.

In recent years, however, the way these responsibilities are monitored and enforced has been profoundly shaped by digitalisation. While early legal acts such as the Environmental Liability Directive (2004/35/EC) did not contain explicit digital provisions, their enforcement increasingly relies on technological tools: geospatial monitoring data, satellite imagery from the Copernicus programme, and electronic reporting systems are now widely used to detect environmental damage, attribute responsibility, and document compliance. Similarly, sectoral legislation on water, air, and waste incorporates mandatory digital reporting platforms to enable cross-border coordination and timely oversight.

These developments enhance transparency and accelerate enforcement but also raise legal and institutional challenges related to data quality, standardisation, interoperability, and the uneven digital capacities of Member States. As a result, environmental responsibility in the EU is evolving into a hybrid system that combines traditional legal norms with digital enforcement infrastructures, requiring both legal harmonisation and investment in technological capacity.

### 4.1. *Environmental Liability*

The central instrument establishing environmental responsibility is Directive 2004/35/EC on environmental liability regarding preventing and remedying

environmental damage. This directive implements the polluter pays principle and places liability on operators whose activities cause or threaten to cause ecological harm (art. 1).

Under this directive:

If environmental damage has not yet occurred but there is an imminent threat, the operator must take all necessary preventive measures immediately (art. 5).

If environmental damage has already occurred, the operator must inform the competent authority and take all remedial actions while bearing the full cost of such interventions (art. 6).

The directive also provides legal standing to natural and legal persons, associations, and NGOs that meet specific criteria, allowing them to request action or initiate legal proceedings (art. 12; Kingston, 2017). However, the scope of the directive is limited and excludes some categories of environmental damage (e.g. nuclear accidents and marine pollution under international conventions).

Although the directive itself predates the digital transition and does not include explicit technological provisions, its enforcement has become increasingly data-driven. Authorities now use geospatial monitoring data, satellite imagery from the Copernicus programme, and digital emissions registers to identify the source and extent of environmental damage. Electronic reporting platforms also allow faster submission and cross-border exchange of evidence. These developments enhance transparency, accelerate liability procedures, and support more consistent enforcement across the European Union. At the same time, they raise legal questions about the reliability and admissibility of digital evidence and the uneven digital capacities of national authorities. Thus, digital tools both strengthen and complicate the practical implementation of the Environmental Liability Directive.

#### 4.2. Sectoral (Vertical) Legislation

EU environmental law includes numerous sector-specific directives, which form the backbone of vertical environmental regulation. These include distinct legal frameworks for water, air, soil, waste, and nature protection.

In practice, the implementation and enforcement of these sectoral directives have become increasingly dependent on digital tools. Real-time monitoring systems, geospatial data platforms coordinated by the European Environment Agency's Eionet network, and satellite-based observations from the Copernicus programme now provide a data foundation for assessing compliance across the

European Union. These digital systems improve transparency, allow faster detection of non-compliance, and support cross-border coordination, but they also raise challenges related to data interoperability, accuracy, and unequal technical capacities among Member States.

#### 4.2.1. *Water Protection*

The Water Framework Directive establishes a unified approach to water quality, integrating environmental objectives with sustainable use. It mandates river basin management plans and public participation to achieve “good status” for all EU waters ([Directive 2000/60/EC, art. 4–14](#)).

The implementation of this directive has increasingly relied on digital technologies. Real-time water quality monitoring networks, automated data loggers, and geospatial information systems now provide continuous data on pollutants, water levels, and ecological status. Platforms coordinated by the European Environment Agency and the Eionet network allow Member States to submit harmonised river basin data, which improves comparability and enables earlier detection of risks. These developments enhance transparency and support evidence-based policymaking, but they also raise challenges concerning data interoperability, the accuracy of automated measurements, and unequal technical capacities among Member States. Thus, while digitalisation strengthens the enforcement of the Water Framework Directive, it also requires robust data governance and technical support to ensure uniform application across the EU.

#### 4.2.2. *Air Quality*

Air quality is regulated through Directive 96/62/EC and subsequent amendments. These define emission standards (acceptable concentrations in ambient air) and limit values (limits on pollutants from specific sources) ([Directive 96/62/EC](#); [Directive 2008/98/EC](#)). The directives target sulfur dioxide, nitrogen dioxide, and particulate matter.

The enforcement of EU air quality legislation has become increasingly data-driven. Dense monitoring networks now collect real-time air quality data across the European Union, while satellite observations from the Copernicus programme provide complementary large-scale data on pollutant dispersion. These data are compiled and validated through the European Environment Agency’s Eionet platform, which allows Member States and EU institutions to track compliance with limit values almost in real time. This digital infrastructure enables faster detection of exceedances, more targeted enforcement actions, and better public access to information. However, it also raises challenges, including the need for harmonised data standards, the calibration of diverse

sensor systems, and the legal admissibility of automated data in enforcement procedures. Thus, while digitalisation enhances the effectiveness of air quality regulation, it also demands stronger safeguards to ensure the reliability and comparability of data across Member States.

#### 4.2.3. *Soil Protection*

Although the EU lacks a comprehensive directive on soil protection, various legal instruments address soil protection indirectly, such as the Nitrates Directive and hazardous waste legislation.

Despite the absence of a dedicated soil framework, the monitoring and enforcement of soil-related obligations have become increasingly digitalised. Remote sensing technologies, including satellite imagery from the Copernicus programme, and geospatial data platforms coordinated by the European Environment Agency's Eionet network, are used to identify land degradation, erosion risks, and nitrate pollution hotspots. Big-data-based risk assessment tools allow authorities to combine soil quality data with information on land use, fertiliser application, and industrial activity, enabling more targeted inspections and preventive measures. However, these tools also raise challenges related to data accuracy, the harmonisation of methodologies, and the limited digital capacities of some Member States. Thus, digital technologies can significantly strengthen soil protection efforts, but they also require common technical standards and adequate institutional support to ensure reliable and comparable results.

#### 4.2.4. *Noise Regulation*

Several directives set limits on noise emissions from vehicles, equipment, and industrial activities. Directive 2002/49/EC, in particular, regulates noise mapping and action planning in urban and transport contexts ([Regulation \(EC\) No 1107/2009](#); [Directive 2001/18/EC](#); [Regulation \(EC\) No 1907/2006](#)).

The implementation of EU noise legislation has become increasingly digitalised. Member States now use advanced noise modelling software, digital sound level meters, and geographic information systems (GIS) to produce high-resolution noise maps required under the Environmental Noise Directive. These maps are published through online platforms, improving public access to information and enabling data-driven urban planning to reduce noise exposure. Digital tools also allow the integration of noise data with transport and land-use datasets, supporting more coherent policy decisions. However, these technologies raise challenges related to data standardisation, the calibration of measurement devices, and the long-term maintenance of digital platforms. Thus, while

digitalisation enhances the accuracy, transparency, and usability of noise mapping, it also requires harmonised methodologies and sustained technical capacity across the European Union to ensure consistent implementation.

#### *4.2.5. Hazardous Activities and Substances*

Specific regulations apply to hazardous substances, including chemicals, plant protection products, and genetically modified organisms. These instruments ensure that activities posing high environmental risk are subject to strict controls.

The regulation of hazardous activities and substances has become increasingly reliant on digital data systems and risk assessment tools. Under the REACH Regulation, for example, manufacturers and importers are required to submit detailed chemical safety data electronically to the European Chemicals Agency, which maintains a centralised digital database accessible to national authorities. Similar electronic reporting and approval systems apply to plant protection products and genetically modified organisms. These platforms enable large-scale data analysis and support early identification of high-risk substances, improving both transparency and enforcement. However, the complexity of these datasets raises challenges related to data accuracy, algorithmic transparency in risk modelling, and cybersecurity. Thus, while digitalisation enhances the efficiency and scope of hazardous substance regulation, it also requires robust data governance frameworks and harmonised IT capacities across the European Union to ensure reliability and legal certainty.

#### *4.2.6. Nature Protection*

The Habitats Directive (92/43/EEC) and Birds Directive (2009/147/EC) form the legal basis of the Natura 2000 ecological network. These directives aim to conserve natural habitats and wild species across the EU. Member States are obliged to designate protected areas and maintain their conservation status.

The implementation and monitoring of these nature conservation directives increasingly rely on digital technologies. Satellite-based remote sensing through the Copernicus programme and geospatial mapping tools coordinated by the European Environment Agency are used to track land cover changes, habitat quality, and species distribution across Natura 2000 sites. Centralised digital reporting platforms allow Member States to submit standardised data on the status of protected areas, which improve comparability and supports early detection of ecological degradation. These developments enhance transparency and enable more proactive conservation planning, but they also raise challenges related to data harmonisation, the validation of automated ecological indicators, and disparities in digital capacity among Member States.

Thus, while digitalisation strengthens the effectiveness of the Habitats and Birds Directives, it also requires robust data standards and sufficient technical support to ensure consistent protection across the EU.

## 5. Conclusion

This paper has examined how the European Union's environmental legal framework is being reshaped by digital transformation. Using legal analysis, it reviewed the EU's core environmental principles, horizontal and sectoral legislation, and the allocation of environmental responsibility, focusing on how their implementation increasingly relies on digital tools. The study found that data-driven regulation, real-time monitoring systems, and cross-border information platforms have become essential for ensuring compliance, transparency, and harmonisation across Member States. At the same time, it identified persistent challenges, including data interoperability, disparities in digital capacities, and the legal admissibility of digital evidence. These findings highlight the need for coherent legal frameworks that integrate technological advances while upholding fundamental environmental principles.

The European Union's environmental legal framework is grounded in a robust set of principles and regulatory mechanisms that aim to ensure sustainable development and ecological integrity across Member States. However, as digital transformation accelerates, the nature of environmental governance is undergoing fundamental changes. Technologies such as real-time monitoring, electronic reporting, and cross-border data sharing are no longer peripheral tools – they are becoming integral components of legal implementation and compliance.

This paper has argued that traditional legal instruments – both horizontal and sector-specific – must increasingly adapt to a digital regulatory environment. The harmonisation of national laws within the EU now depends not only on aligning legal texts but also on standardising digital infrastructure and processes. While principles such as the “polluter pays” principle or the precautionary principle remain central, their effectiveness in practice is increasingly linked to the Union's capacity to integrate digital technologies into its environmental governance system.

Therefore, the future of EU environmental law depends on its ability to evolve in two directions simultaneously: preserving the foundational legal principles while actively developing digital capabilities that support enforcement, transparency, and accountability. A deeper integration between law and technology will be essential for addressing complex transboundary environmental challenges.

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# DATA LOCALIZATION, INTERNATIONAL LAW PERSPECTIVE

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## ABSTRACT

Although the core principles of the General Agreement on Trade in Services (GATS) can extend the agreement to the movement of data, thereby enhancing the effectiveness of GATS in the digital age, there is very little to prevent governments from implementing wide data localisation measures, as GATS provides broad exceptions that create leeway for circumventing these obligations. Additionally, the ambiguity surrounding internet technology has given governments more justification. After all, how could anyone challenge these policies when technology and intelligent services themselves were once incapable of detecting what Edward Snowden later exposed? In response to these uncertainties, and the existing security exceptions in GATS, countries continue to invent new data localisation measures through different approaches. China forbids data transfers by default, only allowing them as exceptions, and emphasises national security with ambiguous discretionary limits. The GDPR limits transfers from outside the EU in order to balance privacy and trade but provides exceptions. The USA, without a unified federal legislative framework, has focused localization on areas such as taxation and defence, motivated mostly by national security. Given these dynamics, and the sensitivity of national security, the author argues that greater emphasis should be placed on reactivating the role of WTO panels and, at the very least, establishing broad boundaries for what constitutes security, even if the concept itself is difficult to define precisely.

**KEYWORDS** Data protection, data localization, data flow, international trade law, trade barriers, WTO panels

## 1. Introduction

The emergence of the Internet and advances in technology have had a great impact on international trade and the global economy. Personal data is often described as the fuel of the internet and the new currency of the digital realm (National Board of Trade, 2014, p. 10). Almost half of international trade in

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services now relies on information and communications technology (ICT) (National Board of Trade, 2014, p. 9). At first, this development was expected to push the international community toward reducing trade barriers. However, data localisation measures have undermined this expectation by restricting data transfers. Many countries have adopted measures that make the transfer of personal data across borders difficult, justifying them on the grounds of privacy and security, thereby creating significant obstacles to data exports (Chander & Le, 2014, p. 8). The unprecedented development of technologies, products, and services today has relied heavily on the free flow of data across borders. The operation, innovation, and maintenance of competitiveness of companies in global markets all rely on data movement. Data localisation practices fragment the World Wide Web, which was initially intended to enable global information trading (Chander & Le, 2014, p. 8).

While many commentators suggest that data localisation falls within the scope of GATS Mode 1 (cross-border trade) (Abe, 2021, p. 11; Tseng, 2024), the central issue is not whether such measures are covered by the GATS. This is because, on the one hand, countries often justify data localisation measures on the grounds of protecting national security and citizens' privacy, rather than asserting their permissibility under the GATS. On the other hand, the GATS explicitly provides for privacy exceptions, thus ensuring that obligations under the agreement do not, by their nature, preclude the implementation of data localisation measures.

The problem addressed in this study lies in the fact that there is currently nothing preventing countries from adopting data localisation measures. This stems from the complexity of the internet and the sensitivity of modern technologies, which prompt countries to take a precautionary approach. It is possible for governments to believe that they were only able to learn about certain spying activities after the Edward Snowden leaks, suggesting that even with the advanced technology they have, they were unable to detect these activities on their own. This reinforces their belief that enhanced data surveillance through localisation is essential for national security.

On the other hand, while the General Agreement on Trade in Services (GATS) establishes important principles aimed at promoting free trade, its exceptions – particularly security exceptions – may undermine these principles. A key issue is the self-judging nature of the security exception, which is enshrined in the agreement's language. Some countries support this interpretation, while others oppose it, sparking ongoing international controversy. This disagreement has extended to the interpretation of the exception by WTO panels, which have adopted inconsistent approaches. Ultimately, this contributed to the suspension of the WTO panels' work since 2019.

However, the crucial question is the fairness of data localisation measures and their ability to effectively balance the protection of international trade interests, national security, and personal data protection. To address this issue, the study poses several key questions: What is data localisation, and how do different jurisdictions address it? To what extent does the GATS restrict states' authority to enact such measures? And how successful is the GATS in challenging or limiting these measures?

To explore these questions, the study will examine three major jurisdictions – the United States, China, and the European Union – which together account for nearly 90% of global trade. Accordingly, the study is divided into two main sections. The first section will explain the concept of data localisation, analyse how each of the three jurisdictions addresses it, and assess its impact on international trade. The second section will focus on the GATS agreement – how it treats cross-border data transfers, how its core principles may limit data localisation measures, the extent of its effectiveness in curbing such measures, and the role of WTO panel rulings in this context.

## 2. THE CONCEPT OF DATA LOCALIZATION AND ITS IMPACT ON INTERNATIONAL TRADE

### 2.1. *The concept of Data Localization*

It is not easy to define this term, as it lacks a universally accepted definition (Del Giovane et al., 2023, p. 5), and its meaning varies depending on the context (Whorra, 2022, p. 44). However, it may be understood as a mandatory legal or administrative (OECD, 2020, p. 8) requirement, or the practice of storing or processing (Fahey, 2023, p. 505) data within the territorial borders of a country. In other words, it involves keeping data locally to protect against the leakage of personal information (Singh, 2022, p. 496).

There is a controversy about what exactly constitutes data localisation: some believe that it includes implicit measures such as limitations on cross-border data flows, while others emphasize explicit regulations that directly dictate where and how data is stored or processed within a jurisdiction (Del Giovane et al., 2023, p. 5).

In the wake of Edward Snowden's intelligence revelations, many governments have considered "data localisation" laws that restrict the storage, transfer, and processing of digital data to specific locations, jurisdictions, or companies (Hill, 2014). Many countries, developed and developing (Hodson, 2019, p. 580), have adopted data localisation laws (Lu, 2024, p. 183). By early 2023, nearly 100 data localisation measures had been implemented across 40 countries, with over half of them introduced since 2015 (Del Giovane et al., 2023, p. 3). These regulations

take various forms and sizes. In terms of data type, data localisation measures can be classified into three main groups: the first is blanket localization, which requires all types of personal data to be stored within the country; the second is specific localisation, which applies to specific categories of personal data and specific organizations and mandates data be stored locally (Fraser, 2016, p. 360); and the third is combined localisation, which focuses on specific categories of personal data without requiring local storage. Instead, the focus is on ensuring that the processing of data is carried out in accordance with legal requirements (Singh, 2022, p. 496). In terms of regulatory frameworks, there are various categories of legislation, ranging from outright bans on the transfer of all types of data (Devane, 2022) to targeted restrictions, which apply only to transfers of data in specific sectors, rather than to all data (Satori Cyber, 2024).

## 2.2. In Practice

The United States, the European Union, and China, which collectively control 90% of world trade (Kyger, 2024), share many commonalities in regulating data transfer, but there are also fundamental differences. Each has imposed restrictions on data transfers, albeit of varying nature and scope.

### 2.2.1. China

With the introduction of several laws and regulations, privacy legislation in China has become more complex. These regulatory frameworks include strict guidelines regarding the transfer of personal data stored in China to foreign entities (Tang, 2021). While privacy rights are addressed, the main goal of restricting cross-border data flow is to protect national security interests (DSL, arts. 10, 25; ODTSAM, arts. 1, 8; NDSM Regulation, art. 1)<sup>2</sup>. Although the reasons behind LinkedIn's and Yahoo's 2021 withdrawals from China remain unclear, their exits demonstrate the difficulties of adhering to the country's strict data localisation regulations (Lu, 2024, p. 183).

Unlike the EU, China doesn't have a unified data protection framework. Instead, its personal information protection system is based on three primary laws: The Personal Information Protection Law (PIPL), the Cybersecurity Law (CSL), and the Data Security Law (DSL) (DLA Piper, 2024, p. 2). Additionally, there are specific laws regulating data transfers, which provide detailed guidelines and

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<sup>2</sup> See, for example: The Data Security Law, in Article 25, implements export controls for certain types of data to safeguard national security, while Article 10 prohibits the transmission or processing of data that endangers national security or public interests. Data Security Law of the PRC (effective 10 June 2021). In addition, Article 1 of the Outbound Data Transfer Security Assessment Measures provides: "In order to regulate outbound data transfer activities [...] safeguard national security [...] these Measures are formulated." Article 8 evaluates the potential risks associated with outbound data transfers, focusing on their impact on national security, public interest, and the legal rights and interests of individuals and organizations. Outbound Data Transfer Security Assessment Measures (effective 1 September 2022). See also Article 1 of The Regulation on Network Data Security Management (China, adopted at the 40th executive meeting of the State Council, 30 August 2024, effective 1 January 2025).

restrictions, such as Article 5 of the Regulations on Network Data Security Management (NDSM Regulation), the Regulations on the Security Protection of Critical Information Infrastructure (CII Regulations), and the measures adopted by the State Administration for Market Regulation and National Standardization Administration (GB/T 43697-2024). Furthermore, various provisions in different Chinese laws impose restrictions on the transfer of data outside China<sup>3</sup>.

Operators of critical information infrastructure in China are required by Article 37 of the Cybersecurity Law to store sensitive or personal data within mainland China. A security assessment must be conducted in accordance with applicable laws and regulations if data must be moved outside the country for business purposes (CSL).

Conditions for transferring personal data outside of China are imposed by Article 38 of the PIPL. Personal information processors are required to sign a standard contract, pass a security assessment, obtain a personal information protection certificate, or adhere to other legal or regulatory provisions specified by the state cybersecurity authority.

Article 4 of the Outbound Data Transfer Security Assessment Measures mandates that data handlers apply for an outbound data transfer security assessment if they provide important data abroad, if a critical information infrastructure operator or data operator has sent more than 1 million people's personal information abroad, or if they have sent over 100,000 people's personal information or the sensitive personal information of 10,000 people since 1 January of the previous year. In addition, a security assessment is necessary in other circumstances as determined by the State Cybersecurity and Information Department (ODTSAM). This gives the department discretionary power to decide standards without clear boundaries and leaves the list vulnerable to further restrictions. In addition, the security assessment measures do not explain how the personal data thresholds (1 million, 100,000, and 10,000 individuals) are calculated. It is not obvious whether these thresholds are applicable to all types of personal data processed by an entity, regardless of information systems, business functions, or data subjects' categories (Yin et al., 2022).

### 2.2.2. European Union

In Europe, both the Data Protection Directive, which preceded the General Data Protection Regulation (GDPR), and the GDPR contain rules forbidding limitations on data flows among Member States, ensuring free data transfer within the EU

<sup>3</sup> See, for example: Article 24 of Order of the State Council of the People's Republic of China No. 631: Regulation on the Administration of the Credit Investigation Industry (adopted at the 228th executive meeting of the State Council on 26 December 2012, effective from 15 March 2013); Articles 28 and 57 of Standing Committee of the National People's Congress: PRC Law on the Protection of State Secrets (promulgated on 27 February 2024). Article 6 of Notice of the People's Bank of China on Protecting Personal Financial Information by Banking Financial Institutions (last amended in 2011).

and EEA. For non-EU countries, however, both the Directive and the GDPR have a protective and restrictive strategy, which restricts data transfer to protect privacy. The GDPR, which replaced the Directive and refined it with a more uniform and robust system, maintains the same fundamental principle of restricting data flow outside these zones. It defines its subject matter and objectives in terms of two main points: respect for personal data and recognition of the necessity of data transfer for international trade and cooperation. However, realizing this balance is not always an easy task for the EU. The EU anticipated these difficulties early on and has established flexibility within its rules to ensure that data protection does not unduly hinder economic activities or international data transfer. This flexibility is found in Article 52(2) of the EU Charter of Fundamental Rights, which provides that the rights enshrined in the Charter and outlined in the Treaties must be exercised in accordance with the terms and within the restrictions specified in those Treaties (CFR).

The GDPR offers several acceptable grounds for lawful international data flow. Article 45 (1) and (2) provides that the transfer of personal information to a third nation is permitted if the European Commission has determined that the country offers a sufficient degree of protection. The Commission evaluates this adequacy by taking into consideration many factors such as the rule of law, supervisory authorities, and international commitments. As an alternative, Article 46 provides for suitable protection such as binding corporate rules<sup>4</sup>, standard contractual clauses (European Commission, 2021), codes of conduct, or certifications, so long as they guarantee that data subjects have enforceable rights and legal recourse.

For non-personal information, Art. 37 of the Chinese Cybersecurity Law requires operators of critical information infrastructure in China to store within mainland China any important data that they collect or generate in the course of their operations. Where it is necessary to provide such data overseas for trade purposes, the operator must first undergo a security assessment in accordance with applicable laws and regulations. Under Article 31, critical information infrastructure covers sectors such as public communications, finance, and public services, whose disruption or data leakage could threaten national security or public welfare (CSL).

Certain cross-border activities that do not involve personal information or critical data, such as "international trade, cross-border transportation, academic cooperation, cross-border production and manufacturing, and cross-border marketing," are exempt from Article 3 of the Regulations on Promoting and Regulating Cross-Border Data Flow. The EU, on the other hand, approaches non-

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<sup>4</sup> Article 4(20) of the GDPR defines "binding corporate rules" as rules that apply to transfers, or sets of transfers, of personal data to a controller or processor in one or more third countries within a group of undertakings or enterprises engaged in a joint economic activity.

personal data differently, with a more expansive framework and more stringent regulations. The European Data Governance Act (DGA), the Data Act (DA), and the forthcoming European Health Data Space ([Inside Privacy, 2022](#)) impose restrictions on the transfer of non-personal data outside the EU. Although it might seem that the main goal of these restrictions is to safeguard non-personal data, they also seek to prevent people from being re-identified using that information ([Van Quathem & Oberschelp de Meneses, 2024](#)).

### 2.3. *United States*

The USA does not have a comprehensive data protection regulation that is comparable to the GDPR in Europe. Instead, it handles data privacy through a patchwork of sector-specific and state laws.

The U.S. expresses its policies and policy position on data localisation through international governance organizations and trade agreements, such as the United States-Mexico-Canada Agreement, which forbids data localisation and promotes the free movement of data among the member countries ([Global Regulatory Insights, 2025](#)). However, certain laws pertaining to residency or data localisation may mandate that personal data be stored within the country ([Global Regulatory Insights, 2025](#)). Several data localisation requirements have been proposed or implemented, primarily centered on public procurement ([Cory, 2017, p. 30](#)). Recently, the U.S. pushed to remove financial services data from the Trans-Pacific Partnership's regulations that barred countries from imposing barriers to data transfer. However, after the deal was concluded, the U.S. sought to limit the extent of this exemption through bilateral discussions and provisions in ongoing Trade in Services negotiations ([Cory, 2017, p. 30](#)). Data localisation requirements in the United States are affected by several factors, including national security regulations, and the U.S. approach to data localisation aims to balance national security and data protection with the free transfer of data for economic and security reasons ([Global Regulatory Insights, 2025](#)). Biden's executive order cites national security, foreign policy, privacy protections, and other human rights and freedoms as justifications for its issuance (EO 14117).

Data localisation requirements in the United States are governed by both federal- and state-level laws, each emphasizing the protection of sensitive information within U.S. jurisdictional boundaries. At the federal level, Internal Revenue Service Publication 1075 ([Internal Revenue Service, 2021, p. 57](#)) mandates that Federal Tax Information (FTI) must be accessed, processed, stored, and transmitted within the United States, including its territories, embassies, and military installations. This regulation explicitly prohibits foreign remote maintenance, call centres, or help desks from handling FTI. Similarly, the

Defense Acquisition Regulations System (239.7602–2) (DFARS Rule, 51739) requires cloud computing service providers to keep all federal data within the 50 states, the District of Columbia, or outlying U.S. areas, unless specifically permitted by a designated authority. This aligns with the City of Los Angeles' agreement with Google, which states that email and Google Message Discovery data must stay in the continental United States, as outlined in the Statement of Work (Appendix B, Section 1.1.10.4) (City of Los Angeles, 2009).

At the state level, a number of bills filed in the early 2000s sought to impose similar restrictions, particularly targeting call centres and the cross-border flow of personal data. For example, Missouri House Bill No. 1497 (2004) (National Foundation for American Policy, 2004) forbids state contracts with centres located abroad and bans the transfer of financial, credit, or identifying information to foreign nations without specific written consent (Section 1, Subsection 3). Similar clauses are found in Kansas House Bill No. 2810 (2004), Washington House Bill No. 3186 (2004), and Tennessee Senate Bill No. 3492 (2004), all of which limit the use of overseas contact centres for state contracts and require operators to reveal their location upon request. Ohio House Bill No. 459 (2004) also sought to forbid state contract work from being done outside of the United States and required consumer authorization for data transfers abroad (National Foundation for American Policy, 2004).

Section 202.301 of Biden's order forbids the transfer of covered data transactions – involving access to government-related data or large amounts of sensitive personal data – to covered individuals or countries of concern (Department of Justice, 2024).

In sum, China adopts a state-centric, security-driven paradigm characterized by complex, case-by-case security evaluations, volume-based thresholds, and discretionary enforcement. This model often leads to regulatory opacity and compliance difficulties – particularly for foreign firms. In contrast, the EU adheres to a harmonised, rights-based framework under the GDPR, applying uniform standards based on fundamental rights, with cross-border transfers allowed through mechanisms including standard contractual clauses and adequacy determinations. Unlike China's flexible exclusions for smaller-scale data flows and geographic carve-outs like free trade zones, the EU maintains uniformity regardless of data amount or company size. The United States, meanwhile, lacks a single data protection law and takes a more practical, sectoral, and trade-oriented approach, giving national security priority in certain areas but largely supporting data mobility, especially through international agreements. Despite variations in form and degree, data localisation measures are increasingly considered obstacles to the global economic system. This raises the question of the legality of such actions under international trade law: how much does

international law regulate this area, and to what extent does it permit such practices?

### 3. DATA LOCALIZATION UNDER GATS

When the General Agreement on Trade in Services (GATS) was created in 1994, the Internet was still in its infancy, so it is not surprising that the GATS does not directly address digital trade obstacles (Hodson, 2019, p. 582). However, such flows may still be covered by Article I of GATS under ‘mode of supply 1’ (cross-border trade) when data transfers enable the provision of services across borders (Yakovleva, 2020, p. 893). The provision of services through Mode 1 does not require the physical presence of a supplier from one Member State in another; therefore, under WTO jurisprudence, this mode also encompasses trade in digital services. Cross-border data transfers are essential to enabling services under Mode 1 commitments, such as online consultancy and e-commerce (World Trade Organization, 2004, para. 7.45). Additionally, Mode 3, the supply of a service “by a service supplier of one Member, through commercial presence in the territory of any other Member”, can also be affected by data transfer restrictions. For instance, if a foreign business sets up a local subsidiary to offer retail services in a host nation but faces restrictions on transferring customer data for analysis back to its home country, this restriction would impact its capacity to provide services (Abe, 2021, p. 12).

Furthermore, nations do not challenge the applicability of the GATS to digital data; instead, they affirm their commitment to facilitating data flows in their legislation (PRRCDF Regulation, art. 1; ODTSAM, art. 1; DSL, art. 1; EO 14117, sec. 1), indicating their approval of the application of the GATS to digital data transfers. Therefore, the matter of data transfers being covered by the GATS can be considered settled.

This leads to the next stage: examining to what extent data localisation contravenes fundamental WTO principles such as most-favoured-nation treatment and market access, among others, which were initially designed to encourage free trade and remove barriers to economic development.

#### 3.1. *The core principles of GATS*

##### 3.1.1. *Most-Favored-Nation Treatment (MFN)*

According to GATS Article II, WTO Members shall treat comparable services and service providers equally, regardless of their country of origin. Even if a country has not made specific commitments in the service sector, it is nevertheless required to abide by the most-favoured-nation (MFN) obligation, which applies to all measures under the agreement. A data localisation measure could violate

Article II:1 by causing unjustified discrimination if it unfairly targets or favours certain countries.

This raises the question of whether the MFN principle is violated when service providers are differentiated based on a GDPR adequacy decision. Due to significant differences in data protection standards, services and service providers from nations with different degrees of data protection may not be deemed "like" under the GDPR. Therefore, the 'likeness' requirement of the MFN principle may not be violated if an adequacy decision is grounded solely in the level of data protection offered by a country rather than in the country of origin itself (Yakovleva, 2018, p. 491). According to the Appellate Body report in Argentina – Financial Services, in assessing 'likeness' under the MFN principle and data protection adequacy decisions, it is crucial to evaluate whether the services and suppliers are in a competitive relationship. This may involve adapting criteria from goods trade, such as the nature and quality of services and consumer perceptions, to suit the specifics of services trade (World Trade Organization, 2016).

### 3.1.2. Domestic Regulation

Paragraph 5 of Article VI of the GATS aims to prevent unnecessary trade barriers in services by forbidding the application of licensing and qualification requirements and technical standards that invalidate or undermine particular commitments. These requirements must meet the standards of objectivity, transparency, and minimal burden. Therefore, if data localisation laws fail to satisfy these criteria, they may conflict with the obligations under Article VI.

### 3.1.3. Market access

Article XVI(2) (World Trade Organization, 2025) provides that in sectors where market-access commitments are undertaken, Member States are not permitted to impose limitations on the number of service suppliers or limitations on the total number of service operations or the total quantity of service output (e.g. quotas or economic needs tests), unless otherwise specified in their Schedule. According to the US–Gambling case, the Appellate Body determined that banning the online supply of gambling and betting services constitutes a "zero quota", violating GATS Articles XVI:2(a) and (c) (World Trade Organization, 2005, paras. 238, 251). This reasoning could similarly apply to limitations on the cross-border flow of entire categories of data, particularly if these categories align with service sectors where a country has made unqualified market-access commitments (Mitchell & Hepburn, 2017).

### 3.1.4. National Treatment

According to Article XVII of the GATS, foreign services and service providers are treated no less favorably than domestic "like" services and providers, but only in sectors where specific commitments are listed in their Schedule. This obligation can apply to Mode 3 (commercial presence), where the service supplier operates in another Member's territory. Data localisation measures, such as requiring domestic data storage or facility installation, may disproportionately burden foreign providers by increasing their costs, thereby harming competition between foreign and domestic suppliers. Such measures could violate national treatment obligations.

The EU stated in the Council for Trade in Services that *"foreign companies operating in China could find themselves in a de facto less competitive situation compared to domestic operators"* because of the Chinese cybersecurity law. This statement seems to be based on the EU's perception that the Chinese law will likely breach national treatment obligations (Abe, 2021, p. 17).

While GATS principles limit governments' power to legislate data localisation measures and potentially reduce their impact, the agreement's exceptions, specifically security exceptions, effectively give countries leeway to circumvent these obligations. Although panels have worked to narrow the interpretation and the scope of these exceptions, countries' national security concerns continue to challenge the maintenance of these principles, largely due to the agreement's self-judging language, which allows Members discretion in determining their security interests. Additionally, all these principles – with the exception of the MFN principle – require specific obligations on the part of states; otherwise, they are unenforceable, further limiting their applicability.

The GATS provides for general exceptions (Article XIV) and security exceptions (Article XIV bis) to limit trade. General exceptions require an objective analysis to prove that the challenged measure was necessary and to assess whether less restrictive alternatives were available. In contrast, security exceptions do not involve evaluating alternatives but focus on whether a security threat existed and whether the measure was proportional (Bahri, 2020, p. 337).

In US – Gambling, the Appellate Body found that GATS Article XIV parallels GATT Article XX exceptions, making GATT Article XX jurisprudence relevant for the analysis of GATS Article XIV (World Trade Organization, 2005, para. 291)



## 3.2. Exceptions

### 3.2.1. General Exceptions

According to Article XIV, on the condition that they don't unjustly discriminate between countries with comparable circumstances or create disguised trade restrictions, the following actions are allowed:

- a. necessary to protect public morals or to maintain public order;
 

The EU–Energy Package panel pointed out two elements that a party invoking this subparagraph had to prove, one of which is that the measure must be one intended and required to protect public morals or to maintain public order (World Trade Organization, 2018, para. 7.230). In another case, the Panel argued that the content of these ideas for Members might change throughout time and space based on a range of circumstances, including prevailing social, cultural, and religious values. More specifically, Members ought to have some scope to define and apply for themselves the concepts of public morals and public order in their own regions, according to their own systems and scales of values (World Trade Organization, 2004, para. 6.461).
- b. necessary to protect human, animal, or plant life or health;
- c. necessary for compliance with WTO-consistent laws and regulations, including those about:
  - preventing fraud and dealing with contract defaults
  - protecting personal data privacy and confidentiality
  - safety.

The Argentina–Financial Services Panel assessed ‘necessity’ under Article XIV(c) GATS by considering three factors:

- a. the importance of the objective pursued,
- b. the measure's contribution to that objective,
- c. the measure's trade-restrictiveness.

It then held that a comparison between the measure and possible alternatives must also be undertaken (World Trade Organization, 2015, para. 7.661).

According to the US–Shrimp (Thailand) Panel, for an Article XX(d) GATT defence, a Member must:

- identify which laws or regulations the measure aims to enforce
- prove that these laws or regulations are WTO-consistent
- show that the measure is designed to secure their compliance (World Trade Organization, 2009, para. 7.514; World Trade Organization, 2008, para.

7.174; World Trade Organization, 2015, paras. 7.595–7.596). Moreover, the provided list is non-exhaustive (World Trade Organization, 2004, para. 6.540).

According to the Argentina–Financial Services Panel, in order to provide a proper weighing and balancing, detailed assessments are essential. It emphasized that a ‘necessity’ analysis requires evaluating the degree (qualitative and quantitative) of the measure’s contribution to the objective, not just if it contributes, and evaluating the level of trade-restrictiveness, not just if trade is restricted (World Trade Organization, 2016, para. 6.234).

The Appellate Body in Korea–Beef stressed the importance of weighing and balancing to ascertain whether alternative measures exist that are consistent or less WTO-inconsistent while still accomplishing the policy purpose, thereby ensuring minimal deviation from WTO rules (World Trade Organization, 2000, para. 165).

### 3.2.2. *Security Exceptions*

According to Article XIV bis, this Agreement does not:

- a. require Members to furnish any information which they consider contrary to their essential security interests; or
- b. prevent Members from taking any action which they consider necessary to protect their essential security interests:
  - relating to services directly or indirectly supplying military establishments;
  - relating to fissionable and fusible materials or materials derived from them; or
  - taken in time of war or other emergency in international relations.

The phrase “it considers” gives Members discretion to determine what information or actions are necessary for their security interests. This self-judging language creates controversy between countries supporting broad national discretion and those opposing the potential abuse of security exceptions.

On the occasion of Portugal’s 1961 accession, Ghana justified its boycott of Portuguese goods under Article XXI(b)(iii), arguing that each Member is the “sole judge” of its essential security interests, and that security threats can be both potential and actual. In the 1982 Geneva discussions on Article XXI GATT invocations, Members expressed opposing views. Uruguay, Colombia, Poland, Argentina, and Brazil emphasized the need to justify security measures, arguing that measures against Argentina lacked legal and economic basis and could undermine GATT principles and international cooperation. In contrast, Australia, the EEC, the US, and Canada maintained that Article XXI measures required

neither justification nor notification, citing inherent rights and historical precedent, and supported the self-judging nature of security concerns. They asserted the Members' sovereign right to determine necessary actions without external approval, with the US specifically noting that this applies in "times of international crisis" ([General Agreement on Tariffs and Trade, 1982, pp. 6–12](#)). While this US position appears to restrict the wide interpretation of security interests to crisis times, the US has demonstrated an even broader interpretation of security interests in other cases.

In the US–Nicaragua case, the US emphasized that Article XXI leaves each Member to judge for itself the necessary actions for protecting its essential security interests, arguing that GATT, as a trade organization, had no competence to approve or disapprove such judgments. The European Communities, Canada, Australia, Portugal, Iceland, Norway, and Finland supported this broad self-judging interpretation. However, Nicaragua, Cuba, India, Peru, Argentina, Brazil, Spain, and Czechoslovakia opposed this view, arguing that it undermines GATT principles and requires accountability to prevent political abuse ([GATT Council, 1985, pp. 2–16](#)).

The Panel's approach to Article XXI has evolved over time. In the Nicaragua case, despite Nicaragua's international law arguments supported by ICJ and UN Security Council decisions, the Panel declined to recommend lifting the embargo, citing its limited mandate in assessing the validity or motivation of national security measures ([General Agreement on Tariffs and Trade, 1986, para. 5.15](#)).

However, a shift occurred in *Russia – Measures Concerning Traffic in Transit*, where the Panel held that while states can define their essential security interests, this must be done in good faith, and affirmed its jurisdiction to review such measures ([World Trade Organization, 2019, paras. 7.101–7.102](#)).

In *United States – Certain Measures on Steel and Aluminum Products*, the Panel explicitly rejected the US argument that the phrase "which it considers" in Article XXI(b) makes the subparagraphs self-judging ([World Trade Organization, 2022, para. 7.163](#)).

FTAs are currently the only agreements with binding rules against data localization. Due to political reluctance and lack of consensus, it remains uncertain whether GATS will explicitly classify data localization as trade-restrictive, whether through amendment or legal interpretation. Even within plurilateral negotiations, agreement on this issue is uncertain. As a result, FTAs are expected to shape data governance in the foreseeable future ([Ikigai Law, 2020](#)).

### 3.2.3. Free Trade Agreements (FTI)

While FTAs prohibit requiring a covered person to use or locate computing facilities in a Party's territory as a condition for conducting business, they include broad exceptions for security measures. For example, the United States-Mexico-Canada Agreement (USMCA) explicitly prohibits data localization in Article 19.12 but allows exceptions under Article 32.2 for essential security interests and international peace and security. Similarly, Article 14.13.2 of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) prohibits countries from forcing businesses to store data or locate computing facilities within their borders as a requirement for doing business there. However, countries can depart from this rule where this is necessary to achieve a "legitimate public policy objective", provided that the measure is not discriminatory or used to disguisedly restrict trade, and that the restrictions are not more severe than necessary to achieve the policy goal. Article 29.1.3 adopts paragraphs (a), (b), and (c) of Article XIV of GATS, and Article 29.2 contains a security exception with very similar terms to Article XIV bis.

The ambiguous language in trade agreements regarding exceptions, particularly security exceptions, was not coincidental but rather a deliberate choice to create a kind of "soft law", allowing flexibility in interpretation and making the agreement more acceptable than no law at all. While panels have significantly contributed to broadening the interpretation of principles and narrowing exceptions, the results have not been entirely satisfactory. Many countries continue to view security concerns as purely domestic matters beyond external review, asserting sole authority to evaluate their security interests. This fundamental tension has led to the current crisis in the WTO dispute settlement system, with the Appellate Body having been non-functional since December 2019 due to the US blocking new appointments since 2016, leading to unresolved appeals and ineffective panel reports (Kerstens & Reinsch, 2023). The European Parliament's serious concerns about this paralysis reflect broader fears for the rules-based trading system (European Parliament, 2019), especially as the US increasingly invokes security exceptions to justify various trade measures while criticizing panels for allegedly overstepping their authority in interpreting these provisions, claiming that such interpretation infringes on national sovereignty and regulatory rights (Kerstens & Reinsch, 2023).

The tension between the interests of individual states and those of the international community, as well as the broader conflict between international law and state sovereignty, is a well-documented phenomenon. This tension is particularly pronounced in the domain of technology and the internet, which inherently transcend national borders. In the aftermath of Edward Snowden's disclosures, many states have reassessed their legal frameworks and

implemented more stringent data protection measures, reflecting a growing concern over digital sovereignty and security.

Hypothetically, if countries only became aware of certain espionage activities following such revelations, it raises the question of how many undisclosed espionage activities might be ongoing, awaiting similar exposure. This situation suggests that technology, in its current state, may be insufficiently robust to detect or predict the capabilities of other technologies. Consequently, it becomes challenging to question the measures states undertake to safeguard their “citizens’ privacy” and “national security” in a manner they deem appropriate, especially when there are grounds for that in GATT and GATS.

Governments may see or claim several benefits and justifications for implementing such policies. These include enhancing national security, supporting local economies, protecting human rights (Lu, 2024, p. 184), reducing the risk of breaches and unauthorized access, and strengthening cybersecurity by enabling quicker responses to security incidents (Kiteworks, 2025). The transfer of data across borders raises concerns about the potential leakage of personal information, especially to foreign governments or organizations (Singh, 2022, p. 497). Another reason for data localization is the fear of foreign digital colonization, as countries fear over-reliance on powerful multinational tech companies, especially those from large countries like the United States (Lu, 2024, p. 183). Additionally, it aids law enforcement by ensuring easier access to information for investigations and cybercrime prevention (Bowman, 2017). Therefore, governments must either implement legal interventions or, as Domingo Guerra, co-founder of Appthority, aptly asserts, “The only way to really make anything that is NSA-proof is to not have it connect to the Internet” (Swartz, 2014).

Despite the criticisms, the arguments against data localization often lack robust evidence that could persuade governments to change course. Countries are unlikely to sacrifice their national security, economic interests, or citizens’ privacy for measures that do not guarantee complete protection. Consequently, they are likely to continue enforcing data localization laws, especially when there are no concrete international rules to prevent them.

Therefore, additional barriers to data flow, in various new forms, are expected in the future. Countries are leaning towards more decentralized, narrow geographical free trade agreements, which allow them to pick and choose among countries those they regard as trustworthy. Examples include different free trade agreements, or even laws excluding certain countries from data access, such as Biden’s executive order, and most concerningly, the possibility of establishing new networks besides the international one. In their paper, Anupam Chander and Owen B. Lee argue that governments around the world

are increasingly asserting control over the World Wide Web, thereby fragmenting it. For example, Iran aims to create an internet free of Western influence and dissent, while Australia restricts the export of health data. Similarly, South Korea requires that map data be stored locally, and Vietnam requires local copies of all Vietnamese data. These measures are akin to the creation of “Schengen data zones,” effectively blocking global services. The authors compare this trend to the non-tariff barriers of the last century, which have now resurfaced as digital firewalls blocking international services (Chander & Le, 2014, p. 1).

## 4. Conclusion

The different strategies used by the US, EU, and China – which together account for 90% of world trade – clearly reflect the difficulties surrounding data localization. Chinese legislation, such as the PIPL and the CSL, forbids data transfers by default, only allowing them as exceptions, and emphasizing national security with ambiguous discretionary limits. The GDPR limits transfers from outside the EU in order to balance privacy and trade, but provides exceptions, such as adequacy decisions, and evaluates nations collectively rather than individual entities, promoting a simpler and more consistent procedure compared to China’s intricate operator-specific rules. The United States, without a unified federal legislative framework, blends free-flow promotion in trade agreements like the USMCA with focused localization in areas such as taxation and defense, motivated by national security concerns and public procurement.

Although data localization is not mentioned in GATS, it contains enough provisions to cover data localization concerns, and countries’ recognition of the importance of the free flow of data in their laws is clear evidence that data is covered by GATS. GATS does contain numerous principles prohibiting barriers to trade and promoting free commerce among countries for the sake of economic growth. However, it has enough exceptions to pave the way for the adoption of data localization strategies. While these exceptions are necessary to safeguard important societal interests, such as privacy, national security, and crime prevention, the desire of nations to keep national security matters entirely internal, alongside the self-judging language expressed by GATS, renders core GATS principles ineffective. Although panels play a great role in expanding the meaning and application of these principles and narrowing exceptions, the panels themselves have not been consistent, as they have adopted varying stances in different situations. Moreover, the panels have been paralysed since 2019 due to certain countries’ persistent affirmation of the self-judging nature of the security exceptions.

These concerns are not unfounded. Without Snowden's revelations, far more sensitive information could have remained unknown yet accessible to foreign authorities. On top of that, the decades-old GATS framework may not fully serve the interests of the very countries that signed it. Technology has created both new possibilities and new challenges, and it is increasingly likely that states will consider updating existing rules. Additionally, although FTAs are considered a plausible alternative for countries to pick and choose among countries they trust, they are not enough to meet current market needs.

Recommendations:

- a. As countries are typically reluctant to cede parts of their sovereignty, international treaties frequently lack clarity and comprehensiveness in order to secure broad approval. Despite this, by interpreting and implementing the general GATS principles, WTO panels have proven a fair amount of effectiveness. Therefore, it is necessary to reinvigorate and consistently utilize these panels to handle new trade and data governance concerns.
- b. While it may be challenging to come up with a universal definition of "national security," it is essential to outline certain boundaries or criteria. Doing so would help prevent the abuse of national security exceptions and provide a more stable legal framework for trade and data flow.
- c. The GATS framework urgently needs to be modernized to address new technological challenges – particularly those pertaining to online services, cross-border data transfer, and digital transactions. Including explicit provisions on data localization would improve legal certainty and encourage fair competition in the digital economy.

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