



## Securing Digital Trade: A Techno-Legal Analysis of E-Commerce Safeguards in Iraq's Regulation No. 4/2025

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**Abstract:** This paper analyses the legal and technical protections created in accordance with the 2025 E-Commerce Regulation in Iraq and evaluates their compatibility with international regulations considering the swift changes in the digital trade landscape. It claims that the regulation offers a potentially strong legal framework for digital market regulation, but its success depends on its enforcement capacity and on sufficient technical and administrative infrastructure. In the absence of these conditions, the sector will be susceptible to fraud, breach of consumer data and tax evasion. The study methodologically uses doctrinal legal analysis of the regulation and its connection to existing domestic legislation, specifically the consumer protection law. This is supplemented by a well-organised comparative analysis of global data privacy and e-commerce regulatory frameworks, and a descriptive-analytical evaluation of the e-commerce situation in Iraq based on national reports and sectoral statistics. A techno-legal framework is used to assess data security, encryption, and the governance of digital identity. The results show that the regulation presents primary safeguarding measures, such as vendor licensing, transparency requirements, personal information protection, tax and customs supervision, and oversight through an electronic licensing platform. These controls demonstrate partial compliance with widely recognised consumer and data protection principles. Nonetheless, it faces challenges such as infrastructural constraints, the growth of informal online trade, and poor technical literacy among stakeholders. In terms of academics, this research study contributes to the discussion of digital regulatory capacity in less developed economies by incorporating both legal analysis and the technical compliance aspect. It reveals an absence of regulatory design and enforcement preparedness and serves as a platform for evaluating techno-legal governance of emerging digital markets.

**Keywords:** Consumer Protection; Cybersecurity; Data Privacy; E-commerce; Regulatory Licensing.



## Introduction

The aggressive growth of the digital economy has placed e-commerce at the epicentre of global financial activity, especially in developing economies engaged in diversification and financial inclusion.<sup>1</sup> This digitalisation of trade not only offers opportunities but also poses sophisticated challenges at the legal, technical, and institutional levels.<sup>2</sup> E-commerce is inherently an area that entails cross-border transactions, the online flow of data, and communication between two or more stakeholders<sup>3</sup>, presenting new risks in the areas of consumer protection, data privacy, cybersecurity, tax compliance, and regulatory control.<sup>4</sup> Nations across the world, as well as global agencies, have realised the importance of establishing specialised e-commerce structures that address such issues, with a keen focus on openness in contracting, protection of information, safe payment methods, and well-articulated distribution of roles among digital market actors.<sup>5</sup> One such example is the OECD's recommendation that consumer trust in e-commerce can be achieved through clear disclosure of the supplier's identity, clarity of contractual terms, a secure payment system, and efficient procedures for complaint handling.<sup>6</sup>

Despite these international activities, e-commerce regulation in developing economies has not been sufficiently researched. A study by Norkobilov Akobir (2025) points out the ineffective application of legal protections in digital trade due to regulatory fragmentation, a lack of enforcement, and limited technical capabilities in emerging markets.<sup>7</sup> On the same note, research conducted by Abdurrahim (2025) in Southeast Asia indicates that, even as national e-

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<sup>1</sup> Amel Asmar Zaboob, Nadia Khutheir Ganawi, and Alaa Abbas Dakhil, 'The Role of E-Commerce Industry in the Sustainable Economic Development of Iraq', *International Journal of Entrepreneurship* 22, no. Specialissue (2018).

<sup>2</sup> Wenju Wang et al., 'E-Commerce for Social Media Platforms: Co-Opetition and Traffic Distribution', *Omega (United Kingdom)* 142 (2026), <https://doi.org/10.1016/j.omega.2026.103524>.

<sup>3</sup> Nuril Aulia Munawaroh et al., 'Digital Empowerment and E-Commerce Adoption among Handicraft SMEs: A Contemporary Islamic Economic Law Study Using the TOE Framework', *MILRev: Metro Islamic Law Review* 4, no. 2 (December 2025): 1427–1448, <https://doi.org/10.32332/milrev.v4i2.11731>.

<sup>4</sup> Mausam Budhathoki et al., 'Market Dynamics and E-Commerce Satisfaction in China's Aquatic Food Sector: Machine Learning and Data Insights', *Aquaculture* 610 (2026), <https://doi.org/10.1016/j.aquaculture.2025.742904>.

<sup>5</sup> Nuzhat Noor Islam Prova et al., 'Multilingual Sentiment Analysis in E-Commerce Customer Reviews Using GPT and Deep Learning-Based Weighted-Ensemble Model', *International Journal of Cognitive Computing in Engineering* 7, no. 1 (2026): 268–286, <https://doi.org/10.1016/j.ijcce.2025.10.003>.

<sup>6</sup> 'OECD Recommendation of the Council on Consumer Protection in E-Commerce. OECD Legal Instruments, No. 336. Paris: Organisation for Economic Co-Operation and Development, 2016 (Rev. 2019)', n.d., accessed 1 February 2026, <https://legalinstruments.oecd.org/public/doc/336/336.en.pdf>.

<sup>7</sup> Norkobilov Akobir, 'Foreign Trade Regulation in the Digital Economy: Challenges and Opportunities and Future Trends: Regulasi Perdagangan Luar Negeri Dalam Ekonomi Digital: Tantangan Dan Peluang Serta Tren Masa Depan', *Academia Open* 10, no. 1 (February 2025): 10.21070/acopen.10.2025.10657-10.21070/acopen.10.2025.10657, <https://doi.org/10.21070/acopen.10.2025.10657>.

commerce laws are increasingly aligned with international best practices, there remain gaps between technical protections, such as encryption, digital identity verification, and cross-platform data integration, and the law.<sup>8</sup> A third article by Chaisse (2025) in the Indo-Pacific region shows that, even with the introduction of new legal systems, informal online commerce on social media platforms and consumer lack of awareness reduce the effectiveness of these regulations.<sup>9</sup> Together, these works suggest that e-commerce laws are in transition, and there remains a gap between design and practice, especially in developing nations where infrastructure, institutional alignment, and digital literacy are low.

An example of such challenges is Iraq, a country with significant economic growth and increasing digital penetration. The implementation of the E-Commerce Regulation No. 4 of 2025 is a collective effort to establish a consistent legal and technical framework for online trading.<sup>10</sup> The regulation includes licensing of online sellers, consumer protection, data privacy with compulsory breach notifications, tax and customs integration, a supervisory authority, and enforcement tools, and provides flexibility in adopting technological solutions.<sup>11</sup> Principally, this holistic approach is consistent with global trends, including the EU General Data Protection Regulation (GDPR), the Digital Services Act, recommendations from the OECD on e-commerce governance, and digital taxation. The real performance of these measures, however, is determined by the state's ability to address structural concerns, such as the lack of digital infrastructure, regulatory overlap, the presence of informal social media-based businesses, and the technical illiteracy of small and medium enterprises (SMEs).<sup>12</sup>

The originality of the current research lies in the techno-legal approach, i.e., the combination of legal research with the evaluation of technical protection, which has not been done before. In contrast to Norkobilov Akobir (2025), which placed a stronger emphasis on legal fragmentation, or Abdurrahim (2025), which placed greater emphasis on policy alignment with the international standards but did not consider the technical aspects of its implementation in detail, this paper explores the process by which the legal requirements are converted into practical compliance solutions using technical mechanisms of AES/TLS encryption, blockchain, Self-Sovereign Identity (SSI), and API-based tax integration. Additionally, this

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<sup>8</sup> Abdurrahim, 'Transforming Trade Law in the Digital Era: Navigating Challenges and Seizing Opportunities for Legal Reforms in Indonesia's Evolving Trade Landscape', *Ex Aequo Et Bono Journal Of Law* 2, no. 2 (January 2025): 108–121, <https://doi.org/10.61511/eaebjol.v2i2.2025.1338>.

<sup>9</sup> Julien Chaisse, Georgios Dimitropoulos, and Irma Mosquera, 'Law and Digital Transformation in the Indo-Pacific: An International Economic Law Perspective', *The Journal of World Investment & Trade* 26, no. 4 (June 2025): 575–620, <https://doi.org/10.1163/22119000-12340376>.

<sup>10</sup> 'Commercial Contracts 2025 - Iraq | Global Practice Guides | Chambers and Partners', accessed 1 February 2026, <https://practiceguides.chambers.com/practice-guides/commercial-contracts-2025/iraq/trends-and-developments/O23676>.

<sup>11</sup> Mustafa Alawi et al., 'The Determinants of E-Commerce Quality on Small Business Performance in Iraq Case Study from Ceramic Industry', *Journal of Advanced Research in Dynamical and Control Systems* 10, no. 2 Special Issue (2018): 1348–1360.

<sup>12</sup> Ahmed Hasan Shakir, Kadhim Ghaffar Kadhim, Amjed Hameed Majeed, Hasan Majdi, et al., 'Towards Alleviating Poverty: Study The Impact of E-Commerce, Digital Marketing, and Digitalization's on Improving Economic Growth in Iraq', *AgBioForum* 27, no. 1 (2025): 49–57.

study builds on the findings of Chaisse et al. (2025) by situating regulatory implementation within the context of Iraq's socio-economic and digital infrastructure and discussing the constraints in the country that influence enforcement and compliance. This paper offers a coherent overview of the effectiveness of e-commerce regulatory processes in developing economies by connecting legal requirements to technical factors.

Although the literature on digital trade governance is vast, a significant research gap remains regarding the interplay among regulatory design, technical protection, and the contextual environment in countries such as Iraq. The majority of research works either examine law regimes independently or assess technical systems without considering their enforceability on domestic regulatory conditions. Very little doctrinal and comparative literature exists that examines the combined effect of these factors on consumer trust, the formalisation of the market, and the integration of e-commerce into the national economy. This gap explains why research integrating doctrinal, comparative, and techno-legal perspectives is necessary to provide policymakers with actionable recommendations. In line with this, this study aims to answer the following main research question: In what ways does the E-Commerce Regulation No. 4 of 2025 in Iraq provide sufficient legal and technical regulations for e-commerce actors, and how can its application be improved to align with international best practices without violating local restrictions? This question informs the analysis of licensing, consumer protection, data privacy, integration of the system with tax and customs systems, enforcement, and the translation of legal provisions into technical compliance measures.

The importance of this study is many-sided. It also adds to the literature on digital governance. The paper offers a comprehensive techno-legal discussion of e-commerce regulation in a developing country setting, a perspective that is rarely well covered. It provides a new conceptualisation of the interaction between legal requirements and technical protections, and how integration can enhance regulatory effectiveness, increase consumer confidence, and minimise risks of fraud, data breaches, and tax evasion. In policy terms, the findings can educate policymakers, regulatory bodies and operators of digital platforms on key facilitating and inhibiting factors to successful regulation. The study identifies the gaps in infrastructure, institutional coordination, and technical capacity, which are used to offer practical recommendations in enhancing the execution of e-commerce law, which includes digital licensing systems, merchant capacity-building, inter-agency coordination, digital identity frameworks, and continuous monitoring. Finally, the research will contribute to the conversion of the Iraqi e-commerce industry into a safe, reliable, and inseparable part of the official economy, which will enhance the development of the country's economy and align local experience and habits with the international principles of digital governance.

## Method

This study employs a doctrinal and comparative approach with a techno-legal perspective<sup>13</sup>, permitting an integrated examination of the E-Commerce Regulation No. 4 of 2025 formulated by the state of Iraq on E-Commerce regarding both legal and technical aspects. The systematic approach to regulation is based on a doctrinal examination of its provisions, including vendor licensing, consumer protection, data security, integration with tax

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<sup>13</sup> Matthew B Miles and A. Michael Huberman, *Analisis Data Kualitatif: Buku Sumber Tentang Metode-Metode Baru* (Jakarta: Universitas Indonesia Press, 2014).

and customs systems, and control and penalty measures. In the meantime, the comparative approach considers Iraqi regulation alongside international standards and best practices from other jurisdictions, including the GDPR, the Digital Services Act, and the OECD recommendations on consumer protection, data privacy, and taxation of digital activities. By combining the approaches, the study can map the content of the regulation and evaluate the correspondence between the national policy and the global standards, as well as the practical implications of ensuring legal certainty, technical compliance, and consumer trust in the e-commerce ecosystem.

The research is based solely on secondary data as its primary sources, including official legal acts, governmental reports, scholarly articles, international standards, and other open-access and institutional databases. The analysis of the data is performed using a descriptive-analytical approach, in which regulatory provisions are interpreted in relation to domestic law and international comparisons, and technical measures, including a digital licensing system, data encryption, blockchain, and Self-Sovereign Identity (SSI), are considered to facilitate regulatory compliance. The study utilises document triangulation to ensure the validity and reliability of the data, and to cross-verify regulatory findings with the international legal literature, UNCTAD reports, and global technical standards. This will make sure that the interpretation of the regulation is not only normative but also based on the consideration of the technical feasibility in relation to the international best practices and the local conditions of Iraq.

## **Results and Discussion**

This paper examines how E-Commerce Regulation No. 4 of 2025 in Iraq has succeeded in protecting the legal and technical elements of e-commerce participants. It will be analysed through the legal area, consumer protection, data security, tax and customs integration, supervisory and sanction mechanisms.

### **Legal Guarantees under Iraq's E-Commerce Regulation No. 4 of 2025**

The Iraqi E-Commerce Regulation No. 4 of 2025 provides an extensive catalogue of legal and technical security safeguards that are aimed at organising the digital market, safeguarding the consumer, and making sure that the state exercises control over the online business environment. Instead of serving as a tool of management, the regulation establishes a complex system of licensing, consumer protection, data regulation, fiscal coordination, and oversight enforcement. These factors combined constitute the foundation of legal predictability in the developing digital economy in Iraq. One of the main points of this framework is obligatory licensing and control. Article (6) bans any individual or corporation that takes place in Iraq doing e-commerce without a license issued by the Ministry of Commerce and fulfils the authorisation of the competent authorities. Article (4) also stipulates that the Ministry has to set up a completely digital platform where licensing and renewal can be done over the internet. This is not simply a protocol convenience for digitalising licensing; it connects legal authorisation and technological infrastructure. The Ministry can control market activities, verify that all participants meet the legal requirements, and take action in the event of a breach by maintaining an official list of licensed traders. Licensing is therefore used as a preventive tool to ensure legal transparency, traceability, and accountability in the otherwise non-border digital

world. It also enhances consumer confidence because it indicates that market participants are operating within accepted legal and regulatory frameworks.<sup>14</sup>

In addition to this type of structural control, there is a strong focus on consumer protection and transparency. The regulation requires traders to disclose critical pre-contractual information, such as identity, licensing status, product or service descriptions, payment methods, and return or cancellation policies. This disclosure will deal with the asymmetry of information between professional vendors and consumers, who are the weaker party in online transactions. The law minimises the risk of fraud, misleading advertisements and contract ambiguity by requiring clear and preliminary information.<sup>15</sup> Transparency is not a narrow term that is confined to product information, but rather on privacy practices where merchants must disclose how they will handle their personal information and share it, store it, collect it, and protect it. Such requirements are congruent with larger principles of fairness and good faith in business transactions, which strengthen ethical principles of digital trading. On the national level, this framework works together with the Iraq Consumer Protection Law No. 1 of 2010, where institutions like the Consumer Protection Council have the power to regulate online advertisement and provide truthful declarations, especially on social media, where deceptive advertisements are common.<sup>16</sup>

Data privacy and breach notification are also core legal guarantees developed by the regulation. Traders, using e-commerce, need to use secure systems that will prevent personal data leakage, receive only the essential information and get direct consent before providing data to third parties. Among other things, the law provides a breach-notification obligation: in case of a security breach, merchants have a timely obligation to notify affected consumers and authorities, including the nature of the security breach and the remedial actions taken.<sup>17</sup> This is because this need converts data protection into an active accountability regime instead of a passive obligation. It promotes the use of encryption technologies, access controls, incident response procedures and monitoring systems, including intrusion detection systems. The regulation enhances the understanding of personal data protection as a fundamental right by integrating legal accountability on the protection of personal data, and it places Iraq at the current trend of digital governance across the world. The presence of formal breach-response systems also instils trust amongst the consumers, especially in situations where distrust in online data sharing is still a great concern.

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<sup>14</sup> Ali Kamel Baaiwi et al., 'The reality of e-commerce and digital marketing in the Iraqi market: opportunities and challenges', *Al-Ghary Journal of Economic and Administrative Sciences* (Kufa) 20, no. 00 (July 2024): 289–305, <https://doi.org/10.36325/ghjec.v20i00.16779>.

<sup>15</sup> Musmualim Musmualim, Fokky Fuad, and Suartini Suartini, 'Legal Protection for Consumers in Transactions E-Commerce by Era Digital', *Eduvest - Journal of Universal Studies* 4, no. 12 (December 2024): 11935–11943, <https://doi.org/10.59188/eduvest.v4i12.33413>.

<sup>16</sup> Zainal Amin Ayub, 'The Legal Challenges of International Electronic Contracts in Iraq', *International Journal of Social Science Research* 5, no. 2 (September 2017): 57–72, <https://doi.org/10.5296/ijssr.v5i2.11332>.

<sup>17</sup> Ansam Khraisat and Ammar Alazab, 'A Critical Review of Intrusion Detection Systems in the Internet of Things: Techniques, Deployment Strategy, Validation Strategy, Attacks, Public Datasets and Challenges', *Cybersecurity* 4, no. 1 (March 2021): 18, <https://doi.org/10.1186/s42400-021-00077-7>.

One more important dimension is tax and customs integration, which refers to the link between digital commerce and the formal economic system. Articles 25 and 26 involve coordination of the Ministry of Commerce, the General Customs Authority and the General Tax Authority. Wares exchanged via electronic commerce websites are supposed to undergo customs procedures, and digital merchants are supposed to pay taxes similar to those of normal businesses. The integration is intended to serve several purposes: preventing tax evasion, promoting fiscal equity, and collecting revenue through digital economic activity. It also minimises asymmetry in regulation between online and offline trade, making the playing field equal. This practice has been endorsed by international practice, especially regarding how internet platforms can be used to enable data sharing and tax collection. Nonetheless, this requires proper execution through the development of digital infrastructure, interoperable information systems, and streamlined instructions on how small and emerging merchants can access the formal system; they might not be able to do so.<sup>18</sup>

To explicate how these lawful and technical protections work together, the essence of the guarantees set out in the regulation may be tabulated along several interconnected dimensions. Both of the dimensions are indicative of a particular regulatory goal, the connection of normative responsibilities and the institutional role, and have a unique effect on market order, consumer protection, and state regulation. The table below summarises these factors to demonstrate how the E-Commerce Regulation No. 4 of 2025 in Iraq creates a stratum of lawfulness in the cyberspace marketplace.

Table 1. Core Legal Guarantees in Iraq's E-Commerce Regulation No. 4 of 2025

Dimension	Legal Basis	Key Obligations	Regulatory Purpose	Expected Impact
Licensing & Supervision	Arts. 4 & 6	Mandatory license via digital platform; official registry	Market traceability and state oversight	Increased transparency and trader accountability
Consumer Protection & Transparency	Disclosure provisions + Consumer Protection Law 2010	Identity, product info, payment terms, return policies, privacy notice	Reduce information asymmetry and fraud	More substantial consumer confidence and legal clarity
Data Privacy & Breach Notification	Data security and consent rules	Secure systems, limited data collection, breach reporting	Protect personal data and ensure accountability	Higher trust in digital transactions

<sup>18</sup> Mohammad Ali Abdulhasan Yassin et al., 'Examination of the Status of Privacy in the Legal Systems of Iran and Iraq', *Interdisciplinary Studies in Society, Law, and Politics* 3, no. 3 (July 2024): 75–88, <https://doi.org/10.61838/kman.isslp.3.3.10>.

Tax & Customs Integration	Arts. 25–26	Coordination with tax and customs authorities	Prevent evasion; formalise the digital economy	Fiscal fairness and revenue generation
Supervisory Authority & Sanctions	Enforcement provisions	Monitoring, suspension, and revocation of licenses	Ensure compliance and deter violations	More credible and disciplined e-commerce environment

Source: Author's Interpretation

As shown in the table, E-Commerce Regulation No. 4 of 2025 in Iraq has created legal certainty through a combination of interdependent protections that, when combined, have created a digital market structure. Licensing and supervisory regulations are the official gateway to the e-commerce virtual world; they guarantee the traceability of traders and allow the state to monitor them. Consumer protection and transparency regulation addresses the informational imbalance inherent in online transactions by requiring merchants to provide transparent contractual and identity-related information, thereby increasing trust and minimising fraud-related risks. The next level that protects the privacy of data and breach-notification duties extends the protection to the technological domain and make data security a legal obligation, as well as strengthening consumer trust in online relationships. The integration of taxes and customs places e-commerce within a formal tax framework, fostering equity in digital and traditional trade and increasing the state's revenue potential.

### Technical Safeguards in Iraq's E-Commerce Regulation No. 4 of 2025

In addition to its legal framework, the E-Commerce Regulation No. 4 of 2025 in Iraq is backed by a system of technical protections that converts the regulatory interests into the operational digital systems.<sup>19</sup> These controls give assurance that licensing, data protection, supervision and fiscal compliance are not just legal requirements on paper but are entrenched in technological systems that facilitate safe and responsible digital trade. The rule, therefore, indicates a mode of governance in which law and technology serve as supplementary tools. One of them is the digital licensing platform run by the Ministry of Commerce. This online system is centralised to allow merchants to apply for, renew, and update licenses in real time, and for authorities to monitor the status of traders. Digitising licensing means that the regulation connects legal permission with an auditable technical procedure, enhancing transparency and administrative effectiveness. This system can also be further enhanced with advanced architectures, such as blockchain-based registries, that produce tamper-resistant, immutable records of licensing. Distributed ledgers increase traceability and retain historical information for regulators or the court to review. It is also vital to incorporate secure digital identity frameworks on the licensing platform.<sup>20</sup> The Self-Sovereign Identity (SSI) models provide a privacy-efficient way to verify merchants, enabling them to manage their identity

<sup>19</sup> 'Commercial Contracts 2025 - Iraq | Global Practice Guides | Chambers and Partners', accessed 1 February 2026, <https://practiceguides.chambers.com/practice-guides/commercial-contracts-2025/iraq/trends-and-developments/O23676>.

<sup>20</sup> Khraisat and Alazab, 'A Critical Review of Intrusion Detection Systems in the Internet of Things'.

information and share only the required properties via encrypted credentials and digital signatures. These systems minimise the risk of impersonation and identity theft and help follow the principles of data minimisation. When used with Public Key Infrastructure (PKI) and digital certificates, they will provide authentication, integrity, and non-repudiation of transactions, thereby enhancing the evidentiary value of digital records. Another way to enhance resilience against system failures or cybercriminal attacks is to adopt a hybrid, decentralised system design in which oversight functions are distributed but administrative interfaces remain open. The second protection is the data security and encryption standards. The rule mandates traders to install secure systems to safeguard information about consumers, and sets an adaptable but obligatory minimum on cybersecurity. Practically, this will mean securing the transmission and the rest of the data with protocols like TLS and powerful algorithms like AES-256. Balanced protection is offered by hybrid cryptography models, which combine both symmetric encryption (for efficiency) and asymmetric encryption (for secure key exchange).<sup>21</sup> These are technical safeguards against interception, unauthorised change, or data leakage, especially in regard to payment and identity information. The technology-neutral nature of the law empowers merchants to embrace the changing security solutions and also allows the regulators to check the level of compliance via security audits and policy analysis.

The next one, which is closely linked, is the creation of security incident-reporting. The regulation anticipates the existence of systems that can identify, record, and act against violations. Merchants should thus have access logs, intrusion detection systems (IDSs) and incident response protocols. Threats can be detected early on with the help of advanced analytical models, such as machine-learning-based anomaly detection. Security Information and Event Management (SIEM) tools combine log records of various sources and create alerts so that systematic documentation and quick communication with authorities can be made. Such mechanisms make breach reporting a responsive responsibility rather than a proactive security culture to reduce harm and enhance institutional learning on the consequences of the incident. Integration with tax and customs also includes technical safeguards. Application Programming Interfaces (APIs) can be used to automatically and securely exchange data between e-commerce platforms and government authorities. Transaction data, invoices, shipping information, and any other information can be exchanged through encrypted, authenticated connections without privacy loss.<sup>22</sup> Such integration minimises tax evasion and customs clearance, and increases regulatory transparency. The practice at the international level confirms that API-based systems enable real-time monitoring and dynamic updating of tax rates. In the case of Iraq, the success of this mechanism relies on the security of API control, strong access controls, and the interoperability of digital systems.

The key technical safeguards, which are entrenched in the regulation, can be grouped into a few functional dimensions to help people visualise how those technological elements are actually used as a cohesive protection mechanism, rather than a collection of tools that are not

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<sup>21</sup> Alaa Al-Heali, 'The Role of Electronic Marketing in Promoting the Products of the National Industry in Iraq: The Role of Electronic Marketing in Promoting the Products of the National Industry in Iraq', *Iraqi Journal of Market Research and Consumer Protection* 14, no. (1) (June 2022): 1–14.

<sup>22</sup> Shiqiang Wang et al., 'Security Risks and Regulation of Cross-Border e-Commerce in Digital Economy', *Journal of Electronic Business & Digital Economics* 4, no. 2 (November 2025): 385–401, <https://doi.org/10.1108/JEBDE-12-2024-0053>.

interconnected. All the dimensions relate particular technologies to regulatory purposes, security outcomes, and governance impacts. This structure can be summarised in the following table to demonstrate how technical design will help ensure compliance with the law, subject to institutional control, and build trust in the digital commerce environment in Iraq.

Table 2. Technical Safeguards Supporting E-Commerce Regulation No. 4 of 2025

Technical Dimension	Core Technologies	Regulatory Function	Security Contribution	Governance Impact
Digital Licensing Platform	Centralised portal, distributed ledger options	Manage licensing lifecycle and trader registry	Tamper-resistant and auditable records	Transparent oversight and market traceability
Digital Identity Systems	SSI, PKI, digital certificates, e-signatures	Merchant authentication and verification	Prevent impersonation and ensure integrity	Stronger legal validity of digital transactions
Data Security & Encryption	TLS, advanced cryptographic standards	Protect stored and transmitted data	Confidentiality and integrity of personal/payment data	Compliance with secure-system requirements
Incident Detection & Reporting	IDS, SIEM, log monitoring, anomaly detection	Early breach detection and formal reporting	Rapid response and minimised damage	Institutional accountability and digital trust
Tax & Customs Integration	Secure APIs, encrypted data exchange	Transaction reporting and fiscal coordination	Reduced manipulation of trade data	Improved revenue monitoring and regulatory fairness

Source: Author's Interpretation

The platform of digital licensing is the main point of entry, offering an auditable registry, which increases market traceability and transparent management. This structure is then reinforced by digital identity systems that provide authentic merchant authentication based on secure credentials and electronic signatures, which enhance the legal validity and integrity of the online transactions. Data security and encryption services work on the protective level of the system where personal and payment data are secured, and the requirement of the regulation of having secure systems is satisfied. The incident detection and reporting tools introduce an aspect of resilience on which early threat detection and organised responses can be made to minimise the harm and facilitate the accountability of institutions. Lastly, the connection to tax and customs systems expands the sphere of technical governance to the fiscal one, where the information about transactions can be used to promote equity in taxation and regulation. Collectively, these factors prove that the technical protection is not a peripheral addition but

rather the functional heart of the digital commerce regulation, which connects the themes of security, transparency, and state control in one and dependent system.

### Implementation Challenges and Strategic Responses

Although the E-Commerce Regulation No. 4 of 2025 in Iraq provides a strong framework of legal and technical protection, its feasibility will be determined by the institutional capacity, the technological preparedness, and market orientation. Similar to numerous regulatory reforms in new digital economies, the shift of the normative design to operational enforcement has structural and implementation problems that could impact the influence of the regulation during its initial phases.<sup>23</sup> The scanty digital infrastructure is one of the most restricting constraints. Despite the fact that the rates of internet penetration in Iraq have been on the rise, the existence of differences in terms of the speed of connection, the stability of the net, and service coverage is still observed, especially in the outskirts of large urban areas. The regulation of e-commerce is becoming more dependent on a stable digital connection to carry out licensing activities, real-time monitoring, safe transactions, and data transfer with the state systems. Poor infrastructure, consequently, poses a threat to the establishment of unfair playing fields: traders in well-connected regions will find it easier to implement digital licensing and security systems, whereas those in poorly served areas will have difficulties in fulfilling technical specifications. Such an imbalance may slow the universal implementation of regulatory standards and may unwittingly encourage some traders to take an informal approach to digital practices instead of being formally compliant. Improving broadband networks and establishing good connectivity, therefore, becomes not just a development agenda but an administrative requirement.

The second difficulty is related to duplicated regulatory power. The regulation entails the liaison of the Ministry of Commerce, the taxation authority, as well as the customs authorities, especially in terms of reporting transactions and the payment of fiscal responsibilities. However, unless there are well-established limits to operations and means of communication, there may be duplication of the institutions. Regulatory incoherence could be undermined by delays in the transfer of information, differences in interpretations of duties, and incomplete approaches to enforcement. There should be a smooth inter-agency cooperation in terms of e-commerce governance because digital transactions are not well-oriented within the conventional bureaucratic boundaries. Formal coordination tools, including joint steering committees or joint digital dashboards, would allow avoiding regulatory fragmentation and making sure that supervision, taxation, and customs processes are being used as components of a single system.<sup>24</sup>

Another significant issue arises from the prevalence of e-commerce conducted through social media platforms.<sup>25</sup> A large share of online trade in Iraq occurs through informal channels

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<sup>23</sup> Ako Abubakr Jaffar, Mazen Ismael Ghareb, and Karzan Hussein Sharif, 'The Challenges of Implementing E-Commerce in Kurdistan of Iraq', *Journal of University of Human Development* 2, no. 3 (August 2016): 528–533, <https://doi.org/10.21928/juhd.v2n3y2016.pp528-533>.

<sup>24</sup> Ahmed Hasan Shakir et al., 'The Impact of E-Commerce, Digital Marketing, and Digitalization on Firm's Growth in Iraq', *AGBIOFORUM* 26, no. 3 (2024): 74–82.

<sup>25</sup> Dwi Edi Wibowo, 'Consumer Protection in the Digital Era: Challenges and Solutions from an Islamic Legal Perspective', *Jurnal Ilmiah Mizani: Wacana Hukum, Ekonomi Dan Keagamaan* 11, no. 2 (October 2024): 473–485, <https://doi.org/10.29300/mzn.v11i2.4752>.

such as Facebook and Instagram accounts that operate outside structured e-commerce platforms.<sup>26</sup> These sellers may not hold formal licenses, and transactions often occur via direct messaging or cash-on-delivery.<sup>27</sup>

A transitional issue also exists in the operational preparedness of the digital licensing platform. The regulation that requires the use of the electronic licensing system presupposes the efficacy of the measure, yet it also presupposes technical maturity, usability, and cybersecurity. Slows in complete implementation or instability in the system may turn a fundamental regulatory mechanism into a bottleneck in the process.<sup>28</sup> Scalability, interoperability, and user adaptation are problems that are most commonly encountered in early-stage digital government systems. Constant technical assistance, gradual rollout, and loops of feedback to merchants are thus the key to turning the platform into a factual regulatory tool rather than an empty promise.<sup>29</sup>

Another limitation is the lack of cybersecurity knowledge among merchants and small and medium-sized enterprises. Such demanding features as encryption, intrusion detection, and incident reporting require technical expertise and financial means beyond the capabilities of most small traders. Without support, these actors may either fail to comply or take superficial measures that do not provide complete protection.<sup>30</sup> Such a gap poses a threat to the development of a formal compliance culture with no real-world cybersecurity resilience. Such a gap may be bridged through targeted capacity-building, including training programs, technical guidelines, and financial incentives, to enable legal commitments to be translated into real security practices. These challenges should be dealt with through a concerted strategic response. It is also important to build institutional capacity, such as the creation of dedicated cybersecurity units within the Ministry of Commerce to establish standards, provide technical support, and oversee adherence.<sup>31</sup> Deployment of the digital licensing platform can be achieved quickly, but with careful oversight and support through help desks and user instructions, trust in the system

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<sup>26</sup> Ismawati and Suud Sarim Karimullah, 'Consumer Protection in the Digital Era: An Analysis of Consumer Protection in E-Commerce', *NUSANTARA: Journal Of Law Studies* 3, no. 02 (December 2024): 68–80, <https://doi.org/10.5281/zenodo.17376951>.

<sup>27</sup> Lara Adel Jabbar Al-Zandi and Saeed Youssef Al-Bustani, 'The Legal Conditions Of Electronic Arbitration In Electronic Commerce Contracts: A Comparative Study Between Iraqi And Lebanese Legislations', *Perdana: International Journal of Academic Research* 21, no. 1 (November 2024): 36–67.

<sup>28</sup> Mohanad Hamad Ahmed Al-Jubori, 'Formation of Electronic Contracts of Sale and Its Impact on Iraqi Traditional Commercial Contracts', 2018.

<sup>29</sup> Ahmed Hasan Shakir, Kadhim Ghaffar Kadhim, Amjed Hameed Majeed, Prof Dr Hasan Majdi, et al., 'Towards Alleviating Poverty: Study The Impact of E-Commerce, Digital Marketing, and Digitalization's on Improving Economic Growth in Iraq', *AGBIOFORUM* 27, no. 1 (June 2025): 49–57.

<sup>30</sup> Ibrahim T. Nather and M. A. Burhanuddin, 'Determining the Impact Factors of E-Commerce Adoption by Smes in Iraq: An Overview', SSRN Scholarly Paper no. 3930578 (Rochester, NY: Social Science Research Network, 2018), <https://papers.ssrn.com/abstract=3930578>.

<sup>31</sup> Ammar Alhousseini, 'Digital Challenges and the Impact of Information Crimes on Competition and Monopoly Prevention Policies in Iraq', *Enterpreunership Journal For Finance and Bussiness*, 2 July 2025, 25–35, <https://doi.org/10.56967/ejfb2025622>.

can be earned. The joint efforts of the agencies should be formalised through the development of data-sharing agreements and joint operational bodies to ensure coherent control.

It is also crucial that informal digital actors are incorporated. Efficient licensing procedures and partnerships with social media sites to emphasise the identified sellers can slowly draw informal traders into the regulatory framework. Simultaneous consumer and merchant awareness campaigns should be conducted on the rights, responsibilities, and advantages of official involvement in the digital economy. Sustainability is also about the long term, with the creation of a national infrastructure for digital identity that supports secure authentication and electronic signatures, increasing the credibility of transactions across every sector.

## **Conclusion**

The E-Commerce Regulation No. 4 of 2025 of Iraq offers a novel and detailed legal and technical framework that regulates the online sellers, deters fraud by consumers, and provides the protection of digital data. The regulation focuses on major areas of legal flexibility, such as licensing, data protection, cybersecurity, and collaboration with tax and customs organisations, but leaves technological choice flexibility. However, its execution has a number of obstacles to effectiveness, including a lack of digital infrastructure, conflicting regulatory bodies and the growth of unregulated trade via informal social media and a lack of cybersecurity knowledge among business participants. Such steps as the reinforcement of the digital licensing systems, expansion of the ability of the merchants, better coordination of the work of various agencies, introduction of digital identification systems, and constant monitoring and review can contribute to higher compliance and overall effectiveness of the regulation. All in all, when the regulation is adopted and appropriately executed, e-commerce in Iraq can turn into a secure, reliable, and fully integrated part of the formal economy, increasing legal regulation, consumer trust, etc, and national digital development. In future studies, it is suggested that empirical research be conducted to assess the effectiveness of the regulation in practice, measure the impact of data protection on consumers, and examine the readiness of relevant institutions. More research could also explore the effectiveness of incorporating new technologies, including digital identity and electronic licensing systems, in promoting the safety, effectiveness, and regulation of the Iraqi e-commerce industry.

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## **Author Contributions Statement**

The research study was conceptualised, the research design formulated, and the legal and doctrinal analysis spearheaded by Mahmood Shaker Alaloosh. Ali Shaker assisted in comparing regulatory analyses and in collecting and interpreting international data-protection and e-commerce regulatory models. The techno-legal assessment, the analysis of technical safeguards and drafting of parts on digital security and compliance mechanisms were carried out by Sabir Hussien Eliwy. Authors engaged in the writing, scrutinising, and editing of the manuscript and gave the final version of the manuscript to be published.

### AI Usage Statement

The authors state that artificial intelligence (AI) applications were used on a small scale to assist with language correction, grammar correction, and rephrasing in academic writing. There was no use of AI when generating research data, conducting analysis, interpreting legal materials, or developing arguments and conclusions in the study. All the substantive work, including intellectual contributions such as conceptualisation, legal analysis, comparative assessment, and findings interpretation, was done entirely by the authors. The authors assume complete responsibility for the contents, correctness and originality of this work.

### Conflict of Interest

The authors state that they have no conflicts of interest regarding the publication of this study. No commercial or financial ties were involved in the study, which could be considered a possible conflict of interest.

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