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The Legal Entity Identifier and Legacy Systems: Harmonisation, Interoperability, and Balance in Digital Governance¹

Abstract: This article examines the Legal Entity Identifier (LEI) as a cornerstone of contemporary digitalised governance. Originally introduced in response to the 2008 financial crisis to address systemic opacity in financial markets, the LEI has since evolved into a global public-good infrastructure that enables interoperability, transparency, and accountability across jurisdictions and sectors. This study investigates the extent to which the LEI can be effectively implemented in Poland and the European Union, and what legal, institutional, and economic barriers constrain its universal adoption. The research employs a multi-method design, combining doctrinal and comparative analysis with empirical evidence from European supervisory projects (the EIOPA, ESMA, ECB, and EBA) and a Polish case study conducted under an NCN project on tax administration. Findings confirm that the LEI strengthens systemic risk monitoring, audit quality, and SME participation in global trade, but also reveal persistent barriers, including renewal costs, administrative burdens, and fragmented domestic identifiers. The analysis identifies four pillars of reform – universality, interoperability, continuity, and public co-financing – necessary to embed the LEI within governance systems. Comparative lessons from the United States and Japan demonstrate that statutory identifiers can extend beyond finance and support innovation while oversight is maintained. The article concludes that only by recognising the LEI as a structural

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component of digitalised governance can its transformative potential for transparent, resilient, and inclusive public administration be fully realised.

Keywords: Legal Entity Identifier (LEI), digital governance, legal harmonisation, interoperability of registers, public law, law reform

Introduction

The digitalisation of governance and law highlights the urgent need for infrastructures that guarantee transparency, efficiency, and interoperability across institutional systems. Among these, the Legal Entity Identifier (LEI) has emerged as a global standard to enhance regulatory compliance, reduce systemic risk, and support data-driven decision-making. Established under a G20 mandate in response to the 2008 financial crisis, the LEI has become a cornerstone of efforts to harmonise entity identification across jurisdictions (Financial Stability Board, 2024; Morales et al., 2024).

In an earlier, conceptual work, I argued that legal norms in digitalised governance no longer derive solely from legislative acts but increasingly from the operational logic of data infrastructures (Wojtkiewicz, 2025). Identifiers such as the LEI thus function as constitutive elements of governance, embedding legality into algorithmic and economic processes. This contribution positioned the LEI within the paradigm of ‘law as an achievement of governance’ (Kornhauser, 2022, p. 13), demonstrating its normative as well as technical significance.

1. Research methodology

1.1 Research question

This study is guided by the following research questions: To what extent can the Legal Entity Identifier be effectively implemented as a harmonising and interoperable infrastructure within digital governance? And what legal, institutional, and economic barriers constrain its universal adoption in Poland and the European Union? To address this problem, three working hypotheses were formulated. First, the universality hypothesis assumes that the LEI constitutes a globally unique and indispensable instrument for regulatory harmonisation and interoperability, and that partial adoption undermines its effectiveness. Second, the barrier hypothesis recognises that without complementary national reforms, addressing renewal costs, fragmented registers, and operational risks, the LEI’s functionality will remain constrained, particularly for SMEs. Third, the public-good hypothesis emphasises that because the systemic benefits of the LEI outweigh private costs, its effective implementation requires public support, including mechanisms of co-financing.

1.2 Methodological design

The research employs a multi-method legal and governance design, combining normative analysis with empirical evidence generated within European and international supervisory projects in which I actively participated. The doctrinal method provided the basis for interpreting EU regulations such as the Regulation on OTC Derivatives, Central Counterparties and Trade Repositories (EMIR), Directive on markets in financial instruments (MiFID II), and the Regulation on Transparency of Securities Financing Transactions (SFTR), as well as Polish laws governing identifiers, such as the National Court Register (*Krajowy Rejestr Sądowy*, KRS), the Tax Identification Number (*Numer Identyfikacji Podatkowej*, NIP), the National Official Business Register (*Rejestr Gospodarki Narodowej*, REGON), and the Central Registration and Information on Business (*Centralna Ewidencja i Informacja o Działalności Gospodarczej*, CEIDG). The comparative method offered a broader perspective by examining US and Japanese practices, including the introduction of the US Unique Entity Identifier (UEI) under the Code of Federal Regulation (CFR) 2, Part 25, and the Financial Data Transparency Act, and Japanese initiatives in electronic trade instruments (Congressional Research Service, 2025; Czaplicki, 2021; Data Foundation & GLEIF, 2018). The case study method was applied in the NCN project ‘Identification of legal entities in public administration governance systems: A case study of tax administration in Poland’ (2024–2025), which tested the mapping of domestic identifiers to the LEI. This project revealed administrative burdens, cost sensitivities, and interoperability challenges within fragmented registers.

The impact assessment approach drew on methodologies developed in supervisory institutions, including the European Insurance and Occupational Pensions Authority’s (EIOPA) guidelines on LEI use (EIOPA, 2014), the European Securities and Markets Authority’s (ESMA) cost–benefit analysis on MiFID II/MiFIR (ESMA, 2015), and the European Central Bank’s (ECB) Integrated Reporting Framework [cost–benefit analysis (CBA)] (ECB, 2024). These frameworks were adapted to the Polish context to evaluate the costs and benefits of LEI implementation, particularly for SMEs. Finally, the research integrated empirical evidence from supervisory surveys and consultations conducted by EIOPA, ESMA, the ECB, the European Banking Authority (EBA), and the Global Legal Entity Identifier Foundation (GLEIF). These instruments captured first-hand data on renewal costs, administrative complexity, and adoption barriers, while also documenting the systemic benefits of LEI for transparency and stability.

In addition to drawing on published supervisory methodologies, the research incorporates my direct involvement in European and international projects. As a member of the EIOPA IT and Data Committee and the leader of its Business Subgroup, I contributed to the development of the 2014 guidelines on LEI use, including the design of supervisory templates and consultations with national authorities (EI-

OPA, 2014b). At the ECB, I participated in preparatory work for the Register of Institutions and Affiliates Database and the Integrated Reporting Framework (IReF), where impact assessment and cost-benefit methodologies were tested. Contributions to ESMA consultations on MiFID II/MiFIR implementation further informed the empirical base of this study, especially regarding the ‘no LEI, no trade’ principle. Moreover, I engaged in EBA reporting of harmonisation projects and cooperated with GLEIF, gaining access to survey data and stakeholder feedback on LEI adoption across sectors. These experiences provided first-hand insights into how supervisory bodies design questionnaires, evaluate systemic costs and benefits, and manage the integration of identifiers into reporting frameworks. Embedding this perspective strengthens the methodological triangulation of this study by combining legal analysis with policy design practice and empirical supervisory evidence.

1.3 Methodological triangulation

By combining doctrinal and comparative analysis, case study evidence, cost-benefit assessments, and empirical data from supervisory projects, this study ensures methodological triangulation. This approach integrates theoretical, legal, and practical perspectives, thereby strengthening the validity of the findings and enhancing their relevance for policy debates at both EU and national levels.

2. The Legal Entity Identifier: Evidence, findings, and implications

2.1 The Legal Entity Identifier in global and national contexts

The Legal Entity Identifier was created in response to the 2008 financial crisis, when a lack of reliable counterparty identification magnified systemic risks. Earlier Polish analyses of financial market infrastructures revealed comparable issues of fragmented supervision and limited transparency of institutional investors (Sas-Kulczycka [Wojtkiewicz], 2014). Mandated by the G20, the Financial Stability Board (FSB) developed the Global Legal Entity Identifier System to provide a universal identifier for legally distinct entities (Financial Stability Board, 2024). The LEI, based on ISO 17442, is a neutral, 20-character alphanumeric code with no embedded information, ensuring both universality and simplicity. It provides two categories of data: Level 1 (‘who is who’), which includes the entity’s official name, legal form, registered address, jurisdiction, and registration authority; and Level 2 (‘who owns whom’), which maps ownership and control structures, allowing regulators to identify direct and ultimate parents. Together, these features support systemic transparency and reduce data fragmentation across jurisdictions (Jenkinson & Leonova, 2013; Powell et al., 2011). As I have previously demonstrated, the integration of identification standards within financial market infrastructures enhances both transparency and governance efficiency by clarifying ‘who is who’ on the digitized market (Wojtkiewicz, 2022b).

The governance of the LEI follows a federated model. Strategic oversight is exercised by the Regulatory Oversight Committee (ROC), an international network of regulators. Operational responsibility lies with GLEIF, a non-profit created in 2014, which accredits Local Operating Units (LOUs), sets data quality standards, and maintains the open global LEI database. LOUs perform registrations, validations, and renewals in national markets, often working with local business registers (Legal Entity Identifier Regulatory Oversight Committee, 2015).

Since its inception, the LEI has been integrated into over 300 regulatory instruments worldwide. In the European Union, it is mandated under EMIR, MiFID II/MiFIR, and SFTR, making it a cornerstone of transparency in capital markets (European Securities and Markets Authority, 2017, 2018). Its applications now extend to non-financial domains, including trade digitalisation, supply chain management, and Environmental, Social and Governance (ESG) (Asian Development Bank, 2019; Morales et al., 2024). As I have argued elsewhere (Wojtkiewicz, 2025), the LEI is not merely a technical instrument but part of the normative infrastructure of governance in the digital age, embedding legality into operational processes and enhancing both efficiency and legitimacy (Brownsword, 2023; Kornhauser, 2022).

2.2 Empirical evidence from European supervisory projects

One of the first large-scale applications of the LEI in Europe was led by EIOPA, which in 2014 introduced binding guidelines on the use of the LEI for insurers and pension institutions (EIOPA, 2014a). As a member of EIOPA's IT and Data Committee and its Business Subgroup leader, I contributed directly to the methodology that shaped these guidelines. The project addressed the inefficiencies caused by the absence of a common identifier, which hindered Solvency II reporting and increased supervisory costs. Before the adoption of the guidelines, EIOPA conducted a six-month in-depth analysis of legislation and the related business processes carried out within the authority. This identified the LEI as a fundamental element of reference data and as a cornerstone of EIOPA's organisational architecture (Wojtkiewicz, 2022a; Wojtkiewicz, 2018). Building on these findings and following a fast-track consultation process, the guidelines required all entities within the Solvency II scope to obtain LEIs by mid-2015, with Institutions for Occupational Retirement Provision (*IORPs*) added by mid-2016. National competent authorities were tasked with ensuring compliance and verifying that LEIs were systematically used in quantitative templates, registers, and stress tests (EIOPA, 2014a, 2014b).

The results confirmed the feasibility of embedding the LEI in supervisory processes. Data comparability improved, group supervision became more effective, and duplication was reduced. Yet challenges emerged: smaller firms reported disproportionate renewal costs, National Competent Authorities struggled with aligning legacy systems, and stakeholders raised concerns about overlapping national identifiers (EIOPA, 2014b). These findings echoed the ROC's (2015) survey on regulatory uses

of the LEI and ESMA's (2015) cost-benefit analysis, which concluded that mandatory use, embodied in the 'no LEI, no trade' rule, was essential to overcome coordination failures. The ECB's (2024) Integrated Reporting Framework cost-benefit analysis further reinforced that standardised identifiers are crucial for reducing reconciliation costs and ensuring supervisory efficiency.

2.3 Findings from the Polish case study: The tax administration pilot

National-level insights were provided by the NCN MINIATURA project 'Identification of legal entities in public administration governance systems: A case study of tax administration in Poland' (2024–2025). This project piloted the mapping of domestic identifiers – KRS, NIP, REGON, and CEIDG – against the LEI (Wojtkiewicz, 2024–2025). The study demonstrated the persistent fragmentation of Polish identification systems. Legal analysis showed that parallel registers lack interoperability, resulting in duplication and errors. Computational methods, including text mining, semantic tagging, and language-model analysis, were used to process over 8,000 legal acts and identify provisions referring to entity identifiers. The mapping revealed that LEI Level 1 attributes largely overlap with Polish identifiers, while Level 2 ownership data provide transparency absent in domestic law (Wojtkiewicz, 2025). (Wojtkiewicz, 2025b).

The findings confirmed that the LEI could serve as a unifying identifier in tax administration, reducing reporting errors and strengthening compliance. Legislative mapping identified concrete reforms, such as amending the National Court Register Act and the Rules for Registration and Identification of Taxpayers Act to include LEI references, and integrating LEI into REGON. Recommendations emphasised the need for a coordinating statute to harmonise identifiers and ensure alignment with EU standards. Importantly, the project not only validated the LEI's potential but was also an innovative methodological approach combining legal analysis with computational tools.

2.4 Systemic benefits versus practical barriers

The systemic benefits of the LEI are well established: it enables aggregation of exposures across markets, supporting financial stability (Jenkinson & Leonova, 2013, pp. 105–107; Powell et al., 2011, pp. 2–3; European Systemic Risk Board, 2021, p. 22). Its Level 2 data make ownership hierarchies visible, thereby enhancing transparency and accountability (Yen & Wang, 2024). It also reduces verification costs, improves audit quality, and supports disclosure in sensitive contexts such as offshore finance (Keloharju, 2024). Moreover, it lowers barriers for SMEs to access trade finance and global markets, reinforcing inclusivity (Asian Development Bank, 2019; Morales et al., 2024). Yet practical barriers remain significant. Renewal fees and administrative burdens fall disproportionately on SMEs, while national systems with multiple identifiers, such as Poland, exacerbate inefficiencies. Many firms perceive LEI obligations as compliance burdens without immediate benefits (Banco de España, 2024). The gap

between systemic advantages and individual costs underscores the need for state involvement and coordinated reforms to ensure sustainable adoption.

2.5 International comparisons and transferable lessons

Comparative experience strengthens the case for reform. In the United States, the Unique Entity Identifier (UEI) was mandated for all federal procurement and grant recipients under CFR 2, Part 25, replacing the Data Universal Numbering System (DUNS) number. Complementing this, the Financial Data Transparency Act of 2022 requires interoperable data standards across regulators, with the LEI considered a key tool for alignment (Congressional Research Service, 2025; Office of the Comptroller of the Currency, 2024; US Federal Register, 2024). This dual framework illustrates how statutory identifiers can extend beyond finance and how interoperability between domestic and global identifiers can be institutionalised. Japan offers another instructive case. The development of electronic bills of exchange shows how digital identity solutions can be embedded in legal frameworks to balance innovation and regulatory oversight (Czaplicki, 2021). Together, these examples demonstrate that statutory mandates and interoperability frameworks are achievable and transferable, providing concrete lessons for Poland and the EU.

2.6 Policy implications

The findings of this section converge on one conclusion: the LEI must be recognised as a foundational infrastructure of digital governance. The evidence from European supervisory projects, the Polish case study, and international comparisons highlights both the systemic benefits of the LEI and the barriers that obstruct its universal adoption. The analysis points to four areas requiring reform: universality of coverage, interoperability with domestic and global identifiers, the continuity of accurate and timely renewals, and public co-financing mechanisms. These pillars form a bridge to the reform agenda developed in Section 3, where *de lege lata* and *de lege ferenda* recommendations are articulated in detail.

3. The legal reform agenda: De lege lata and de lege ferenda

3.1 De lege lata: Current legal obligations and practice

At present, the LEI is firmly embedded in the European Union's financial regulatory framework. Under EMIR, MiFID II/MiFIR, and SFTR, market participants must provide LEIs in reporting transactions, a requirement operationalised through ESMA's enforcement of the 'no LEI, no trade' principle (ESMA, 2017, 2018). These rules have made the LEI indispensable for financial institutions and infrastructures, providing systemic transparency and enhancing risk monitoring.

In Poland, the LEI is applied primarily within this EU-driven framework. Domestic legal acts, such as the National Court Register Act and the Rules for Regis-

tration and Identification of Taxpayers Act, do not mandate LEI use, leaving most entities reliant on national identifiers such as the KRS, NIP, REGON, and CEIDG. This fragmented landscape undermines interoperability and increases compliance burdens. Moreover, SMEs often perceive LEI renewal costs as disproportionate, a concern echoed in supervisory assessments across Europe (Banco de España, 2024). EIOPA's 2014 guidelines confirmed the regulatory expectation that insurers and pension institutions use LEIs systematically in Solvency II reporting, a milestone that demonstrated the feasibility of integrating the LEI into supervisory processes (EIOPA, 2014a, 2014b). Yet despite such successes, adoption remains uneven, and gaps in national law persist, particularly outside the financial sector.

3.2 De lege ferenda: Towards universal and sustainable implementation

To move beyond sectoral application, reforms should focus on four interrelated pillars. First, universality must be established through statutory obligation. As the US experience with the UEI shows, mandatory coverage for all entities that engage with public authorities is both feasible and effective (Code of Federal Regulations, 2025; Congressional Research Service, 2025; Office of the Comptroller of the Currency, 2024). For Poland, extending the obligation to all registry-eligible entities would align the LEI with the universal duty of KRS registration. Second, interoperability requires systematic mapping of the LEI to national identifiers (KRS, NIP, REGON, CEIDG) and to the UEI in cross-border contexts. The ECB's IReF cost-benefit analysis demonstrated that harmonised identifiers significantly reduce reconciliation costs and enhance reporting quality (ECB, 2024). Third, continuity must be safeguarded through legal mechanisms that ensure timely renewals and assist renewal processes. The FSB's 2024 progress report stressed that lapsed or inactive LEIs undermine the system's integrity, creating risks of transactional blockage. Fourth, public co-financing is necessary to balance costs and benefits. Because the LEI functions as an infrastructure of governance with systemic benefits, renewal subsidies or tax incentives for SMEs would ensure equitable adoption. This reflects the view of Kornhauser (2022) that law is an achievement of governance and of Brownsword (2023) that legitimacy in digital governance requires balancing efficiency with fairness.

3.3 Innovative extensions of the LEI

Beyond mandatory adoption, future-oriented reforms should address innovative uses of the LEI. The development of verifiable LEIs (vLEIs) as cryptographic credentials opens new possibilities for secure digital verification in blockchain-based transactions and automated compliance. Linking LEIs with natural person identifiers would broaden transparency by covering the full spectrum of actors in governance systems. The LEI framework should also be extended to emerging entities such as AI agents or decentralised autonomous organisations whose activities increasingly intersect with legal and economic systems. Finally, its application should move deci-

sively into non-financial domains – healthcare, education, ESG reporting, and supply-chain management – where verifiable and interoperable identification is critical for accountability and trust (Asian Development Bank, 2019; Morales et al., 2024). Comparative experiences, such as Japan's electronic instruments regime, show that legal frameworks can successfully integrate innovative identity solutions without undermining oversight (Czaplicki, 2021).

3.4 Synthesis

The reform agenda outlined above positions the LEI as a foundational infrastructure for digital governance. Current obligations under EU law (*de lege lata*) provide a robust starting point, but their scope is too narrow to address fragmentation and ensure inclusivity. As Kettl (2015) observes, governance in the twenty-first century increasingly depends on adaptive, networked systems rather than hierarchical control — a principle equally relevant to digital infrastructures. Proposed reforms (*de lege ferenda*), focused on universality, interoperability, continuity, and public co-financing, are essential to achieve systemic benefits. Innovative extensions, including vLEIs, blockchain integration, and coverage of emerging entities, would future-proof the system and ensure adaptability in rapidly evolving governance environments. Taken together, these measures would allow Poland and the EU to align domestic law with global best practices, transforming the LEI from a sectoral compliance tool into a universal and resilient governance infrastructure.

Conclusion

This article has demonstrated that the Legal Entity Identifier must be regarded not merely as a technical tool of compliance but as a foundational infrastructure of digital governance. Evidence from European supervisory initiatives, including the EIOPA guidelines and ESMA's 'no LEI, no trade' rule, has confirmed that mandatory adoption significantly improves transparency, risk monitoring, and data quality. The Polish case study conducted under the NCN project further highlighted both the feasibility and the necessity of LEI integration: while Level 1 data overlap with existing identifiers such as the KRS, NIP, and REGON, the Level 2 ownership information provides a depth of transparency absent in domestic registers. These findings underscore that universal LEI adoption would directly address fragmentation in national systems and reduce compliance errors. The comparative perspective reinforces this conclusion. The United States, through the introduction of the Unique Entity Identifier and the Financial Data Transparency Act, and Japan, through its regulation of electronic instruments, have shown that statutory identifiers can extend beyond the financial sector and support innovation while oversight is maintained. Such examples illustrate that the reforms proposed for Poland and the EU are both achievable and consistent with international practice.

The study also contributes theoretically by situating the LEI within the paradigm of 'law as an achievement of governance' (Kornhauser, 2022, pp. 13–14). As argued in my earlier work, identifiers in the digital era function as constitutive elements of governance. The LEI exemplifies this by embedding legality into the operational logic of data infrastructures, thereby enhancing not only efficiency but also legitimacy in governance systems. The policy implications are clear. To realise the LEI's transformative potential, reforms must focus on universality, interoperability, continuity, and public co-financing. These pillars, combined with innovative extensions such as verifiable LEIs, blockchain integration, and the inclusion of emerging digital entities, would allow the LEI to evolve into a sustainable infrastructure for both financial and non-financial governance.

Future research should further explore the integration of the LEI with artificial intelligence, semantic legal analysis, and cross-sectoral data governance. Such studies will be essential for ensuring that the LEI continues to adapt to technological change and remains capable of supporting governance systems that are transparent, resilient, and inclusive.

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2 There are also numerous level 2 and level 3 EU legal acts, along with various locally developed implementing regulations, that mandate the use of the LEI as an identifier, significantly increasing the total number of regulations requiring the LEI within the EU.

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