

## Policy Brief

# Enhancing E-authentication and E-signature across ASEAN: Building Interoperable Frameworks for Seamless Digital Transactions

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### Key Messages:

- Establishing robust national legal frameworks for electronic signatures is crucial. ASEAN Member States can adopt prescriptive, minimalist, or two-tiered regulatory models.
- Effective e-authentication adoption requires legislative, administrative, and technological integration, along with fostering user acceptance and addressing capacity disparities amongst ASEAN Member States.
- Achieving seamless regional e-signature interoperability, particularly through a two-tiered approach, is essential for facilitating regional digital transactions and economic integration.
- It is necessary to ensure ASEAN-wide interoperability; conduct impact analyses on micro, small, and medium-sized enterprises; adopt flexible implementation timelines; build capacity in e-authentication; and maintain updated e-signature information on the ASEAN portal.

*The ASEAN Agreement on Electronic Commerce mandates ASEAN Member States (AMS) to implement electronic authentication in line with international standards, aiming for interoperable e-authentication across the region by 2025. The establishment of national legal frameworks is crucial for the validity and exchange of electronic records and signatures, with some AMS already adopting United Nations Commission on International Trade Law model law-influenced legislation. Three regulatory models for e-signature exist globally – prescriptive, minimalist, and two-tiered – each with distinct implications for security and flexibility. Successful e-authentication adoption involves legislative, administrative, and technological integration, along with user acceptance. Implementation status in the Asia-Pacific region correlates with gross domestic product per capita and overall capacity. Cross-border interoperability, particularly under a two-tiered approach, is essential for seamless e-signature adoption. Policy recommendations include ensuring ASEAN-wide interoperability; impact analysis on micro, small, and medium-sized enterprises; flexible implementation timelines; capacity building; and maintaining updated e-signature information on the ASEAN portal.*

The ASEAN Agreement on Electronic Commerce, which entered into force on 2 December 2021, obliges ASEAN Member States (AMS) to implement electronic authentication in line with international norms as soon as possible and encourages the use of interoperable e-authentication (Article 7) (ASEAN, 2021a). Furthermore, the *Work Plan for the ASEAN Agreement on Electronic Commerce* states that implementation in each country by 2025 is a desired outcome (ASEAN, 2021b).

As a first step, having respective national legal frameworks governing electronic transactions can help provide clarity and confidence; allow AMS to electronically sign contracts, agreements, and other legal documentation; and subsequently exchange electronic records with each other. Legal frameworks have been established by all AMS to acknowledge and confer legal validity upon electronic and digital signatures. Currently, two AMS have also adopted national legislation based on or influenced by the United Nations Commission on International Trade Law (UNCITRAL) Model Law on Electronic Signatures. However, this is not a prerequisite for AMS to accept the binding treaty commitments, provided that AMS neither impose restrictions nor challenge the validity of a signature solely because it is in electronic form.<sup>1</sup> It is understood that some forms

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<sup>1</sup> The model law outlines further criteria of technical reliability for the equivalence of electronic and handwritten signatures as well as basic rules of conduct as guidelines for assessing the duties of and liabilities for the signatory, relying party, and trusted third parties intervening in the signature process (WTO and WEF, 2022).

of exception can be made regarding the validity of electronic signatures. In such circumstances, AMS are encouraged to specify the types of documents and records that are required, by law, to be made in written form, in a transparent manner.

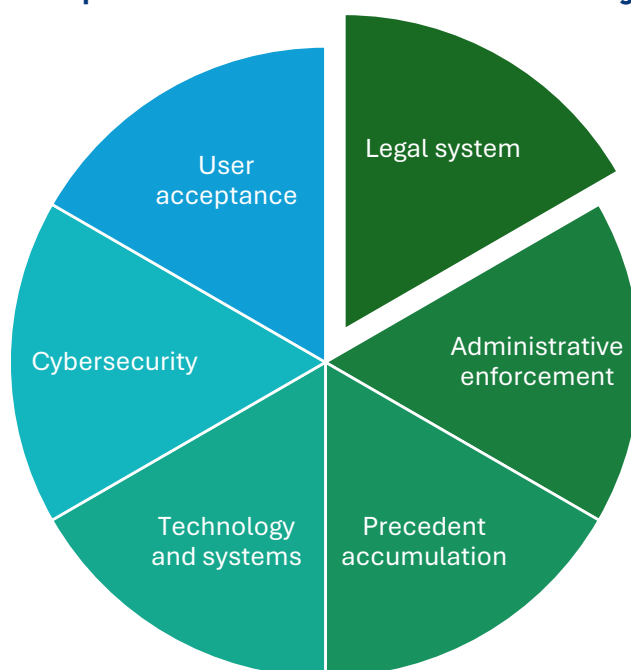
Presently, three distinct regulatory models for e-signature have been implemented by various countries – prescriptive (adopted by Bangladesh, Brazil, Malaysia, and Peru), minimalist (adopted by Australia, Canada, New Zealand, and the United States), and two-tiered (e.g. European Union). The prescriptive approach mandates secure digital signatures, primarily for high-security governmental transactions, but may be burdensome and costly for private contracts due to certification authorities and fees. The minimalist approach is more flexible and grants equal legal validity to any technology, allowing parties to choose the signing method, although this approach requires higher administrative and judicial enforcement capacity. The two-tiered approach recognises all technologies as valid but reserves presumptions for secure digital signatures, outlining requirements and rules of conduct, with some

countries enhancing flexibility for private parties. Unlike the prescriptive and two-tiered models, the minimalist approach generally lacks detailed rules for parties involved (Jaller, Simon, Molinuevo, 2020).

Singapore has expanded the two-tiered model by introducing a third signature category through its Electronic Transactions Act. This allows private parties to choose any commercially reasonable security, equivalent to prescribed mechanisms, treating it similarly to handwritten signatures. This approach enhances flexibility in technology and selection of the certification provider. Colombia, the European Union, and Mexico have also embraced variations of the two-tiered model in recent regulations.

As depicted in Figure 1, achieving successful adoption of e-authentication and e-signature necessitates more than just legislative measures; it involves robust administrative enforcement, precedent accumulation, technological and systemic integration, cybersecurity measures, and fostering user acceptance.

**Figure 1: Implementation of E-authentication and E-signatures**

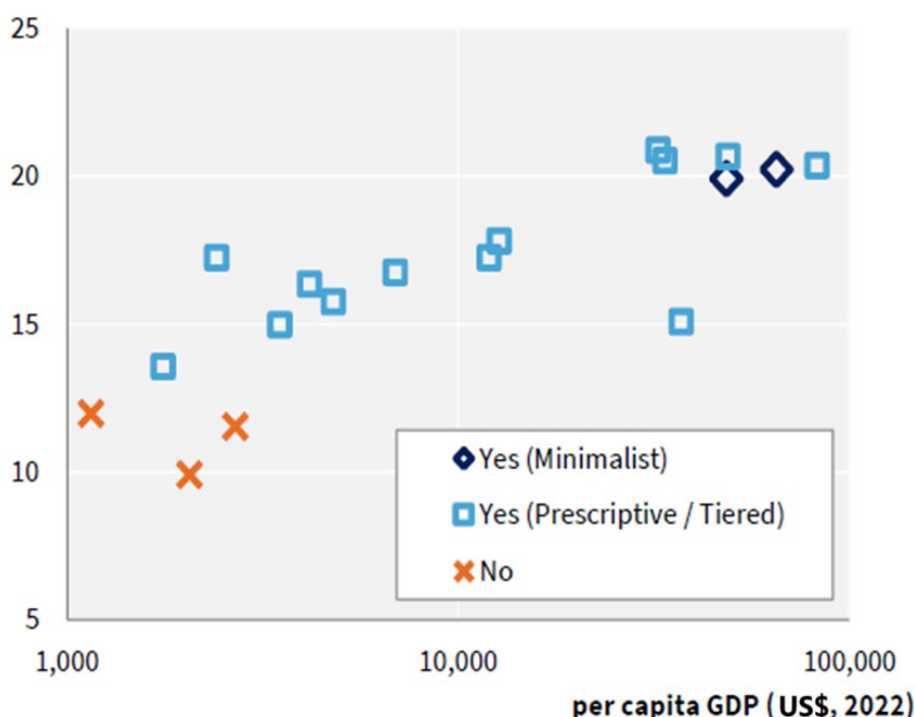


Sources: Authors based on Broderick, Gibson, and Tarasewich (2001); Chan and Hui (2014); Khorosheniuk et al. (2023); Srivastava (2011).

Figure 2 plots implementation status of regulatory models for e-signature with gross domestic product (GDP) per capita on the horizontal axis and overall Organisation for Economic Co-operation and Development (OECD) Trade Facilitation Indicators on the vertical axis for the Asia-Pacific. It shows that implementation status is strongly correlated with GDP per capita and Trade Facilitation Indicators. This implies that implementation depends on the overall capacity of the country. Indeed, although some countries are deemed to have implemented e-authentication and e-signatures, in practice, judges, magistrates, and other authorities are not familiar with electronic or digital signatures and still prefer handwritten signatures.

Furthermore, the adoption of cross-border e-signatures requires interoperability, including mutual recognition of certification bodies, identification, and data protection. Given that eIDAS in the European Union adopts the two-tiered approach, it can be expected that the two-tiered approach will become even more prevalent to achieve interoperability. Full implementation of e-authentication and e-signature would also make transactions easier for ASEAN businesses to operate across borders and potentially within the domestic economy, provided that those businesses have access to the necessary technology and relevant platforms (Kelsey, 2022).

**Figure 2: Implementation Status of Regulatory Models for E-signature in the Asia-Pacific Region**



Source: Authors based on OECD, Trade Facilitation Indicators Simulator, <https://sim.oecd.org/Simulator.ashx?lang=En&ds=TFI&d1c=eca&d2c=geo>

### Policy Recommendations

- Ensure ASEAN-wide interoperability based on a two-tiered approach (e.g. Economic Research Institute for ASEAN and East Asia [ERIA] Digital Identification Project).
- Conduct an impact analysis of e-signature adoption on micro and SMEs (e.g. ERIA SME Policy Index Project).
- Institute flexible, longer period, or phased implementation of e-authentication and e-signature according to the actual conditions of each AMS.
- Build capacity in all aspects of e-authentication as part of the Digital Economy Framework Agreement implementation.
- Make available on the ASEAN information portal updated information on e-signature applicability and list of certified, trusted providers for all AMS.

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