A Path to Paperless Trade: Analysing the Legal Gaps and Economic Benefit of Adopting or Maintaining a Legal Framework that Takes into Account the UNCITRAL Model Law on Electronic Transferable Records (MLETR)

APEC Committee on Trade and Investment

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The paperless trade opportunity for APEC

APEC has an opportunity to realise the significant benefits arising from paperless trade in the region. APEC wide adoption of the UNCITRAL Model Law on Electronic Transferable Records (MLETR), or equivalent arrangements, can help to achieve this. The benefits of moving along this path to paperless trade are significant – estimated to be as high as USD2.0 trillion across the APEC region.

Some APEC economies are already leading the way, adopting MLETR or equivalent arrangements. For those yet to do so, several legal and practical constraints will need to be overcome. There are various legal approaches, combined with coordinated and cooperative action across APEC, that can be taken.

This report explores the benefits of MLETR adoption across APEC, assesses the legal constraints to doing so, and maps out a recommended path forward for APEC to advance paperless trade.

The role of MLETR and paperless trade

International trade operates with vast volumes of paper. The International Chamber of Commerce (ICC) estimates that four billion documents move through the global trade system daily. Despite advancements in the digitalisation of the trade ecosystem, most jurisdictions globally still require that transferable records, that is, documents transferring the ownership of goods, be presented in physical paper form. These documents could be digitised, dramatically reducing the need for such large volumes of paper, and its associated costs, in international trade.

MLETR provides a legislative template for electronic ('paperless') versions of transferable documents or instruments. These include bills of lading, bills of exchange, promissory notes, and warehouse receipts which are crucial documents for the conduct of international trade, often regarded as documents of title.

Legislative reform moving the international trading ecosystem away from outdated paper-based systems and their legal frameworks towards more reliance on paperless systems and a legal environment supportive of electronic transferable records will significantly enhance efficiencies in international trade facilitation. Aligning domestic laws with MLETR, or equivalent arrangements, is a way to do this.[1] MLETR's uniform adoption, or of equivalent arrangements, by APEC economies would facilitate the use of paperless trade in international commerce across the region.

The economic benefits of MLETR and paperless trade

Paperless trade can increase efficiency, reduce costs and enhance trade. Adoption of MLETR or equivalent arrangements across APEC provides an opportunity to realise these benefits.

Recent economic modelling[2] on the impact of adopting MLETR and measures to move toward paperless trade across APEC finds that GDP gains are potentially large – as high as US$2.0 trillion over 2024-2033. APEC economies would also potentially experience increases in trade volumes, employment and real wages from adoption of paperless trade measures. This work builds on

[1] ICC "Creating a Modern Digital Trade Ecosystem: The economic case to reform UK law and align to the UNCITRAL Model Law on Electronic Transferable Records", United Kingdom International Chamber of Commerce, May 2021

[2] James Giesecke and Robert Waschik, *Paperless Trade in APEC: Modelling the economic consequences of implementing the Model Law on Electronic Transferable Records (MLETR)*, Centre of Policy Studies, Victoria University, October 2024. See Annex 2.

earlier studies that have noted the considerable efficiency gains from economies moving their trading systems away from physical paper documents to electronic records.

There are also wide, non-quantifiable impacts from the adoption of digitalised trade systems, including reduced friction costs, improved data quality, more streamlined movement of both goods and associated documents.

Adoption of MLETR across APEC

APEC has an opportunity to realise the benefits of paperless trade through region-wide adoption of the MLETR or equivalent arrangements. Some economies are already leading the way. Mexico; Papua New Guinea; Singapore; and the United States have already embraced the approach that the MLETR provides. Others are at various stages of MLETR readiness.

While some economies have adopted MLETR in full, and others have chosen to transpose the MLETR into domestic legislation for specific instruments, all APEC economies have in place electronic transactions laws, which is a necessary first step for MLETR adoption.

Most APEC economies are also party to trade and digital economy agreements which include commitments to facilitate paperless trade and already require the parties to maintain legal frameworks for electronic transactions. The recently stabilised text of the Agreement on E-commerce, negotiated under the WTO Joint Statement Initiative on E-commerce to which almost all APEC economies are participants, requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.

In APEC, Leaders and Ministers have also affirmed their wish to see further progress on paperless trade, including in the 2021 APEC Economic Leaders' and Ministers' Declarations, which endorsed the Guidelines for Paperless Trade, in the Aotearoa Plan of Action, in the 2022 and 2023 APEC Ministerial Meeting statements. APEC Business Advisory Council (ABAC) has also made strong calls for APEC economies to adopt the MLETR, including in their 2023 recommendations to APEC Economic Leaders.

Legal constraints and challenges to APEC-wide adoption

For those economies yet to embrace MLETR or equivalent arrangements, there are few legal constraints preventing them from taking measures to legislate for the adoption of MLETR. Every economy has the necessary legal framework for electronic commerce that supports adoption to varying degrees.

However, there are several legal constraints to the achievement of wider and uniform adoption of MLETR across APEC. The scope of existing legislation governing electronic transferable records is not uniform across APEC economies, and in some cases potentially conflicts with MLETR. Notably, commitments in trade agreements and international initiatives, while supportive of paperless trade, are generally weak and do not provide strong impetus for legislative reform to enable it.

Whether economies legislate to adopt MLETR depends on actions by both policy makers and legislators. The implementation of the law once adopted, and the practice of commercial parties can be more difficult, largely because it requires further consideration of commercial risk.

Wider and consistent adoption of MLETR across APEC economies, in a transparent and coordinated way, would not only help reduce the costs of trade, but also minimise the perceived risks involved. Considered this way, these constraints provide a strong motivation to proceed.

Pathways forward

How can APEC move forward on its path to paperless trade? An improved understanding of these constraints and then addressing them is key to advancing paperless trade and the adoption of MLETR or equivalent across APEC.

Various legal approaches can be tailored each economy's needs. Beyond legal adoption, operationalising a digitised document system is also dependent on political-level leadership, consultation, buy-in from key stakeholders across the public and private sectors, and uptake by private-sector stakeholders. This requires both awareness-raising among the business community and capacity-building to transition business systems and operations to digitalised models.

To advance region-wide MLETR adoption, APEC economies can make important contributions in several areas. They can: provide the necessary political impetus for change; support the efforts of individual economies in adopting MLETR; leverage the synergies of work taking place in parallel across the region to drive interoperability across jurisdictions; and support capacity-building for policymakers and business stakeholders. Recommended actions are set out below.

1. Build on existing political support for reforms relating to paperless trade, including by including statements of support and encouragement for accelerated progress in the relevant APEC Ministerial Declarations.
2. Adopt a more coordinated and strategic approach to paperless trade within APEC. The Committee on Trade and Investment (CTI) could serve as the coordinating body.
3. Give profile to paperless trade as part of ongoing work on the FTAAP agenda.
4. Develop tailored roadmaps for individual economies to advance reform measures toward paperless trade, including a specific goal on MLETR adoption and implementation.
5. Prepare a MLETR Readiness Assessment and Adoption Guide for APEC.
6. Establish a dashboard or monitoring mechanism to assess economy readiness and progress.
7. Task the APEC Policy Support Unit to prepare a selection of economic impact studies on adoption of MLETR, as well as other materials including case studies.
8. Undertake capacity-building work through workshops, and potentially also APEC pilot projects.
9. Consider practical steps and options to support implementation for each economy, developed in partnership with APEC bodies and international fora.

Acronyms and Abbreviations

AAEC	ASEAN Agreement on Electronic Commerce
AANZFTA	ASEAN Australia New Zealand Free Trade Agreement
ABAC	APEC Business Advisory Council
ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
AUSUKFTA	Australia United Kingdom Free Trade Agreement
CAREC	Central Asia Regional Economic Cooperation
CoPS	Centre of Policy Studies, Victoria University
CPTA	UN Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific
CPTPP	Comprehensive Progressive Trans-Pacific Partnership Agreement
CTI	APEC Committee on Trade and Investment
DEPA	Digital Economy Partnership Agreement
ECC	Electronics Communications Convention, United Nations Convention on the Use of Electronic Communications in International Contracts (2005)
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
eUCP	Electronic Uniform Customs and Practice for Documents Credits promulgated by the International Chamber of Commerce
ETRs	Electronic Transferable Records
FTAAP	Free Trade Area of the Asia-Pacific
G7 or G7+:	Group of Seven
GTAP-FIN	Global Trade Analysis Project Computable General Equilibrium Model
ICC	International Chamber of Commerce
ICC DSI	International Chamber of Commerce Digital Standards Initiative
MLEC	Model Law on Electronic Commerce (1996)
MLES	Model Law on Electronic Signatures (2001)
MLETR	Model Law on Electronic Transferable Records (2017)
MLIT	Model Law on the Use and Cross-border Recognition of Identity Management and Trust Services (2022)
NZUKFTA	New Zealand United Kingdom Free Trade Agreement
OECD	Organisation for Economic Cooperation and Development
RCEP	Regional Comprehensive Economic Partnership Agreement
SADEA	Singapore Australia Digital Economy Agreement
SKDPA	Singapore Korea Digital Partnership Agreement
UCC	Uniform Commercial Code of the United States of America
UNCITRAL	United Nations Commission on International Trade Law
UKSDEA	United Kingdom Singapore Digital Economy Agreement
USMCA	United States Mexico Canada Trade Agreement
WTO	World Trade Organization
WTO JSI	WTO Joint Statement Initiative on E-commerce

Introduction

This paper provides a platform for APEC economies to consider a 'Path to Paperless Trade.' As a step toward this it explores the benefits of, constraints to and possible approaches for adoption of the UNCITRAL Model Law on Electronic Transferable Records (MLETR), or equivalent arrangements, across APEC economies.

Part I explains the role of MLETR in supporting international trade and outlines the economic benefits for APEC, and for APEC economies of adopting MLETR and measures to support paperless trade.

Part II assesses the status of adoption of MLETR or equivalent arrangements across APEC and explores the legal constraints involved in taking measures for legislative reform for uniform and APEC-wide adoption of MLETR.

Part III makes policy recommendations for APEC economies to consider as they advance toward that path.

Annex 1 summarises the relevant laws and legal frameworks in each APEC economy.

Annex 2 provides details on the economic modelling results and methodology.

Annex 3 analyses areas of convergence in trade agreements on provisions to support paperless trade.

Annex 4 outlines work on MLETR and paperless trade in international fora.

I.MLETR and paperless trade – role and benefits for APEC

APEC-wide adoption of the MLETR is an opportunity for APEC to realise the large benefits arising from paperless trade in the region. Legislative reform towards paperless systems and a legal environment supportive of electronic transferable records will significantly enhance efficiencies in international trade. Adoption of the MLETR provides a way to do this.

I. MLETR and paperless trade

International trade, particularly the carriage of goods by sea, requires a multitude of documents, the majority of which can exist in electronic form. However, in most jurisdictions particular so-called transferable instruments, such as bills of lading, bills of exchange, promissory notes and warehouse receipts, are not legally recognised as valid in electronic form without specific contractual provisions or a change of law recognising the special nature of that instrument.

The United Nations Model Law on Electronic Transferable Records (MLETR) is the UNCITRAL template that could allow for wider legal recognition and utilisation of a broad range of digitised documents in digitalised trade systems.[3] MLETR provides for electronic transferable records as the electronic equivalent to documents and instruments such as bills of lading, by formulating cogent practices and standards. Electronic transferable records are a fundamental component of a paperless trade environment, making significant contributions to trade facilitation.

Why MLETR was developed

MLETR builds on prior international laws developed by UNCITRAL, including the *Model Law on Electronic Commerce* (MLEC) and *the United Nations Convention on the Use of Electronic Communications in International Contracts* (ECC). The MLEC provides a template of internationally acceptable and robust rules that remove legal obstacles to electronic commerce and create a more secure legal environment. However, it does not generally cover documents and instruments of title or having a legal obligation attached to them. The ECC excludes transferable documents and instruments from its application. MLETR goes beyond both the MLEC and the ECC to cover both to facilitate fully electronic transactions in international trade, or 'paperless trade', a practice that was not previously possible.

Box 1. Transferable documents and instruments

Transferable documents and instruments include bills of exchange, promissory notes, consignment notes, bills of lading and warehouse receipts.[4] Although many economies have laws facilitating electronic forms for most documents, these laws generally do not apply to transferable documents or instruments. This is because most documents merely deal with "information", whereas transferable documents or instruments are documents of title or relate to the performance of an obligation indicated on the document or instrument. Since most international trade transactions use transferable documents or instruments necessitating the use of paper for at least some part of the transactions, there has been little incentive to adopt a hybrid approach; that is, parties have been reluctant to have part paper and part electronic.

The specific documents that need to be digitalised to enable paperless trade may vary by jurisdiction, but some are more important than others. For example, the ICC Digital Standards Initiative Key Trade Document and Data Elements Working Group identified seven key documents for the digitalization process, namely the certificate of origin, customs declaration, packing list, bill of lading, commercial invoice, warehouse receipt and insurance certificate, but other important documents may include bills of exchange, promissory notes, consignment notes, airway bills and seaway bills.[5]

[3] Noting there are differences between "digitised" documents (i.e. converting paper to electronic/machine readable) and "digitalised" trade (i.e. utilising digital information in an ecosystem, for example, blockchain-based systems.)

[4] The Australian Paper "Paper to consultation to inform options for implementing the Model Law on Electronic Transferable Records in Australia" 2024 lists the following as possible transferable documents or instruments: (a) bills of exchange (b) cheques c) Promissory notes (d) consignment notes (e) bills of lading (f) warehouse receipts (g) transferable insurance certificates, like marine insurance policies and cargo insurance certificates (h) air waybills (i) letters of credit (j) dock warrants (k) dock receipts (l) ships delivery orders (m) mate's receipts (n) wharfinger's certificates (o) warehouse-keeper's certificates. See: https://consultations.ag.gov.au/international-relations/mletr/

[5] https://www.tradefinanceglobal.com/posts/icc-dsi-7-key-trade-documents-digitisation/

What MLETR does and how it works

The purpose of MLETR is to facilitate the legal recognition and therefore use of 'electronic transferable records' (ETRs) domestically and internationally. As the APEC region moves towards more digitalised commerce, ETRs are becoming an essential element in end-to-end trade transactions, facilitating flows of trade internationally. However, in most jurisdictions, trade is reliant on these instruments in paper form. This means that stakeholders have a strong disincentive to using digitised documents given the legal risks that this would entail.

UNCITRAL's stated intention was to provide a platform for ensuring harmonisation, legal certainty, and commercial predictability for the increased participation in electronic commerce. Article 2 of MLETR defines a 'transferable document or instrument' as:

> "a document or instrument issued on paper that entitles the holder to claim the performance of the obligation indicated in the document or instrument and to transfer the right to performance of the obligation indicated in the document or instrument through the transfer of that document or instrument."

Such transferable documents and instruments are vital for all actors in international trade (shippers, insurers, importers and exporters for example).

Box 2. MLETR application and practice

MLETR can apply to several types of documents and instruments of title and obligations used in international trade. Take the example of a bill of lading. Since the 16th century, bills of lading have played a critical role in international trade and the movement of goods.[6] They have provided proof that the goods have been shipped, evidence of the contract with the carrier and have been used as a document of title or right to possession of the goods in the hands of the possessor. Quite typically the exporter takes possession of the bill of lading and often with the assistance of intermediaries, delivers the bill of lading (and other shipping documents) to the importer for payment. The holder of the bill of lading presents it to the port of offloading to claim the release of the goods. The importer has assurance of title to the goods, together with important shipping documents, and the exporter has assurance of payment, as without payment, the exporter would retain possession of the bill of lading, and hence effective ownership of the goods.

Technologies already exist to enable the exchange of bills of lading in electronic form. To date, however, this has primarily been used only in closed commercial systems involving private centralised registries whereby access was possible through contract and membership. The MLETR provides the framework to enable the implementation of global open systems.

Each APEC economy has in place its own applicable laws on transferable documents and instruments (for example bills of lading, bills of exchange). MLETR makes no attempt to make any changes to the substantive law. Its purpose is to facilitate an electronic form for the documents and instruments.[7]

MLETR builds on the core principles of the *functional equivalence* of paper-based and electronic methods and *technology neutrality* underpinning all UNCITRAL texts on electronic commerce.

- **Functional equivalence.** The principle of functional equivalence provides that where the electronic form is functionally equivalent to the traditional paper-based form, it should be treated equally by the law and the law should not discriminate against transactions because of their electronic form.
- **Technological neutrality.** The principle of technological neutrality entails adopting a system-neutral approach, enabling the use of a variety of technological models, whether based on registry, token, distributed ledger, or other technology. The text of the MLETR

[6] C. Ward, "Electronic Bills of Lading: A Good Idea on Paper?" WEST (West P&I Waypoints Magazine), no. 1, 24–25, https://www.westpandi.com/getattachment/95ae2336-edf0-4279- aab7-cc98df3823e4/west_waypoints_magazine_issue01_under_attack_pdf.pdf

[7] See UNCITRAL, 'Explanatory Note to the UNCITRAL Model Law on Electronic Transferable Records' (2017) UN Publication No E.17.V.5 [11], [22]-[24], [37]-[38], [51], [54], [86], [107], [111] and [114].

remains neutral in its references to the underlying technology, although the Explanatory Note to the MLETR does refer to 'enabling the use of various models whether based on registry, token, distributed ledger or other technology'.[8]

Three key provisions of MLETR are important to provide for the recognition, operation and function of ETRs.

Table 1- MLETR's key provisions

Provision	Application in MLETR
Electronic Transferable Record (ETR)	The key provision of the MLETR is article 10. Where the law requires a transferable document or instrument, that requirement is met by an electronic record to result in an electronic transactions record (ETR) where two conditions are met. First, the electronic record must contain the information that would be required to be contained in the corresponding paper-based transferable document or instrument. This reinforces the notion that the MLETR makes no attempt to alter the underlying substantive law.[9] Second, a 'reliable method' must be used 'to identify that electronic record as the electronic transferable record'; 'to render that electronic record capable of being subject to control from its creation until it ceases to have any effect or validity'; and 'to retain the integrity of that electronic record'.
Control and Transfer of Control	Transferable documents or instruments typically operate on the principles of 'possession' yielding specific rights, economic value, legal possession, and/or ownership upon the holder. 'Delivery' of that document or instrument facilitates the transfer of those corresponding rights and values. The MLETR adopts the concept of 'control' intended to be the electronic functional equivalent of the paper-based notion of 'possession'. The transfer of control is intended to be the electronic functional equivalent of the paper-based notion of 'delivery'. A reliable method is required to establish both control and transfer of control.
Reliable method	The expression 'reliable method' is nebulous and flexible. The MLETR Article 12 establishes a general reliability standard for determining whether the technological method used for an ETR is 'as reliable as appropriate'. That provision commences with a non-comprehensive list of seven factors to guide the determination of whether a particular method is 'as reliable as appropriate'. The article provides a second alternative to establish the reliability method, namely if it can be 'Proven in fact to have fulfilled the function by itself or together with further evidence'. Most likely, it will be the latter test that is invoked in future disputes and analysis, as it bolsters the extent to which commercial parties may rely upon ETRs. The "as reliable as appropriate" standard provides an ex ante approach to determine compliance, particularly in encouraging the design of a functional system, whilst the "proven in fact" approach lends itself more to an ex post approach.[10] Utilising the 'reliability standard', the MLETR provides commercial parties and governments with the tools to implement technology, which is proven and trustworthy, thus providing the highest level of security for all commercial parties and governments.

ii. The economic benefits of MLETR and paperless trade

Paperless trade can increase efficiency, reduce costs and enhance trade. By aligning their trading systems with MLETR and switching away from physical paper documents to electronic transferable records, APEC can realise these benefits.

Recent economic modelling by the Centre of Policy Studies, Victoria University (CoPS)[11] suggests the benefits are potentially large. CoPS modelled the impact of adopting MLETR and measures to move toward paperless trade in APEC. The results indicate large GDP gains across all of APEC could be achieved - in the order of USD2 trillion.[12] There would also be gains in employment, increases in real wages and increases in trade volumes for all APEC economies from adoption of MLETR and paperless trade measures.

[8] UNCITRAL, 'Explanatory Note to the UNCITRAL Model Law on Electronic Transferable Records' (2017) UN Publication No E.17.V.5 [18].
[9] UNCITRAL, 'Explanatory Note to the UNCITRAL Model Law on Electronic Transferable Records' (2017) UN Publication No E.17.V.5 [22-25]
[10] See UNCITRAL, 'Explanatory Note to the UNCITRAL Model Law on Electronic Transferable Records' (2017) UN Publication No E.17.V.5 124
[11] James Giesecke and Robert Waschik, *Paperless Trade in APEC: Modelling the economic consequences of implementing the Model Law on Electronic Transferable Records (MLETR)*, Centre of Policy Studies, Victoria University, October 2024
[12] Present value of the aggregated real GDP gains across all APEC regions over the study period 2024-2033.See Annex 2.

Benefits for APEC

Digitisation of trade documents can increase efficiency, reduce costs and enhance international trade facilitation. While this is generally accepted, there is very little work quantifying the actual gains. New modelling by CoPS seeks to quantify the potential economic effects arising from productivity gains from implementation of paperless trade in APEC. Using a GTAP-FIN computable general equilibrium model, CoPS modelled the adoption of paperless trade in APEC as a series of productivity improvements to international trade over a three-year 'implementation' period of 2024-2026.[13]

The results suggest there are potentially large economic benefits for APEC economies, in terms of GDP gains, labour market impacts and other macroeconomic indicators. The results are explained in further detail below.

When interpreting the results, several qualifications should be noted. First, simply adopting or aligning legislation with MLETR will not automatically generate economic benefits or practical changes in trade processes. Effective implementation will be required and must be in place to fully leverage legislative changes. This will likely require efforts that could take many years to fully implement, extending beyond adoption of MLETR, and which will vary by economy. Second, there is a lack of detailed direct estimates of potential gains from paperless trade that would typically form inputs to the modelling, requiring the adaptation of existing inputs to proxy the effects of paperless trade adoption. The base assumptions adopted in the modelling exercise (beyond MLETR enactment), the data limitations, and therefore the results, must be viewed with these caveats in mind. The methodology adopted is summarised in the Box 4 below and elaborated in further detail at Annex 2.

Box 4. Quantifying the gains of paperless trade across APEC

CoPS used their GTAP-FIN computable general equilibrium (CGE) model to estimate the efficiency gains from adoption of the MLETR and subsequent implementation of paperless trade by APEC economies, assuming these efficiency gains were phased in over 2024-2026.

Since paperless trade initiatives are themselves elements of trade facilitation, the modelling exercise builds on the literature on modelling of trade facilitation in CGE models that uses the so-called "Iceberg Method", by which costly documentary, border and customs clearance procedures cause some amount of trade to "melt". The adoption of paperless trade measures implies that documentary procedures become more efficient and less costly, so the amount of trade that "melts" diminishes. These efficiency gains are incorporated into the GTAP-FIN CGE model through a series of calibrated shocks that simulate the impact of trade facilitation as export- and import-augmenting technical change, by which the same amount is exported, but a larger amount arrives at the importer compared to before trade facilitation measures were adopted.

There are no studies that estimate the productivity shocks used to simulate the impacts of paperless trade. This is an obvious important constraint on the results. To quantify the potential productivity effects from implementation of paperless trade CoPS therefore adapted estimates from Walmsley and Minor (2016[14]), which simulated the impacts of the WTO's Trade Facilitation Agreement (TFA). The shocks from this TFA study were translated to illustrate the potential gains from adoption of paperless trade in APEC over 2024-2033. In constructing their shocks, Walmsley and Minor incorporated information to account for both documentary compliance (which would account for some features of paperless trade) and border compliance measures. But since the estimated shocks in Walmsley and Minor are dated, it is not clear how well their shocks accounting for documentary compliance captures the improvements due to paperless trade. And their shocks also account for border compliance measures which are not directly features of a move to paperless trade systems. Walmsley and Minor's TFA shocks are relevant to the quantification of the magnitude of potential gains from paperless trade, although they are not in themselves direct estimates of such gains. Hence, further work is needed to address direct estimation of paperless trade efficiency gains distinguishing commodities, trade origins, and trade destinations. Nevertheless, the aggregate results achieved are within a plausible bound, when these results are compared with estimates of paperless trade gains from ICC.[15] The ideal data would be

[13] See Annex 2 footnote 18 for further detail on the applicable implementation period.
[14] Walmsley, Terrie and Peter Minor, (Revised March 2016), "Willingness to Pay in CGE Models: Estimating the benefits of improved customs efficiencies within the WTO Trade Facilitation Agreement", ImpactEcon WORKING PAPER—002 REV-2.
[15] ICC (2021a) "G7: Creating a modern digital trade ecosystem – cutting the cost and complexity of trade", United Kingdom International Chamber of Commerce, October 2021.

both economy specific (identifying both importer and exporter) and commodity specific and would focus specifically on the resource savings due to a move to paperless trade.

More detail on the methodology is set out in James Giesecke and Robert Waschik, *Paperless Trade in APEC: Modelling the economic consequences of implementing the Model Law on Electronic Transferable Records (MLETR)*, Centre of Policy Studies, Victoria University, October 2024.See Annex 2.

Source: Giesecke and Waschik, 2024

Impacts on GDP

GDP gains across all of the APEC region of approximately USD2.0trillion could be achieved following the three-year adoption and implementation of paperless trade. Table 2 below summarises the real GDP gains for each APEC economy, reporting the present value of the deviations in real GDP over the reference period 2024-2033.[16]

Table 2. Present value of real GDP deviations (US$millions, 2024 terms)

Australia	30,389	**New Zealand**	4,906
Brunei Darussalam	477	**Papua New Guinea**	7,823
Canada	63,470	**Peru**	10,924
Chile	8,478	**The Philippines**	40,250
China	759,890	**Russia**	57,731
Hong Kong, China	22,389	**Singapore**	60,795
Indonesia	48,749	**Chinese Taipei**	81,921
Japan	97,918	**Thailand**	71,951
Republic of Korea	86,321	**United States**	250,954
Malaysia	73,404	**Viet Nam**	124,228
Mexico	118,417	***APEC TOTAL***	***2,021,383***

Source: Giesecke and Waschik, 2024

Open economies for which trade represents a larger share of GDP generally experience larger real GDP gains (see Fig. 1a below), as do developing economies upon adopting paperless trade. This result mimics that found in earlier studies of the WTO's Trade Facilitation Agreement (TFA).[17] The corollary of this is that real GDP gains tend to be lower for those economies that are more developed and/or have lower trade shares in GDP (See Fig. 1c below).

Despite these differences, increases in real GDP are relatively large: for example, Malaysia; Singapore; and Thailand each see increases in real GDP of 1-1.5 percent, and Viet Nam sees increases in real GDP of almost 3 percent (See Fig 1a). These gains are largely attributable to the direct effects on GDP of the improvements in efficiency arising from the adoption of paperless trade.

The impacts on real GDP in each APEC economy in Figs.1a – 1c, are outlined below, illustrated in three groups of seven economies in terms of their 2033 real GDP deviation results.

- By 2033, the seven APEC economies expected to realise the largest real GDP gains (Group A) are Viet Nam (2.9 percent); Malaysia (1.5 percent); Singapore (1.3 percent); Thailand (1.2 percent); PNG (1.1 percent); Chinese Taipei (0.95 percent); and Mexico (0.89 percent). These economies are characterised by having some combination of high trade

[16] CoPS uses 2.5per cent as the real discount rate based on the latest Office of Management and Budget guidelines (see OMB Circular No. A-94, Appendix C, https://www.whitehouse.gov/wp-content/uploads/2023/12/CircularA-94AppendixC.pdf).
[17] including Walmsley and Minor (2016) and others, which found that developing economies could expect larger increases in real GDP upon adoption of the WTO TFA.

shares in GDP and high potential trade efficiency gains from paperless trade adoption. See Figure 1a below.

- The seven APEC economies with the next largest real GDP gains by 2033 (Group B) are the Philippines (0.76 percent); Hong Kong, China (0.51 percent); Republic of Korea (0.36 percent); Peru (0.35 percent); China (0.35 percent); Russia (0.35 percent); and Brunei Darussalam (0.32 percent). See Figure 1b below.
- Indonesia (0.27 percent); Canada (0.27 percent); Chile (0.22 percent); Japan (0.19 percent); New Zealand (0.17 percent); Australia (0.15 percent); and United States (0.10 percent) (Group C) experience smaller gains in real GDP. These economies generally have some combination of low trade shares in GDP and lower potential efficiency gains from paperless trade adoption. See Figure 1c below.

Figure 1a: Real GDP deviations for Group A (% deviation from baseline)

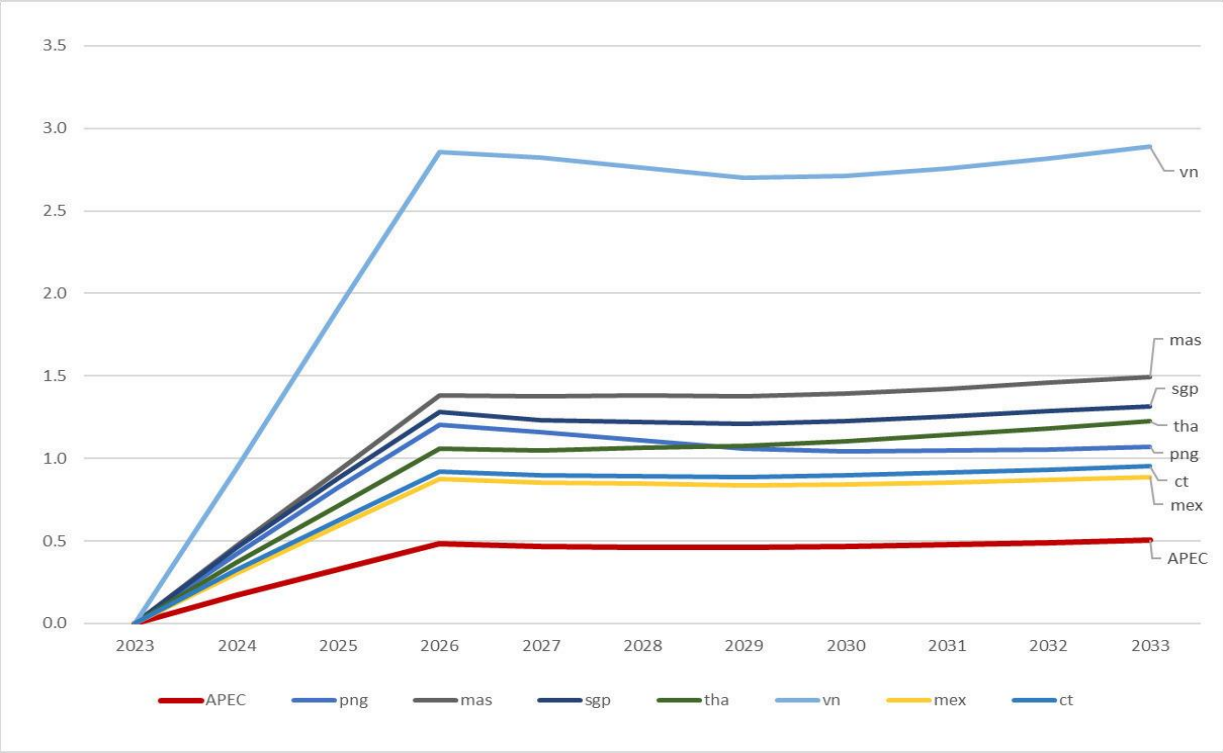


Figure 1b: Real GDP deviations for Group B (% deviation from baseline)

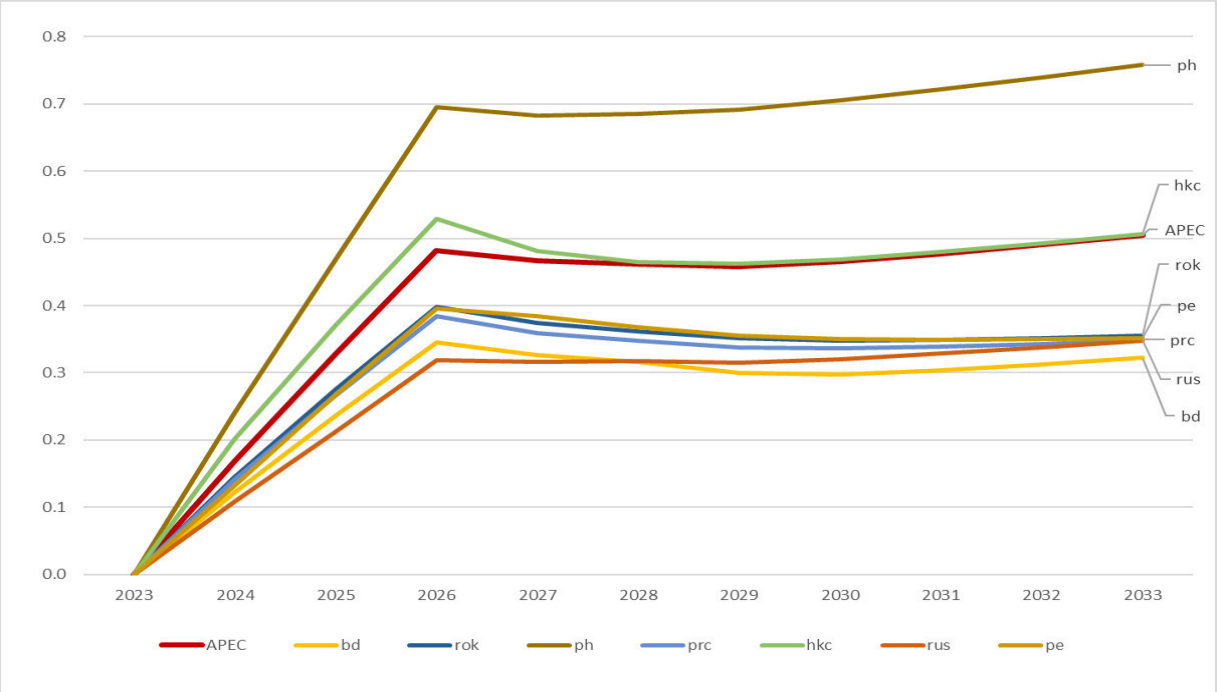
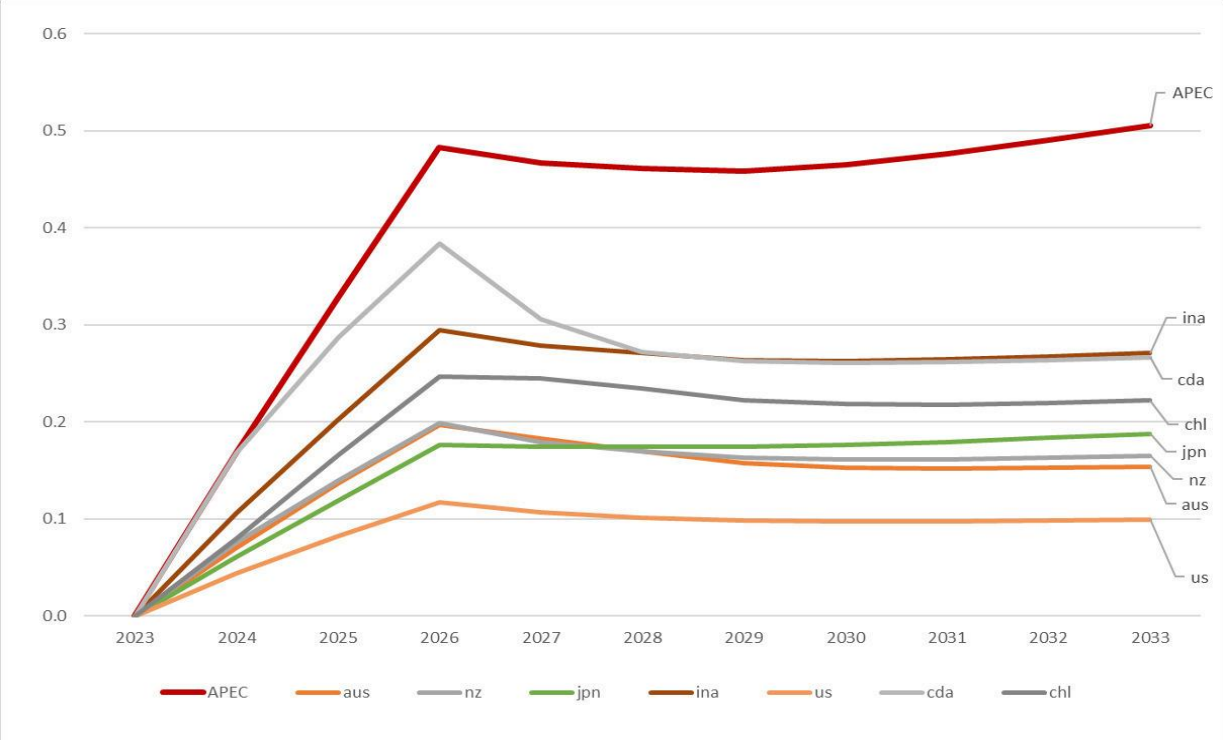


Figure 1c: Real GDP deviations for Group C (% deviation from baseline)



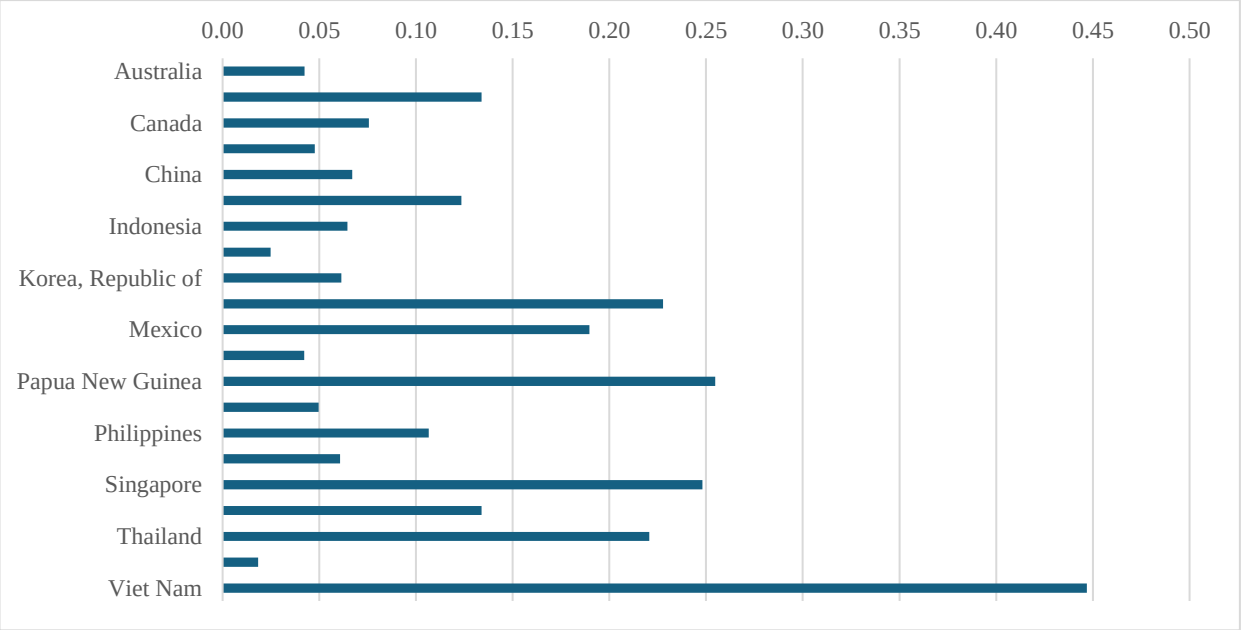
Impacts on employment and wages

The modelling results also estimate potential gains in employment and increases in real wages arising from adoption of paperless trade measures. Short-term gains from paperless trade are largely manifested in employment expansions in APEC economies, but in the long-term are largely expressed as real wage gains.

The results show that employment gains across APEC peak in 2026 at almost 0.15 percent relative to baseline. Thereafter, the positive labour market pressures generated by paperless trade gradually translate into higher real wages.

- The impact on employment in some economies is larger than others, but positive in all economies. Malaysia; Thailand; and Singapore all see increases in employment that reach around 0.6 percent above baseline by 2026, while Viet Nam sees an increase in employment of almost 1.2 percent above baseline by 2026. See Figure 2 below.
- The time paths for the employment deviations in all APEC economies follow a pattern of growth and peak over the three years of the implementation period, followed by decline as wage growth returns employment to baseline.
- In addition, real wages increase in all APEC economies. By 2033, the average real wage increase experienced by APEC economies is 0.7 per cent. The highest real wage gains are experienced by economies that are developing and/or have high trade shares. Lower real wage gains are experienced by economies that are developed and/or have low trade shares in GDP. See Annex 2 for further details.

Figure 2: Annual average employment deviations, (percent from baseline) 2024-2033



Other macroeconomic variables

By 2033 APEC economies will likely have largely adjusted to the implementation of paperless trade. Hence, the impacts on industry, consumers, workers and trade can be interpreted in terms of the policy's enduring economic consequences.

The results indicate beneficial impacts on a range of other macroeconomic indicators from adoption of paperless trade and provide insights into the distribution of the gains across industry, consumers, and workers and for trade. See Table 3 below. Key results include:

- GDP rises in all economies, with these increases largest for developing economies and economies with high trade shares. (See column 1)
- Positive deviations in trade (export and import) volumes are generated for all APEC economies. (See columns 5 and 6).

- Private and public consumption in each economy moves in proportion with each economy's net national income. Adoption of paperless trade generates real GDP gains which, after accounting for capital payments and terms of trade effects, translate into domestic income gains for all economies. These domestic income gains account for positive outcomes for private and public consumption spending. (See columns 2 and 4).
- Following initial employment expansions in APEC economies, by 2033, employment outcomes are expected to have largely returned to baseline, with positive labour demand being expressed in real wage increases. (See columns 7 and 9).
- At the macroeconomic level, industry benefits in every economy, via the positive outcomes for investment and capital (as reported in columns 3 and 8).

Thes results of the CoPS analysis builds on earlier studies that have estimated the size of the potential economic benefits from cost reductions arising from wider adoption of electronic transferable records. While not APEC specific, they are helpful in identifying the many potential sources of productivity gains from paperless trade, and in providing broad estimates of the potential value of aggregate efficiency gains. (See Box 3 below).

Box 3. The economic benefits of digitalised trade systems

The International Chamber of Commerce (ICC) notes adopting a fully digitalised trade system could lead to an average 84 percent reduction in trade costs across the G7+.[18] Trade cost savings of a similar magnitude are anticipated by the Commonwealth Secretariat,[19] which anticipates that digital trade facilitation across the Commonwealth could reduce trade costs by an average of around 75 percent.

The ICC has[20] also quantified the potential bureaucratic savings from digitalizing the trade system. It argues that trade-related bureaucracy will be significantly reduced by decreasing the time spent on cross-border trade by approximately 81 percent across the G7. This includes reducing the average number of days for border compliance from 25 days to less than one day and reducing time spent on compliance from an average of 2.3 days to less than half a day.[21] Potential time savings for completing cross-border documentation and transport processes of around 80 percent across all economies might be achievable, with expert feedback suggesting that once standardization is achieved, paperless trade could reduce time costs worldwide from 25 days to just 5 days.[22]

In the UK, the ICC[23] analysed the benefits of adopting electronic transferable records, concluding that this could reduce document processing times by up to 75 percent, and generate approximately GBP224 billion in efficiency savings upon implementation (by 2024). These savings could come from efficiency improvements related to bills of lading (GBP171 billion), bills of exchange (GBP26 billion), and promissory notes (GBP27 billion). McKinsey estimates implementing an electronic bill of lading system could save USD6.5 billion in direct costs and enable between USD30 billion and USD40 billion in new global trade volume by 2030.[24]

Source: Davidson and AASC, *A Path to Paperless Trade: exploring adoption of the UNCITRAL Model Law on Electronic Transferable Records (MLETR), or equivalent arrangements, in APEC*, Policy Brief, August 2024

Furthermore, the experience of other economies outside APEC also shows that adoption of measures for paperless trade can lead to improvements in security, reductions in duplications and a minimization of risks of fraud and errors.[25] It can also help to reduce friction costs, improve data quality, streamline the movement of both goods and associated documents, and better align

[18] International Chamber of Commerce, "New ICC survey shows pace of trade finance Digitalisation", (2018) https://iccwbo.org/news-publications/news/new-icc-survey-shows-pace-trade-finance-digitalisation/
[19] Commonwealth Secretariat (2022) "Quantitative Analysis of the Move to Paperless Trade", Commonwealth Secretariat, Marlborough House, London.
[20] ICC (2021a) "G7: Creating a modern digital trade ecosystem – cutting the cost and complexity of trade", United Kingdom International Chamber of Commerce, October 2021.
[21] *Ibid.*
[22] *Ibid.*
[23] ICC (2021) "Creating a Modern Digital Trade Ecosystem: The economic case to reform UK law and align to the UNCITRAL Model Law on Electronic Transferable Records", United Kingdom International Chamber of Commerce, May 2021. See https://cdn.shopify.com/s/files/1/2992/1976/files/ICCUK-Coriolis-MLETR-Alignment-UK_Business_Case.pdf?v=1619683679
[24] McKinsey & Company (2022) "The multi-billion-dollar paper jam: unlocking trade by digitalizing documentation", October 2022.
[25] Castellani, L. (2023) "Status update: MLETR adoption in the G7 and emerging markets", Retrieved from: https://www.tradefinanceglobal.com/posts/status-update-mletr-adoption-in-the-g7-and-emerging-markets/.

economic and trade concerns with commercial reality.[26] Commercial parties benefit from improvements in governance and in business processes, including ancillary enterprises providing transport, logistics, finance, and insurance.

[26] See also Alan Davidson, “Implementation and Implications of the UNCITRAL Model Law on Electronic Transferable Records in Trade Finance”, Chapter 11, Christopher Hare and Dora Neo (eds), *Trade Finance - Technology, Innovation and Documentary Credits*, Oxford University Press. 2021.

Table 3: 2033 Macroeconomic outcomes (per cent deviation from baseline)

	(1) Real GDP	(2) Real private consumption	(3) Real investment	(4) Real public consumption	(5) Real exports	(6) Real imports	(7) Real wage	(8) Capital stock	(9) Employment
Australia	0.15	0.14	0.13	0.14	0.27	0.24	0.23	0.03	0.00
Brunei Darussalam	0.32	0.34	0.50	0.34	0.06	0.27	0.78	0.16	0.01
Canada	0.27	0.29	0.35	0.29	0.31	0.44	0.37	0.13	0.00
Chile	0.22	0.14	0.16	0.14	0.40	0.15	0.25	0.04	0.00
China	0.35	0.33	0.37	0.33	0.98	0.92	0.39	0.16	0.00
Hong Kong, China	0.51	0.62	0.82	0.62	0.17	0.45	0.64	0.30	0.00
Indonesia	0.27	0.30	0.22	0.30	0.59	0.61	0.35	0.08	0.00
Japan	0.19	0.18	0.25	0.18	0.44	0.53	0.15	0.09	0.00
Korea, Republic of	0.36	0.30	0.26	0.30	0.60	0.49	0.35	0.10	0.00
Malaysia	1.50	1.13	1.85	1.13	1.36	1.12	1.35	0.83	0.01
Mexico	0.89	0.72	0.94	0.72	1.21	0.92	1.11	0.32	0.01
New Zealand	0.17	0.21	0.18	0.21	0.24	0.41	0.23	0.08	0.00
Papua New Guinea	1.07	0.79	1.45	0.79	0.90	0.58	1.32	0.72	0.01
Peru	0.35	0.21	0.24	0.21	1.20	0.63	0.26	0.10	0.00
Philippines	0.76	0.47	0.78	0.47	1.30	0.74	0.58	0.39	0.00
Russia	0.35	0.33	0.56	0.33	0.43	0.63	0.36	0.17	0.00
Singapore	1.32	0.87	1.72	0.87	1.17	1.01	1.36	0.79	0.01
Chinese Taipei	0.95	0.61	1.30	0.61	1.29	0.99	0.77	0.58	0.00
Thailand	1.23	0.97	2.01	0.97	1.12	1.15	1.28	0.79	0.01
United States	0.10	0.08	0.11	0.08	0.46	0.39	0.10	0.04	0.00
Viet Nam	2.89	2.15	3.38	2.15	2.99	2.57	2.59	1.79	0.02

II. Adoption of MLETR across APEC – Legal issues and constraints

APEC has an opportunity to realise the benefits of paperless trade through region wide adoption of the MLETR, or equivalent arrangements. Some economies are already leading the way.

While every economy has the necessary preliminary legislation in place to adopt MLETR, many still have several steps ahead of them. There are also several legal constraints to the achievement of wider and uniform adoption of MLETR across APEC that will need to be addressed and overcome.

i. Adoption of MLETR across APEC

Despite the apparent benefits of paperless trade, adoption of the MLETR across APEC is not widespread. To date, four APEC economies have enacted provisions based on the MLETR or which are regarded as equivalent.[27] Mexico; Papua New Guinea (PNG); and Singapore have recently adopted provisions of MLETR, or which are functional equivalent. United States has had in place provisions in its Uniform Commercial Code which are regarded as MLETR compliant. However, moves toward adoption of MLETR are progressing. Several other economies are in the process of considering its adoption or are considering equivalent arrangements. The status and progress of adoption is unclear for some economies. Given that global adoption of MLETR or equivalent arrangements is still in the early stages- involving to date about 12 economies - APEC economies compare favourably.[28]

The table below illustrates the approaches to MLETR adoption taken by the four APEC economies that have enacted MLETR provisions, or equivalent arrangements.

Table 4. APEC economies that have enacted MLETR, or equivalent

Economy	MLETR adoption
Singapore	Singapore has enacted the MLETR in full. Part 2A "Electronic Transferable Records" of the *Electronic Transactions Act 2010* (Sing) became operative in 2021.
Papua New Guinea	The Papua New Guinea *Electronic Transactions Act 2021* (PNG) came into operation in 2022. This legislation simultaneously incorporated provisions of five UNCITRAL texts: the MLEC, the MLES, the ECC, the Model Law on the Use and Cross-border Recognition of Identity Management and Trust Services (2022), in addition to the MLETR (Model Law on Electronic Transferable Records (2017).
United States	United States has not adopted the MLETR but has equivalent laws which predate the MLETR. These laws deal with specific instruments, and do not apply to all possible transferable documents and instruments as defined by the MLETR. UCC Article 7 applies to electronic bills of lading and warehouse receipts,[29] and UCC Article 9 applies to security interests in electronic promissory notes.[30] The US *Uniform Electronic Transactions Act* (UETA) and *Electronic Signatures in Global and National Commerce Act 2000* (ESIGN Act) contain provisions on electronic records generally.[31] In the ESIGN Act although the expression "electronic transferable record" is not used, Title II is entitled "Transferable Records", and provides for parallel concepts of the MLETR, including *control* and *transfer of control*.
Mexico	In Mexico in March 2024, amendments were made to the Mexico *General Law of Negotiable Instruments and Credit Transactions*, and to the *General Law of Credit Auxiliary Activities and Organisations* to implement electronic negotiable instruments and modify laws dealing with warehouse deposit certificates and public bonded warehouses. The amendments do not follow the approach or wording of the MLETR, but do enable the electronic issue, transfer, and endorsement of negotiable instruments

[27] See Annex 1 which provides details of each APEC economy's e-commerce legislation and MLETR status.
[28] According to the UNCITRAL to date globally only 10 jurisdictions have implemented the MLETR, however the site has not included the Mexico or the US, nor does it mention planned adoption. See https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_transferable_records/status
[29] UCC Article 7 deals generally with "Documents of Title" and has been adopted by all 50 US states and the District of Columbia. See Legal Information Institute, Cornell University, Article 7 https://www.law.cornell.edu/ucc/7
[30] UCC Article 9 deals generally with "Secured Transactions", and has been adopted by all 50 US states, the District of Columbia, US Virgin Islands and Puerto Rico. See Legal Information Institute, Cornell University, Article 9 https://www.law.cornell.edu/ucc/9
[31] See Annex 1(xx).

	such as bills of exchange, promissory notes, cheques, convertible notes, certificates of ownership and warehouse deposit certificates.

Domestic e-commerce laws in APEC economies

While adoption of the MLETR across APEC is at different stages, all economies have enacted electronic transactions legislation to provide for the functional equivalence and recognition of electronic writing and electronic signatures, which is a necessary first step for the adoption of the MLETR. The current legislation is based on the UNCITRAL texts, or the equivalent, to the MLEC, the MLES, the ECC or a combination. Such legislation is a necessary first stage for an economy be to 'MLETR ready'. These texts incorporate principles of functional equivalence and non-discrimination.

Table 5 below illustrates the status of the "Preparatory e-commerce law" for each APEC economy; and the current status of adoption of the MLETR. Further detail is at Annex 1.

Table 5. APEC economies implementation of General E-commerce laws and Status of Adoption of the MLETR

Economy	Preparatory e-commerce law	Status of adoption of MLETR
Australia	Enacted provisions of the MLEC and the ECC. Nine Electronic Transactions Acts – Commonwealth, 8 sub economy jurisdictions.	Exploring options to implement MLETR aligned legislation. Stakeholder Consultation paper released in September.[32]
Brunei Darussalam	Enacted provisions of the MLEC. *Electronic Transactions Act No 196*.	Political support. Acknowledged the importance of improving government services through digital technology to increase security and convenience for the citizens.[33]
Canada	Enacted all provisions of the MLEC including articles 16 and 17.	Engaged in Stakeholder Consultation. The Digital Governance Council of Canada and the ICC-DSI have developed a Technical Assessment Framework for evaluating the reliability of digital services and networks that enable the transfer of ETRs within supply chains.[34]
Chile	Law No. 19.799, Ley sobre Documentos Electrónicos, Firma Electrónica y Servicios de Certificación de Dicha Firma [Law on Electronic Documents, Electronic Signatures, and Certification Services], 2002	Political support expressed through the adoption of DEPA and the CPTPP.[35]
China	Enacted provisions of the MLEC and the ECC. *Electronic Signatures Law of the People's Republic of China of 2004, and amended the law twice- in 2015 and 2019 - respectively.*	Maritime Law to be reformed with intention to adopt the MLETR.[36] There are plans to promote the usage of ETRs such as e-B/L compliance with the MLETR in the Shanghai Pilot Free Trade Zone.

[32] Australian AGD "Paper to Consultation to inform options for implementing the Model Law on Electronic Transferable Records in Australia" 2024, https://consultations.ag.gov.au/international-relations/mletr/

[33] Monetary Authority of Singapore, "Foundational Digital Infrastructures for Inclusive Digital Economies", (2021) see pages 30-33. https://www.mas.gov.sg/-/media/MAS/Fintech/FDI/Foundational%20Digital%20Infrastructures%20for%20Inclusive%20Digital%20Economies.pdf; ESCAP *MLETR Tracker,* Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr

[34] See Government News Release: https://www.canada.ca/en/innovation-science-economic-development/news/2022/05/minister-champagne-concludes-visit-to-germany-and-belgium.html; and the Joint Cooperation Committee Report on the State of the EU-Canada Relationship (2020-2022) paragraph 49, https://www.international.gc.ca/world-monde/international_relations-relations_internationales/can-eu_agreement-accord_can-ue-2022.aspx?lang=eng

[35] ESCAP *MLETR Tracker*, Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr; see Estrategia de Transformación digital: Chile Digital 2035, [Strategy Digital Transformation; Digital Chile 2035] https://www.cepal.org/sites/default/files/events/files/estrategia_de_transformacion_digital_chile_2035_.pdf; See also table 6.

[36] Deutsche Bank Corporate Bank, A Guide to Digital Trade Finance: https://www.gleif.org/lei-solutions/featuring-the-lei/global-value-chains/db-guide-to-digital-trade-finance-secured.pdf

Hong Kong, China	Enacted provisions of the MLEC. *Electronic Transactions Ordinance (Chapter 553 of the Laws of Hong Kong, China).*	*Bills of Lading and Analogous Shipping Documents Ordinance (Chapter 440 of the Laws of Hong Kong, China)* gives power to adopt a regulation for adoption electronic bills of lading. (Excludes Bills of Exchange)
Indonesia	Law of the Republic of Indonesia Number 11 of 2008 Concerning Electronic Information and Transactions.	"It is the view of Indonesia that the model law on electronic transferable records came up at the opportune moment as guidance for us in designing our domestic legislation on electronic transactions."[37]
Japan	Law Concerning Electronic Signatures and Certification Services, Law No. 102 of 2000.	Legislative drafting commenced. In 2022, the Japan Legislative Council's Sub-committee on Commercial Law was established on the Electronic Bill of Lading law; In 2023, an Interim draft was compiled, public comments sought and the outline of the bill completed with Legislative Bureau review. Submission to parliament expected in 2024-25, promulgation in 2025-26 and enforcement in 2027.[38]
Republic of Korea	Enacted provisions of the MLEC and the ECC. Digital Signature Act No. 5792/1999	Enacted laws on electronic promissory notes and electronic bills of lading, (applies to domestic trade).[39] No clear path for MLETR.
Malaysia	Enacted provisions of the MLEC Akta Perdagangan Elektronik 2006.	Domestic analysis in progress.[40] Initiatives unclear.
Mexico	Enacted provisions of the MLEC. Ley de Firma Electrónica Avanzada.	Legislation adopted in 2024 which partly parallels the MLETR.
New Zealand	Enacted provisions of the MLEC and the ECC. *Commerce and Commercial Law Act 2017*.	Political support.[41]
Papua New Guinea	Enacted provisions of the MLEC and the ECC. No. 38 - *Electronic Transactions Act 2021*.	Fully adopted the MLETR into law.
Peru	Law 27269 of 2000 - Law on Digital Signatures and Certification	Political support indicated.[42] Domestic initiatives unclear.
The Philippines	Enacted provisions of the MLEC and the ECC - *Electronic Commerce Act of 2000*.	Adoption in progress. The ESCAP *MLETR Tracker* indicates stage of legislative drafting.[43]
Russian Federation	Enacted Federal Law No. 476-ФЗ on Electronic Signatures and protection of the rights of legal entities and individual entrepreneurs.	Political support indicated.[44] Domestic initiatives unclear.
Singapore	Enacted provisions of the MLEC and the ECC. *Electronic Transactions Act 2010*.	Fully adopted the MLETR into law. Part 2A *Electronic Transactions Act 2010*.
Chinese Taipei	Electronic Signatures Act 2001.	Political Support indicated.[45] Domestic initiatives unclear.
Thailand	Enacted provisions of the MLEC. *Electronic Transactions Act 2001*	Electronic Trade Documents Bill is in the review stage before going to Parliament[46] .
United States	Enacted provisions of the MLEC. *Uniform Electronic Transactions Act, Electronic Signatures in Global and National Commerce Act* (ESIGN).	Regarded as MLETR compliant. UCC Article 7 applies to electronic bills of lading and warehouse receipts. UCC Article 9 applies to security interests in electronic promissory notes. UETA and ESIGN also contain provisions on electronic transferable records. UCC

[37] Statement of the Permanent Mission of the Republic of Indonesia to the United Nations - October 2017.
[38] In June 2023, "digitalization of trade procedures" was listed for in the government's priority measures. https://uncitral.un.org/sites/uncitral.un.org/files/pages/RCAP/day_1_biz_track_2_mr._satoru_someya.pdf
[39] Korean Statutes: Regulations on Implementation of the provisions of the Commercial Act Regarding Electronic Bills of Lading: https://elaw.klri.re.kr/eng_service/lawView.do?hseq=27964&lang=ENG
[40] ESCAP *MLETR Tracker*, Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr
[41] The ESCAP Cross-Border Paperless Trade Database *MLETR Tracker*, provides that New Zealand has only reached stage 2 of eight possible stages towards "Entry into Force". The stages completed to date are MLETR Socialisation and Political Support.
[42] ESCAP *MLETR Tracker*, Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr
[43] Ibid.
[44] ESCAP *MLETR Tracker*, Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr
[45] ESCAP *MLETR Tracker*, Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr
[46] Dhiraphol Suwanprateep, Pattaraphan Paiboon and Khunawut Tongkak, "The Cabinet approved new principles for an amendment to the Electronic Transactions Act B.E. 2544 (2001)". Baker McKenzie. https://www.lexology.com/library/detail.aspx?g=157c937b-6292-4fdf-a5b7-b3c3d13a7400

		Article 12 may apply to electronic promissory notes (substance, not security interests).
Viet Nam	Law on E-Transactions No.51/2005/QH11.	Position unclear

Source: Alan Davidson and the Australian APEC Study Centre, A Path to Paperless Trade: exploring adoption of the UNCITRAL Model Law on Electronic Transferable Records (MLETR), or equivalent arrangements, in APEC, Policy Brief, August 2024

Annex 1 provides a summary of the current electronic transactions legislation and the UN texts on which they are based applicable to each APEC economy.

Commitments in international agreements

Most APEC economies are also party to trade agreements, and participate in regional and multilateral agreements, which include commitments to facilitate paperless trade. Notably, all intra-APEC trade agreements (including more recent 'digital economy agreements') already require the Parties to maintain legal frameworks for electronic transactions. There has also been a trend over time in the agreements towards encouraging the use of electronic documents (See Chart 1 Annex 3).

Currently, four of the agreements involving APEC economies include an explicit mention of MLETR: the Australia-Singapore Digital Economy Agreement (2020), the Digital Economy Partnership Agreement (2020), the Singapore-United Kingdom Digital Economy Agreement (2022), the Korea-Singapore Digital Partnership Agreement (2023).[47] The recently stabilised text of the Agreement on E-commerce, negotiated under the WTO Joint Statement Initiative on E-commerce to which almost all APEC economies are participants, requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR. Other agreements in the region, including the Regional Comprehensive Economic Partnership, also refer to "other applicable international conventions and model laws", which can potentially encompass MLETR.[48]

Table 6 below summarises the participation of APEC economies in trade agreements and in other international initiatives supporting MLETR and paperless trade. Further detail on the agreements is at Annex 3.

Table 6. APEC economies' participation in trade agreements and international initiatives supporting MLETR and paperless trade

Economy	AAEC	RCEP	G7 Decl	DEPA	CPTA	SADEA	CPTPP
Australia		✓				✓	✓
Brunei Darussalam	✓	✓					✓
Canada			✓	✓**			✓
Chile				✓			✓
China		✓		✓**	✓		
Hong Kong, China		✓^					
Indonesia	✓	✓					
Japan		✓	✓				✓
Republic of Korea		✓		✓	✓		
Malaysia	✓	✓					✓
Mexico							✓
New Zealand		✓		✓			✓
Papua New Guinea							
Peru				✓**			✓
The Philippines	✓	✓			✓		

[47] Three other agreements involving APEC and non-APEC economies also mention MLETR: the Singapore-United Kingdom Digital Economy Agreement; the Australia-United Kingdom FTA and the New Zealand- United Kingdom FTA. See Annex 3.
[48] A similar formulation is used in the Second Protocol to the ASEAN-Australia-New Zealand FTA (2023), the ASEAN Agreement on E-Commerce (2019) and the UN Framework Agreement on Facilitation of Cross-Border Paperless Trade in Asia and the Pacific (2021).

Russian Federation				✓		
Singapore	✓	✓	✓	✓	✓	
Chinese Taipei						
Thailand	✓	✓				
United States			✓			
Viet Nam	✓	✓			✓	

** Has applied to accede DEPA, but is not a member
^ Has applied to accede to RCEP, but is not a member

The MLETR Tracker on Cross-Border Paperless Trade Database (Database) tracks the level of implementation by world economies and provides a centralised source on the implementation status of the MLETR to facilitate the sharing of knowledge on innovative projects and services in trade digitalisation. The tracker measures the progress made by jurisdictions in complying with the MLETR by using eight distinct stages of MLETR adoption for 'MLETR Socialisation' through to 'Entry into force' of the applicable legislation.[49] Table 7 below illustrates APEC economies' implementation status according to the MLETR Tracker. The 'Readiness Assessment' assumes knowledge and education of MLETR, political support and early domestic analysis, but does not indicate whether the necessary e-commerce laws based on the MLEC or ECC have been enacted. The current electronic transactions legislation and the steps taken or proposed to be taken by each APEC economy for the adoption and implementation of the MLETR are described in more detail in Annex 1.

[49] ESCAP and ICC, "MLETR Tracker" https://www.digitalizetrade.org/mletr

Table 7. APEC economies' implementation status according to the MLETR Tracker								
Economy	**MLETR Socialisation**	**Political Support**	**Domestic Analysis**	**Readiness Assessment**	**Stakeholder Consultation**	**Legislative Drafting**	**Passage of legislation**	**Entry into force**
Australia	✓	✓	✓	✓	✓			
Brunei Darussalam	✓	✓						
Canada	✓	✓	✓	✓	✓			
Chile	✓	✓						
China	✓	✓	✓	✓	✓	✓		
Hong Kong, China	✓							
Indonesia	✓							
Japan	✓	✓	✓	✓	✓	✓		
Republic of Korea	✓							
Malaysia	✓	✓	✓					
Mexico	✓	✓	✓	✓	✓	✓	✓	✓
New Zealand	✓	✓						
Papua New Guinea	✓	✓	✓	✓	✓	✓	✓	✓
Peru	✓	✓						
The Philippines	✓	✓	✓	✓	✓	✓		
Russian Federation	✓	✓						
Singapore	✓	✓	✓	✓	✓	✓	✓	✓
Chinese Taipei	✓	✓						
Thailand	✓	✓	✓	✓	✓	✓	✓	
United States	✓	✓	✓	✓	✓	✓	✓	✓
Viet Nam	✓							

Source: *MLETR Tracker* - Economic and Social Commission for Asia and the Pacific (ESCAP): Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr

ii. Legal issues and constraints to adoption

There are few legal constraints preventing APEC economies from taking measures to legislate for the adoption of MLETR. Every economy has the necessary legal framework for electronic commerce which supports adoption to varying degrees, including the necessary functional equivalence legislation, either based on UNCITRAL texts, or through drafting of parallel provisions. Most economies have in principle agreed to facilitate paperless trade, or advance adoption of MLETR, in a trade agreement or through participation in an international instrument. (for details see Table 5).

However, there are several legal constraints impacting on the achievement of wider and uniform adoption of MLETR across APEC - which are needed to enable paperless trade in the region and allow the full realisation of its significant potential benefits. The scope of existing legislation governing ETRs is not uniform across APEC economies, creating uncertainty. Some economies have in place altered standards for functional equivalence, creating possible conflicts with the MLETR. Commitments in trade agreements and international initiatives, while supportive of paperless trade, are generally weak and while supportive of paperless trade, do not provide strong impetus for legislative reform to enable it. Some of these constraints are outlined below.

Scope of electronic commerce legislation

Across APEC, all economies have in place a form of electronic transactions legislation. However, this legislation does not necessarily have the same scope. There are jurisdictions that have attempted to provide functional equivalent instruments for certain specified instruments, which will need to be reviewed. For instance, Korea has enacted specific laws on e-promissory notes and e-bills of lading,[50] and China[51] and Japan[52] have laws on electronic promissory notes. In addition, there are some APEC economies that have not adopted UNCITRAL texts on e-commerce or have adopted legislation based on different principles.

Signature

The functional equivalence signature provisions of the MLEC, MLES and ECC provide for functional equivalence of traditional signatures, with elements of identification, intention and method which is "as reliable as appropriate" in the circumstances, or "proven in fact" to have fulfilled the functions of a signature.[53] This has been held by courts to include typing a name at the end of an email, scanning a signature and placing it on a document by the use of sophisticated methods using public key cryptography. Many international trade documents use simple signatures. However, some economies have altered the basic functional equivalence standard and will only accept the restricted method of public key cryptography. That standard is not used by the many and varied entities in a trade scenario. It would be desirable for such jurisdictions to bring their signatures laws in line with the MLEC, MLES or ECC standard before implementing the MLETR.

Harmonised and unified legislation

An essential precursor before the adoption of the MLETR is electronic transactions legislation that provides for functional equivalence of information on documents, writing and signatures. For

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[50] See the Issuance and Distribution of Electronic Bills Act (RepKor) https://elaw.klri.re.kr/kor_service/lawView.do?hseq=46760&lang=ENG

[51] The Electronic Commercial Draft System was put into operation in China in 2009, to support dematerialization. See: https://www.bis.org/cpmi/publ/d105_cn.pdf of paper-based commercial drafts with seals or signatures

[52] See the Electronically Recorded Monetary Claims Act (Japan) - Act No. 102 of 2007 - Last Version Act No. 62 of 2016.

[53] See article 9(3) ECC United Nations Convention on the Use of Electronic Communications in International Contracts (2005).

uniformity and harmonisation purposes the MLEC and ECC have been implemented by many economies to provide a degree of certainty and uniformity for commercial parties. Some economies have drafted variations using alternative wording to the MLEC and ECC, or have "enhanced" their legislation with additional, possibly conflicting provisions. Until recently, there was no effective harmonised approach globally for the adoption of laws for all documents for a paperless trade. The release of the MLETR by UNCITRAL provides a solid, harmonised and unified approach that can now be undertaken on a global basis. The ADB recognises this initial constraint as a "lack of harmonized and adopted standards for electronic trade documents to enable digital information to move seamlessly across borders and between supply chain players" and a "lack of legislation enabling legal recognition of electronic transferable records."[54] Uniform adoption of the MLETR provisions across APEC economies, with reliance of the published Explanatory Memorandum would help to alleviate this constraint, on the legislative side at least.

Commitments in international agreements

While all intra-APEC trade agreements (including more recent 'digital economy agreements') already require the Parties to maintain legal frameworks for electronic transactions, the coverage and depth of commitments is among APEC economies is not consistent.

Only three agreements within APEC mention MLETR explicitly (DEPA, SADEA, SKDPA). A further five agreements involving both APEC and non-APEC economies mention MLETR (UKSDEA, Aus-UK FTA, NZ-UK FTA, G7, the Agreement on E-commerce negotiated under the WTO JSI[55].. A further three agreements involving APEC economies refer to other international legal instruments/standards/model laws (RCEP, CPTA, ASEAN Agreement on E-Commerce), but commitments are relatively weak.

Notwithstanding this, there has been a trend over time in all the agreements towards encouraging the use of electronic documents (See Chart 1 Annex 3). Building on existing approaches in these agreements provides a useful basis to seek greater convergence around MLETR or equivalent. Annex 3 sets out areas of convergence and divergence in selected agreements on electronic transactions frameworks, paperless trade and MLETR.

Interaction of trade documents

Whether economies move to adopt MLETR depends on actions by both policy makers and legislators. It is the implementation of the law once adopted, and the practice by commercial parties that is more difficult, largely because it requires further consideration of commercial risk. Wider and consistent adoption of MLETR across APEC economies, in a transparent and coordinated way, would help to not only reduce the costs of trade, but also minimise the perceived risks involved.

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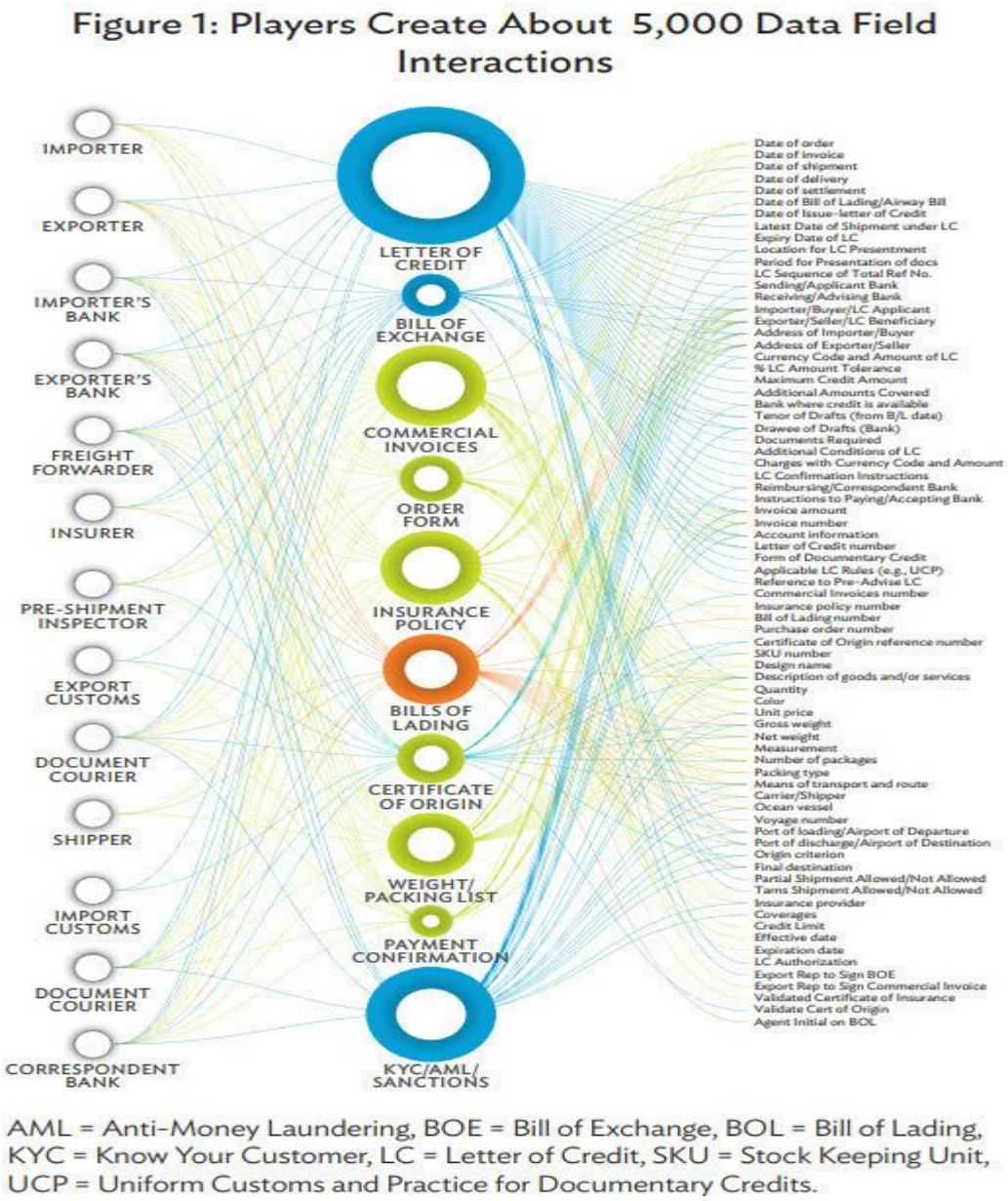
[54] Asian Development Bank, ADB Briefs, No. 280, December 2023 https://www.adb.org/sites/default/files/publication/932456/adb-brief-280-driving-digitalization-global-trade.pdf

[55] The Agreement on E-commerce is not yet in force, and as at 26 July 2024 some members were still conducting domestic consultations and considerations of the stabilised text, see https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf.



Source: Asian Development Bank, Policy Brief No 208, December 2023 https://www.adb.org/sites/default/files/publication/932456/adb-brief-280-driving-digitalization-global-trade.pdf

Figure 1 from the Asian Development Bank provides examples of the inactions and use of a multitude of potential trade documents with the sample of the possible trade parties. This provides a demonstration of the "5000+ Data Field" interactions in an international trade transaction. There can be substantial resistance by the various commercial stakeholders to adopt digitalisation where the practice of paper documents has been entrenched for decades if not centuries. This reinforces the need for concerted policy action to advance MLETR adoption and paperless trade.

Table 8 below summarises the legal status and issues for adoption of MLETR across APEC economies. Column 4 provides details for the stage reached in MLETR compliance. Column 5, if there is no MLETR compliance, provides a list of which transferable documents or instruments are nevertheless currently recognised. Column 6 states the next steps required to permit recognition, facilitate trade and MLETR compliance.

Table 8. Domestic legal framework requirements for adoption of MLETR					
Economy	**Electronic transactions law compliance (MLEC/MLES/ECC or other)**	**Agreement in principle under trade agreements and instruments***	**Action required to ensure MLETR compliance**	**If not compliant, documents or instruments that are recognised electronically**	**Action required to permit recognition, facilitate trade**
Australia	MLEC and ECC	WTO JSI, RCEP, SG/Aus DEA, CPTPP	Reached Stakeholder Consultation stage	Nil	Legislation
Brunei Darussalam	MLEC	AAEC WTO JSI, RCEP, CPTPP	Reached Political Support stage	Nil	Consultation and legislation
Canada	MLEC (including Part 2)	WTO JSI, G7 Declaration, CPTPP	Reached Stakeholder Consultation stage	Other that under MLEC Part 2 - nil	Legislation
Chile	Other	WTO JSI, DEPA, CPTPP	Reached Political Support stage	Nil	Consultation and legislation
China	MLEC and MLES	WTO JSI, RCEP, CPTA	Reached Political Support stage	Maritime Law reform with intention to adopt MLETR.	Legislation
Hong Kong, China	MLEC	WTO JSI	Reached MLETR Socialisation stage	eBills of Lading[56]	Political Support, consultation and legislation
Indonesia	MLEC	AAEC, WTO JSI*, RCEP	Reached MLETR Socialisation stage	Nil	Political Support, consultation and legislation
Japan	Other	WTO JSI, RCEP, G7 Declaration, CPTPP	Reached Legislative Drafting stage	Nil	Passage of legislation
Republic of Korea	MLEC	WTO JSI, RCEP, DEPA, CPTA	Reached MLETR Socialisation stage	Nil	Political Support, consultation and legislation
Malaysia	MLEC	AAEC, WTO JSI, RCEP, CPTPP	Reached Domestic Analysis Stage	Nil	Consultation and legislation
Mexico	Other	WTO JSI, CPTPP	Full compliance – but does not adopt the wording or structure of the MLETR	NA	Compliant - Nil
New Zealand	MLEC and ECC	WTO JSI, RCEP, DEPA, CPTPP	Reached Political Support stage	Nil	Consultation and legislation
Papua New Guinea	MLEC, MLES, ECC (and part MLIT)	Nil	Full compliance	NA	Compliant - Nil
Peru	Influenced by MLES	WTO JSI, CPTPP	Reached Political Support stage	Nil	Consultation and legislation
The Philippines	MLEC (including Part 2)	AAEC, WTO JSI, RCEP, CPTA	Reached Legislative Drafting stage	Other that under MLEC Part 2 - nil	Passage of legislation
Russian Federation	ECC	WTO JSI, CPTA	Reached Political Support stage	Nil	Consultation and legislation

[56] See Annex 1(gvi).

Singapore	MLEC and ECC	AAEC, WTO JSI, TCEP, DEPA, SG/AUS DEA, CPTPP	Full compliance	NA	Compliant - Nil
Chinese Taipei	Influenced by the MLEC	WTO JSI*	Reached Political Support stage	Nil	Consultation and legislation
Thailand	MLEC and MLES	AAEC, WTO JSI, RCEP	Reached Passage of Legislation stage	Complaint in near future	Entry into Force
United States	MLEC	WTO JSI*, G7 Declaration	Full compliance – but does not adopt the wording or structure of the MLETR	NA	Compliant - Nil
Viet Nam	MLEC and MLES	AAEC, RCEP, CPTPP	Reached MLETR Socialisation stage	Nil	Political Support, consultation and legislation

* As at 26 July 2024, conducting domestic consultations and considerations of the stabilised text of the Agreement on Electronic Commerce negotiated under the WTO JSI, see https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf.

For a full list of agreements see Annex 3.

III. Realising the benefits of paperless trade across APEC – Pathways forward

Advancing the adoption of MLETR across APEC, and following that, its operationalisation, requires addressing both legal constraints and practical challenges. The legal reform process can take from as little as 12 months (Singapore and Belize) to four years (the United Kingdom).[57] Beyond legal adoption, achieving a fully operational digitised document ecosystem is also dependent on additional factors, notably political-level leadership and support; consultation with and 'buy-in' from key stakeholders across the public and private sectors; and uptake by private sector stakeholders. This requires both awareness-raising among the business community and capacity-building to transition business systems and operations to digitalised models.

Pathways to support adoption of MLETR and paperless trade in APEC will require approaches to support legal reform and practical implementation within economies and across APEC as a whole – leveraging, as appropriate, the work of other fora, including the APEC Business Advisory Council (ABAC), the ADB, the ICC and others.

i. Legal pathways

All APEC economies have enacted electronic transactions legislation to provide for the functional equivalence and recognition of electronic writing and electronic signatures, which is a necessary first step for the adoption of the MLETR. This overcomes the first hurdle. The MLETR is intended to be a template where modification is permitted as the discretion of the enacting economy. However, there is great advantage in using near identical language as this encourages consistency, uniformity and stability in the legal world, in commercial practice and when interpreted by the courts.

This does not require APEC economies to adopt the same legal process or approach to MLETR. The APEC economies that have pioneered the process, notably Singapore and PNG, were motivated by different rationales and adopted different approaches. Singapore, as a key trade hub and international financial centre in Asia, was keen to accelerate the digitalisation of trade finance to promote greater trust, efficiency and cost savings in the financing of global and regional trade."[58] On the other hand, the motivation of PNG was primarily to adopt the MLEC and ECC, and secondly to take the advantage of adoption the MLETR and part of the MLIT.

For the APEC economies yet to enact legislation, broadly, there are three possible approaches to implementing the MLETR. Each economy can adopt one, or a mix of these which are best suited to its domestic needs and legal framework.

- First, the principles of the MLETR could be **enacted in new or existing generic legislation** dealing with the issue of electronic transactions.[59]
- Second, **industry-specific or sector-specific legislation could be amended** to allow ETRs as a substitute for particular paper-based instruments. For example, legislation dealing with the carriage of goods by sea could be amended to permit ETRs for bills of

[57] 'MLETR: An overview of UNCITRAL's Model Law on Electronic Transferable Records', ICC news article, 4 September 2024,
[58] Monetary Authority of Singapore, World's first digital trade financing pilot between MLETR-harmonised jurisdictions, quite from Leong Sing Chiong, Deputy Managing Director, MAS, https://www.mas.gov.sg/news/media-releases/2021/worlds-first-digital-trade-financing-pilot-between-mletr-harmonised-jurisdictions
[59] New, in the case of Papua New Guinea, and existing, in the case of Singapore.

lading; and bills of exchange legislation could be amended to allow for a similar recognition in respect of those instruments.
- Third, **a combination of these approaches** could be used to ensure both the specific and general application of the MLETR.

The disadvantage of the first approach is that it does not signal to any particular industry or sector the specific changes in practice that the legislative amendment is intended to encourage. Actors along the supply chain (whether they be traders, lawyers, financiers or insurers) will typically only make themselves aware of the specific legislation, regulations, and amendments that are applicable to that particular industry or sector. If the pertinent electronic standard appears in, for example, generic electronic transactions legislation, questions may remain as to the legislature's intention behind the changes. It may be argued that, if it is the legislature's intention to alter established principles in a particular area, then such changes should be made directly in the industry, sector, or instrument-specific legislation. Such targeted amendments are more likely to encourage the use of ETRs. Accordingly, the principles of control, identity, and transfer in the MLETR, as well as the definitions of 'electronic record' and 'electronic transferable record', would be more appropriately incorporated into domestic legislation dealing specifically with, for example, bills of lading or bills of exchange.

The third possible approach is to combine the first two suggestions. This has the advantage of both targeting particular industries or sectors and providing a general platform for all electronic transactions and instruments across the board. The result would be to embrace functional equivalence fully, to promote electronic media and trade, and to align economic and trade concerns with commercial reality.

Despite the obvious advantages of the MLETR for international trade generally, and trade finance in particular, adoption to date has generally been slow and cautious. Typically, transferable documents or instruments were used to transfer significant value or property rights. Accordingly, trade actors may initially be circumspect with respect to their own property and that of their clients. Similarly, banks will be concerned that their rights of recourse and rights as pledgee under the trade documents are not diminished.

Singapore's adoption of MLETR is instructive here because Singapore considered numerous practical considerations. Singapore's Electronic Transactions Act had been in force since 1998, although it was extensively amended in 2010. The MLETR amendment brought instruments such as bills of exchange bills of lading and promissory notes within the remit of the ETA. It also allowed for the use of cross-border documents and made provision for accreditation of providers of electronic transferable records management systems. These considerations were reflected in the final legislation that was adopted.

ii. Practical steps

Whichever of the three broad legislative reform approaches above is selected, several practical steps will also be needed to undertake the reforms in question. This can be informed by case studies of the experiences of jurisdictions that have adopted MLETR, including in APEC economies.[60]

[60] See ADB, 'Driving Digitalization of Global Trade: UNCITRAL Model Law on Electronic Transferable Records', ADB Brief No. 280; Dr Theodora A. Christou and Professor John L Taylor, *Blueprint Paper on Digital Trade and the UNCITRAL Model Law on Electronic Transferable Records*, 2023 (CASTL), available via

As a first step in the legal reform process, a detailed and economy -specific **legislative gap analysis** is desirable, to establish areas of legislation which currently fall short of MLETR requirements. This requires examination of laws relating to electronic transactions, transferable records, electronic signatures, commercial codes and banking law as well as any relevant sectoral legislation as foreshadowed noted earlier. For this exercise, economies could utilize the *Legal Readiness Assessment Guide* provided by the United Nations Economic and Social Commission for Asia and the Pacific.[61] This should be informed by consultation with the private sector about priorities and relevant documents.

Following that process, policymakers would need to **draft new laws or amendments** to existing laws. As noted above, this could be adapted to each economy's particular legal framework, drawing on best practices from regional examples, perhaps shared through an APEC mechanism (See ii, Recommendation 2). The ICC DSI has published a *Practical Guide to Legal Reform to Enable Electronic Transferable Records and Optimise Cross-Border Trade*, which could be used by economies to support their legislative reform process. [62] In due course, laws or amendments would need to be ratified by the legislature, and then implemented by policymakers.

Beyond legislative reforms – at the economy level

Experience in the MLETR adoption process suggests that legislative actions are only one part of the process. MLETR adoption is more than a purely legislative challenge: it is a strategic and cross-cutting economic policy challenge, which requires engagement across government, business and other stakeholders, an enabling technological environment, and wide uptake. Action is needed across four major stages of the transition process: the pre-legislation stage; the legislative process itself; in parallel to this, market preparation; and lastly, the implementation stage.[63]

The pre-legislation phase. Leadership is needed prior to legislative action, at both the political and working level. On the latter, an economy-level taskforce comprising representatives from relevant departments could be established, and clear roles and responsibilities defined for each agency in the process. Regular coordination meetings should be held to track progress and address cross-cutting issues. The challenge should also be clearly articulated, and the potential benefits to the economy, policymakers and business also explained.

An active communication and consultation process will be needed to enlist the support of relevant policy stakeholders, including those responsible for Trade, Commerce, Justice, Finance, Customs and others as appropriate, as well as the private sector. A 'systems thinking' approach should be adopted, both within economies and taking account of cross-border dimensions, including for trade corridors and global supply chains.

For example, in its MLETR adoption process, Singapore conducted two public consultations, providing detailed consultation documents on drafting options.[64] Similarly, Australia is currently considering adoption of MLETR and has undertaken a public consultation on the potential drafting options for adoption.[65]

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[61] https://readiness.digitalizetrade.org/legal-guide
[62] https://www.adb.org/publications/driving-digitalization-global-trade. For the Legal Readiness Assessment Guide, see https://readiness.digitalizetrade.org/legal-guide.
[63] Material in this section is drawn from a selection of sources, including ICC, 'MLETR Foundations' digital trade course – see https://icc.academy/mletr-foundations/; the 2023 APEC Business Advisory Council 'ABAC Recommendations on Regional Cooperation for Cross-Border Paperless Trade' (2023/SOM3/CTI/007), and (2024), and the 2024 'ABAC Recommendations for Achieving Regional Adoption of Cross-Border Paperless Trade' (attached to the APEC Report to APEC Economic Leaders),]
[64] https://www.adb.org/publications/driving-digitalization-global-trade
[65] https://consultations.ag.gov.au/international-relations/mletr/.

The legislative phase. As noted above, the legislative phase itself requires a clear determination of which legislation to reform, including preparatory work involving a gap analysis and drafting process. Here, consideration of the processes used by PNG and Singapore may be illustrative. PNG received technical legal support from the 'Facilitation 2.0: Trade and Investment in the Digital Age' project funded by Australia and managed by the World Economic Forum, with technical input from UNCITRAL.[66] See Annex 1 for more details.

The market preparation phase. **I**n the market preparation phase, private-sector actors need to be equipped for the digitalization process. Relevant stakeholders can include chambers of commerce, trade associations, technology providers, finance and insurance sectors, export organisations, shippers, ports, the freight-forwarding, warehousing and logistics sectors, and the banking sector. Different parts of the business ecosystem, and even different parts within individual large businesses, may also be operating in their own silos, which are not necessarily interconnected.

An effective change process requires raising awareness, including around the value proposition and potential benefits of the shift to digitalised trade, including through business success stories. Practical guidance and capacity-building will also be needed to help businesses to adapt, including engagement with partners and processes beyond the border. These efforts could include technical workshops on the practical aspects of implementing electronic transferable records systems. For example, in conducting an ABAC pilot project on electronic bills of lading, several focus group discussions and consultations were held for stakeholders in partnership with Singapore policymakers.[67]

Experiences with pilot projects on electronic bills of lading run by ABAC suggest that a key challenge may be a lack of critical mass, even if businesses are persuaded of the potential benefits of digitalization. This means that due attention needs to be given to achieving wide uptake to achieve the expected benefits at the individual level. In some cases, even where digital documents may be legally recognized, there can be a lack of acceptance among stakeholders who prefer traditional paper-based processes for reasons of trust and familiarity, which can in turn create disincentives through the supply chain to digitalize, as digital-to-hardcopy interfaces require manual processes that are resource-intensive and prone to errors. [68]

The implementation phase. Once the legislation has been passed, the focus shifts to effective implementation of paperless and digital practices to take advantage of the benefits. This requires ongoing close consultation with private-sector stakeholders, including to continue to build capacity, gather feedback and address concerns that may arise.

The experience of others shows that implementation by commercial parties can prove difficult, largely because it requires further consideration of various degrees of commercial risk. While the adoption of consistent laws can help to reduce the costs of trade, and minimise the real and perceived risks involved, businesses may be conservative, and require encouragement to fully embrace the paperless approach in the short term.

An effective change process requires raising awareness, not only of the changes, but of the economic value and savings, and the new practices. This may occur through the dissemination of business success stories. In addition, practical guidance and capacity-building will help

[66] https://www.adb.org/publications/driving-digitalization-global-trade
[67] ABAC Recommendations for Accelerating Regional Adoption of Cross-Border Paperless Trade, annexed to ABAC 2024 Report to APEC Economic Leaders.
[68] To support broader uptake, ABAC has recommended that APEC policymakers consider implementing freely accessible economy-level digital infrastructure and digitalizing their own regulatory documents, systems and processes. See ABAC Recommendations for Accelerating Regional Adoption of Cross-Border Paperless Trade, annexed to ABAC 2024 Report to APEC Economic Leaders.

businesses to engage with corresponding partners and processes. The approaches include technical workshops, and education from government, industry partners, and bodies such as the ICC and ADB.[69]

The technical/technological layer

This report focuses on the adoption of MLETR as a legislative process. However, achieving effective digitalization, with all the benefits that come along with it, also requires an enabling technological environment. Policymakers and private-sector stakeholders will need to make the necessary technical or technology changes to participate successfully in the digitalised environment as it advances. This includes ensuring that the standards (including data standards) for electronic trade documents and systems are interoperable (or ideally, harmonized), to enable digital information to move seamlessly across borders and among supply chain partners.[70] This may entail a further level of complexity in implementation, as legacy systems may need to be integrated into new systems. This can be both daunting to the private sector and require significant investment.

iii. Forward pathways for APEC

To achieve region-wide MLETR adoption, and advance paperless trade, APEC economies can make important contributions in several areas. They can; provide the necessary political impetus for change; support the efforts of individual economies in undertaking the transition described above; leverage the synergies of work taking place in parallel across the region to drive interoperability across jurisdictions; and support capacity-building (and hence uptake) for policymakers and business stakeholders. Recommended actions are outlined below:

APEC political-level support

Political support. Build on existing political support to accelerate adoption of paperless trading in general, and specifically by acknowledge the need to adopt MLETR or equivalent. For example, in 2023, Ministers Responsible for Trade specifically endorsed another recent initiative on digitalization, the Principles for the Interoperability of Electronic Invoicing Systems in the APEC Region.[71] A similar approach could be used for MLETR.

- **Recommendation 1:** Build on existing political support for reforms relating to paperless trade, including by including statements of support and encouragement for accelerated progress in the relevant APEC Ministerial Declarations.

Work by APEC policymakers to continue, but with greater coordination and strategic focus

A reinforced coordinated and strategic approach within APEC. There are already APEC workstreams in train on aspects of paperless trade. However, an overarching strategic focus and greater coordination across different bodies would help to shape and accelerate progress, recognising that the issues are cross-cutting.

- **Recommendation 2:** The Committee on Trade and Investment (CTI) could serve as the coordinator of all work on paperless trade, in concert with the Digital Economy Steering Group (DESG) and the Sub-Committee on Customs Procedures (SCCP).

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[69] Within APEC an ABAC pilot project on electronic bills of lading, several focus group discussions and consultations have already taken place for stakeholders. See ABAC Recommendations for Accelerating Regional Adoption of Cross-Border Paperless Trade, annexed to ABAC 2024 Report to APEC Economic Leaders.
[70] 'Driving Digitalization of Global Trade: UNICTRAL Model Law on Electronic Transferable Records', ADB Brief No. 280, December 2023
[71] APEC MRT Statement from the Chair 2023

Give profile to paperless trade as part of ongoing work on the FTAAP agenda

Connection with work on the Free Trade Area of the Asia Pacific (FTAAP) agenda. The Aotearoa Plan of Action for the Putrajaya Vision 2040 already commits economies to 'promote measures, interoperable approaches, and the use of digital technologies to facilitate trade.' Paperless trade could also be treated as a priority in the work on the FTAAP agenda, including through work on convergence and divergence in RTAs and FTAs.

- **Recommendation 3**: Increase awareness of paperless trade as part of ongoing work on the FTAAP agenda, including work on areas of convergence and divergence and as a shorter-term deliverable.

Setting clear goals and monitoring progress for each economy to help to accelerate adoption

Tailored 'roadmaps' for individual economies. Work in APEC should be focused on achieving tailored 'roadmaps' for each economy to support the move towards paperless trade, with a particular focus on the adoption and implementation of the MLETR. Depending upon the current progress of the individual economy, and in accordance with section III (ii) above, the roadmaps should deal with the pre-legislative phase, the legislative phase, the marketing phase and the implementation phase as particular and appropriate for that economy.

- **Recommendation 4**: Develop tailored 'roadmaps' for individual economies to advance reform towards paperless trade, including a specific goal on MLETR adoption and implementation.

A "MLETR Adoption Guide" and readiness assessment could also be prepared to support economies' legislative reform efforts. This could include discussion of how to undertake the legal gap analysis and promote the use of common terminologies and legislative approaches to ensure consistency in interpretation and application.

- **Recommendation 5**: Prepare a MLETR Readiness Assessment and Adoption Guide for APEC.

Progress towards these goals should be monitored via self-reporting. This could be undertaken with a relatively simple dashboard or by reviving the Individual Action Plans discussed above. This could include an assessment of whether planned economy-level reforms will achieve the desired "equivalence" with MLETR, or whether additional elements may be needed to achieve compatibility or interoperability. ABAC has previously recommended the establishment of a digital repository of current information on economies' paperless trade and single window initiatives.[72]

- **Recommendation 6:** Establish a dashboard or another monitoring mechanism to assess economy readiness and progress in the adoption process.

Awareness-raising, capacity-building and widespread uptake are critical

Research and analysis by the PSU. It will be important to build awareness and develop capacity for MLETR adoption at the APEC level. The APEC Policy Support Unit (PSU) has already prepared helpful reports on aspects of paperless trade, including relating to the legal acceptance and enforceability of electronic documents.[73] The PSU could be tasked with preparing further economic impact studies on selected APEC economies, highlighting benefits such as cost savings,

[72] ABAC has also recommended that this could consolidate existing workstreams such as the CTI Compendium of Best Practice Technology Solutions for Single Window Interoperability, the SCCP Guidelines on Paperless Trade, and the DESG APEC Internet and Digital Economy Roadmap, and could be housed on the existing IAP web portal. See ABAC Recommendations on Regional Cooperation for Cross-Border Paperless Trade, 2023 (2023/SOM3/CTI/007)

[73] See for example, Andre Wirjo et al., 'Digitalising Trade: The Role of Paperless Platforms', APEC Policy Support Unit Policy Brief No. 59 (March 2024). https://www.apec.org/publications/2024/03/digitalising-trade-the-role-of-paperless-platforms

efficiency, reduced transactions times, and enhanced integrity of supply chains, as well as potential costs.

The PSU could also prepare case studies of successes and challenges that economies and businesses have faced, which economies could use to support their own tailored capacity-building efforts. This could draw on repositories of economy experiences, for example those developed by the ICC DSI or ADB.

- **Recommendation 7**: Task the APEC Policy Support Unit to prepare a selection of economic impact studies on the adoption of MLETR, as well as other materials including case studies.

Capacity building activities. The relevant APEC committees should work with stakeholders to share insights and perspectives on various policy approaches and practical questions. This can be achieved by engaging in seminars and workshops with the involvement of ABAC and other private-sector stakeholders. Special attention should be given to equipping micro-, small and medium-sized enterprises (MSMEs) to participate successfully in digitalised trade.[74]

The CTI should consider undertaking pilot projects for specific sectors or digitalised trade corridors. It could draw on lessons from pilot projects in APEC economies[75] as well as case studies of pilots and best practices available via the DSI.[76]

Collaboration with international fora. Support for MLETR adoption could also draw on the extensive resources available from other international fora, such as the Asian Development Bank, UNCITRAL and the ICC. UNCITRAL has provided such technical assistance to some economies, including PNG.[77] Efforts in APEC should be complementary to, and draw on, the important work on digitalised trade and legal reform taking place in other fora: coordinated efforts can support information-sharing and will promote consistent and best practice approaches across the region. An overview of the support available is set out in Annex 4.

- **Recommendation 8:** The CTI should commission capacity-building work through seminars and workshops, and APEC pilot projects.

Consider the path toward implementation

Consideration of next steps. As economies move to adopt MLETR, the question of 'what comes next?' arises. Understanding and then implementing what is required to realise the expected benefits from MLETR is critical. The challenges will be different for each economy. Approaches must therefore be tailored to meet their individual needs, the legal frameworks in place and the level of progress toward paperless trade.

Effective collaboration. An effective change process requires raising awareness of commercial parties, not only of the changes, but of the economic value and savings, and the new practices. It also involves addressing the implementation of standards to enable digital information to move efficiently across borders with commercial partners. Addressing these challenges requires further

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[74] ABAC has recommended the development of trade digitalization programs aimed at MSMEs which can provide grants or financing schemes, given the disproportionately high costs such entities face in the transition to digitalised ecosystems. See ABAC Recommendations on Regional Cooperation for Cross-Border Paperless Trade, 2023

[75] Such as the Singapore-China (Shenzhen) Smart City Initiative in 2021; a trade transaction between Singapore and Thailand in 2023 using an electronic bill of lading; an Australia-Singapore trial of 2021 using the TradeTrust framework, and the ABAC pilot on electronic Bills of Lading in 2024. See ADB, 'Driving Digitalization of Global Trade: UNCITRAL Model Law on Electronic Transferable Record, ADD Brief 280, https://www.adb.org/publications/driving-digitalization-global-trade; case study in 'ABAC Recommendations on Regional Cooperation for Cross-Border Paperless Trade' 2023; and for the 2024 pilot on electronic bills of lading, see 'ABAC Recommendations for Accelerating Regional Adoption of Cross-Border Paperless Trade', Annex to 2024 ABAC Report to Economic Leaders.

[76] https://www.dsi.iccwbo.org/news-and-resources

[77] See: https://pacificecommerce.org/pei-project/technical-assistance-to-adoption-of-uncitral-texts-on-e-transactions-in-png/

discussion and learnings from the experience of others who are taking the lead in moving forward. Capacity building and collaboration with international fora, such as the ICC DSI and the ADB can play an important role.

- **Recommendation 9**: Consider developing practical steps and options to support implementation paths for each economy that encompass measures to help inform commercial parties and stakeholders. Approaches could form part of the 'tailored roadmaps' (Recommendation 4) and could be developed in partnership with international fora including the ICC and ADB

Annex 1. Legal framework and MLETR adoption across APEC economies

i. Australia

Legal framework

Australia is a federation comprising the Commonwealth government, six states and two territories with legislative bodies.[78] As a result, there are nine *Electronic Transactions Acts* which between 1999 and 2003 incorporated the provisions of the MLEC. Between 2011 and 2013 amendments were made to all nine Acts consistent with the ECC. The nine *Electronic Transactions Acts* are substantially identical and incorporate provisions of functional equivalence for written documents and signatures, providing an excellent foundation for the future adoption of the MLETR.

Australia is co-convenor, with Japan and Singapore, of the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.[79]

Australia is a member of regional trade agreements including the RCEP, the CPTPP and the Singapore/Australia Digital Economy Agreement and their relevant provisions on paperless trade and ETRs.

MLETR adoption status

Australia is actively exploring options to implement MLETR aligned legislation. The Federal Attorney General's Department released a consultation paper in September 2024 seeking stakeholder views, to inform options for implementing the MLETR.[80] The view is expressed in the consultation paper that "transferable records are an essential requirement in many Australian and international trade processes."[81]

> The Australian Government understands that recognising the legal validity of electronic transferable records may be a foundational step towards other initiatives to enable 'paperless trade' and, based on work undertaken by the Australian Border Force (ABF), may help to reduce these inefficiencies and costs, make trade more accessible, and provide other related economic benefits.[82]

The Australian Government has agreed to provisions in the Australia-Singapore Digital Economy Agreement,[83] and the Australia-United Kingdom Free Trade Agreement[84] which both recognise the importance of developing mechanisms to facilitate the use of electronic transferable records and encourage model texts such as the MLETR.

The Attorney General's "Consultation to inform options for implementing the Model Law on Electronic Transferable Records in Australia" website indicates that Australia is considering options for implementing legislation aligned with the MLETR. The approach is part of the

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[78] *Electronic Transactions Act 1999* (Cth); *Electronic Transactions Act 2000* (NSW); *Electronic Transactions (Victoria) Act 2000* (Vic); *Electronic Transactions (Queensland) Act 2001* (Qld); *Electronic Communications Act 2000* (SA); *Electronic Transactions Act 2011* (WA); *Electronic Transactions Act 2000* (Tas); *Electronic Transactions Act 2001* (ACT); *Electronic Transactions (Northern Territory) Act 2000* (NT).

[79] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

[80] Attorney General's Department, "Model Law of Electronic Transferable Records, MLETR" https://www.ag.gov.au/international-relations/model-law-electronic-transferable-records-mletr

[81] The expression "transferable record" is used as a shorten expression to have the same meaning as "transferable documents and instruments" in the MLETR.

[82] Attorney General's Department, "Model Law of Electronic Transferable Records, MLETR" page 5. https://www.ag.gov.au/international-relations/model-law-electronic-transferable-records-mletr

[83] Article 8.4, Digital Economy, Australia-Singapore Digital Economy Agreement. https://www.dfat.gov.au/trade/services-and-digital-trade/australia-and-singapore-digital-economy-agreement

[84] Article 14.4(3) Australia-United Kingdom Free Trade Agreement https://www.dfat.gov.au/trade/agreements/in-force/aukfta

government's Simplified Trade System reforms[85] intended to deliver benefits to commercial parties by "simplifying and modernising Australia's cross-border trade regulatory environment".[86] Once the Consultation phase is completed the Government will then consider options for implementing the MLETR in Australia".[87] Whilst no timeline is provided, this process would be expected to be completed by 2027.

ii. Brunei Darussalam

Legal framework

In 2000, Brunei Darussalam enacted its commercial code for electronic transactions. The Electronic Transactions Act (Chapter 196)[88] is based on the UNCITRAL *Model Law on Electronic Commerce* and the Singapore *Electronic Transactions Act*.

Brunei Darussalam has enacted Electronic *Transactions* legislation incorporating the Model Law of Electronic Commerce.[89] These provisions deal with functional equivalate of writing, dealing with digital signatures, confidentiality and certification authorities.

In September 2020 Brunei Darussalam ratified the AAEC (ASEAN Agreement on Electronic Commerce)[90] the objectives of which are to facilitate cross-border e-commerce transactions in the ASEAN region; contribute to creating an environment of trust and confidence in the use of e-commerce in the ASEAN region; and deepen cooperation among Member States.[91] Article 12 requires Members to "maintain, or adopt as soon as practicable, laws and regulations governing electronic transactions taking into account applicable international conventions or *model laws relating to e-commerce*".[92] However, the Agreement fails to mention the MLETR by name.

Brunei Darussalam is a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024.[93] It is a member of the RCEP and the CPTPP.

MLETR adoption status

According to the Monetary Authority of Singapore (MAS) the government of Brunei Darussalam have acknowledged the importance of improving the government services through the digital technology to increase security and convenience for the citizens.[94] The government and institutions provide access of services requiring the use of digital identity to all public and private sectors. Brunei Darussalam has commenced its single portal to access a wide variety of services in order to digitally transform their economy.

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[85] Australia's Simplified Trade System reforms. https://www.austrade.gov.au/en/how-we-can-help-you/programs-and-services/simplified-trade-system

[86] Consultation to inform options for implementing the Model Law on Electronic Transferable Records in Australia. https://consultations.ag.gov.au/international-relations/mletr/

[87] Ibid

[88] https://www.agc.gov.bn/AGC%20Images/LOB/PDF/Electronic%20Transactions%20(chp.196).pdf

[89] https://www.agc.gov.bn/AGC%20Images/LOB/PDF/Electronic%20Transactions%20(chp.196).pdf

[90] ASEAN Agreement on Electronic Commerce https://asean.org/asean-agreement-on-electronic-commerce-officially-enters-into-force/

[91] Article 4 ASEAN Agreement on Electronic Commerce.

[92] Article 12 ASEAN Agreement on Electronic Commerce (Emphasis added). Similarly Article 5(2) headed "Principles", provides "The legal and regulatory frameworks in each Member State to support e-commerce shall take into account internationally adopted model laws, conventions, principles or guidelines."

[93] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

[94] Monetary Authority of Singapore, "Foundational Digital Infrastructures for Inclusive Digital Economies", (2021) see pages 30-33.
https://www.mas.gov.sg/-/media/MAS/Fintech/FDI/Foundational%20Digital%20Infrastructures%20for%20Inclusive%20Digital%20Economies.pdf

iii. Canada

Legal framework

Canada is a Federation comprising a Central Government, ten provinces and three territories each with legislative bodies.[95] All jurisdictions have enacted legislation influenced by the MLEC and the principles on which it is based. The Federal *Uniform Electronic Commerce Act* was adopted in 1999 by the Uniform Law Conference of Canada. It recommended all the provinces and territories enact legislation consistent with the Uniform Act. The Canadian Uniform Act applies not only to commercial transactions, but to all rules of law that are not excluded from it.

Canada is a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.[96] Canada is also a member of the CPTPP. Canada is also a party to the *United States-Mexico-Canada Agreement* (UCMCA) which requires parties to endeavour to accept electronic documents in trade transactions and to accept cross-border transfer of information in business.[97]

MLETR adoption status

Canada is one of two APEC economies that enacted Part 2 of the MLEC (1996) which was UNCITRAL's early attempt to provide for electronic transfer documents that includes a right or obligation.[98] Part 2 formally addresses the carriage of goods, with the intention of providing an electronic equivalent for certain shipping documents such as bills of lading. Article 17 prescribes what the electronic document must do to serve the function of the shipping document on paper.[99] Equivalent provisions of Part 2 appear in the Canadian *Uniform Electronic Transactions Act* (UETA), and all but one of the provinces and territories.[100] Section 24 of the UETA (Can) provides that the part applies any in connection with a contract of carriage of goods, including, but not limited to:

> (a) furnishing the marks, number, quantity or weight of goods;
>
> (b) stating or declaring the nature or value of goods;
>
> (c) issuing a receipt for goods;
>
> (d) confirming that goods have been loaded;
>
> (e) giving instructions to a carrier of goods;

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[95] Federal *Uniform Electronic Commerce Act* (Can); Alberta: *Electronic Transactions Act, SA 2001*, cE-5.5; British Columbia: *Electronic Transactions Act, SBC 2001*, c 10; Manitoba *Electronic Commerce and Information Act, CCSM* c. E55; New Brunswick *Electronic Transactions Act, RSNB 2011*, c 145; Newfoundland and Labrador *Electronic Commerce Act, SNL 2001*, c E-5.2; Nova Scotia *Electronic Commerce Act, SNS 2000*, c. 26; Ontario: *Electronic Commerce Act , SO 2000*, c 17; Prince Edward Island *Electronic Commerce Act, RSPEI 1988*, c E-4.1; Quebec 2001 *Act to establish a legal framework for information technology* C-1.1; Saskatchewan *Electronic Information and Documents Act, 2000, S.S. 2000*, c. E-7.22; Northwest Territories *Electronic Transactions Act, S.N.W.T. 2011*,c.13; Nunavut *Electronic Commerce Act, SNu 2004*, c 7; Yukon *Electronic Commerce Act, RSY 2002*, c 66.

[96] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

[97] See article 19, USMCA https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement/agreement-between

[98] See page ** above.

[99] The operation is explained in paragraphs 113 to 122 of the Guide to Enactment of the Model Law of Electronic Commerce.

[100] Federal Uniform Electronic Commerce Act (Can), sections 23 and 24; Alberta: Electronic Transactions Act, SA 2001, cE-5.5, section 31; British Columbia: Electronic Transactions Act, SBC 2001, c 10, Part 4, sections 19 and 20; Manitoba Electronic Commerce and Information Act, CCSM c. E55, Part 4, section 22 and 23; New Brunswick Electronic Transactions Act, RSNB 2011, c 145, no provision; Newfoundland and Labrador Electronic Commerce Act, SNL 2001, c E-5.2, Part III, sections 24-26; Nova Scotia Electronic Commerce Act, SNS 2000, c. 26. Part III, sections 25 and 26; Ontario: Electronic Commerce Act , SO 2000, c 17, sections 23 and 24; Prince Edward Island Electronic Commerce Act, RSPEI 1988, c E-4.1, Part 3, sections 23 and 24; Quebec 2001 *Act to establish a legal framework for information technology* C-1.1, Part II Division 4, sections 22 and 23; Saskatchewan *Electronic Information and Documents Act, 2000, S.S. 2000*, c. E-7.22, Part II, Division 4, sections 22 and 23; Northwest Territories *Electronic Transactions Act, S.N.W.T. 2011*,c.13, Part 3, section 20; Nunavut *Electronic Commerce Act, SNu 2004*, c 7, Part 3, section 20; Yukon *Electronic Commerce Act, RSY 2002*, c 66, Part 3, sections 24 and 25.

(f) claiming delivery of goods;

(g) authorizing release of goods;

(h) giving notice of loss of, or damage to, goods;

(i) undertaking to deliver goods to a named person or a person authorized to claim delivery;

(j) granting, acquiring, renouncing, surrendering, transferring or negotiating rights in goods;

(k) notifying a person of terms and conditions of a contract of carriage of goods;

(l) giving a notice or statement in connection with the performance of a contract of carriage of goods; and

(m) acquiring or transferring rights and obligations under a contract of carriage of goods.

Section 25 UETA (Can) provides in part for functional equivalence, provided a method is used that gives reliable assurance that the right or obligation has become the right or obligation of that person and no other person.

The Digital Governance Council of Canada and the ICC-DSI have developed a Technical Assessment Framework for evaluating the reliability of digital services and networks that enable the transfer of ETRs within supply chains.[101]

Canada as a member of the G7 and pursuant to the "Digital and Technology Ministerial Declaration" has expressed its intention to develop a framework for use of electronic transferable records compatible with the MLETR.[102]

Canada is not yet a party to the Digital Economy Partnership Agreement (DEPA) with Singapore, New Zealand and Chile but has expressed aspiration to join. DEPA includes provisions on a domestic electronic transaction's framework and paperless trading.

iv. Chile

Legal framework

The Chilean Decree 6: *Law on Electronic Documents, Electronic Signature and Certification Services of Said Signature* No 19,799, March 25, 2002,[103] although not based on UNCITRAL texts, prescribes for the functional equivalence of documents and signatures. Article 1 provides: "This law regulates electronic documents and their legal effects, the use of electronic signatures in them, the provision of certification services for these signatures and the accreditation procedure to which the providers of said certification service may be subject, in order to guarantee security in their use".

In September 2021 the Ministry of Economy, Development and Tourism published its *Electronic Commerce Regulation*, the purpose of which is to strengthen the transparency and quality of the information provided to consumers via e-commerce platforms to encourage informed decision-making, and thus strengthen consumers' right to free choice.

Chile is party to the Digital Economy Partnership Agreement (DEPA) with Singapore and New Zealand[104] which includes provisions on a domestic electronic transactions framework and paperless trading.

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[101] See Government News Release: https://www.canada.ca/en/innovation-science-economic-development/news/2022/05/minister-champagne-concludes-visit-to-germany-and-belgium.html; and the Joint Cooperation Committee Report on the State of the EU-Canada Relationship (2020-2022) paragraph 49, https://www.international.gc.ca/world-monde/international_relations-relations_internationales/can-eu_agreement-accord_can-ue-2022.aspx?lang=eng

[102] See Page ** above on the G7 Declaration.

[103] Decree 6 Ley Sobre Documentos Electrónicos, Firma Electrónica y Servicios de Certificación de Dicha Firma No 19.799, 25 de marzo 2002, available at: https://www.bcn.cl/leychile/navegar?i=196640&f=2007-11-12&p=

[104] The Digital Economy Partnership Agreement (DEPA) https://www.mfat.govt.nz/assets/Trade-agreements/DEPA/DEPA-Chile-New-Zealand-Singapore-21-Jan-2020-for-release.pdf

Chile is also a member of the CPTPP, and a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024.[105]

MLETR adoption status

In 2022, the Chilean Government presented *Chile Digital 2035*, with the purpose of reducing digital inequality and guiding the digital transformation of the economy. This is to be achieved by promoting digital rights, infrastructure development, cybersecurity, and increased digitalisation of the public sector. The Senate Transportation and Telecommunications Commission, with the support of the Economic Commission for Latin America and the Caribbean, the Association of Telecommunications Companies and the Chilean Chamber of Infrastructure Digital have promoted the "Transformation Strategy" for Chile with a long-term goals.[106]

v. China

Legal framework

The *Electronic Signatures Law of the People's Republic of China of 2004*[107] and amended in 2015 is based on the MLEC and the MLES. It was amended for a second time in 2019.[108] In 2006 China was one of the first economies to sign the ECC.[109] The legislation provides functional equivalence for documents and signatures. This provides the necessary foundation for the future adoption and implementation of the MLETR.

China is a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.[110]

China is a member of RCEP and is seeking accession to the CPTPP.

MLETR adoption status

China has made several commitments to formally adopt the MLETR and is currently in a stakeholder consultation process. China is in the legislative process of reforming its Maritime Law to incorporate the MLETR.[111] There are plans to promote the usage of ETRs such as e-B/L compliance with the MLETR in the Shanghai Pilot Free Trade Zone.

China is not yet a party to DEPA with Chile; New Zealand; and Singapore but has expressed aspiration to join. DEPA includes provisions on a domestic electronic transaction's framework and paperless trading.

China is a member of CAREC, the Central Asia Regional Economic Cooperation. CAREC has held a series of capacity building sessions on MLETR including for the People's Republic of China,

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[105] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

[106] Digital Transformation Strategy - Chile Digital 2035 https://www.cepal.org/sites/default/files/events/files/estrategia_de_transformacion_digital_chile_2035_.pdf

[107] *Electronic Signatures Law of the People's Republic of China of 2004* (in English) http://www.wipo.int/edocs/lexdocs/laws/en/cn/cn105en.pdf

[108] Status: UNCITRAL Model Law on Electronic Commerce (1996) https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_commerce/status
Status: UNCITRAL Model Law on Electronic Signatures (2001) https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_signatures/status

[109] Status: United Nations Convention on the Use of Electronic Communications in International Contracts (New York, 2005) https://uncitral.un.org/en/texts/ecommerce/conventions/electronic_communications/status
See also ADB: Digitalizing Trade in Asia Needs Legislative Reform, https://www.adb.org/sites/default/files/publication/704041/digitalizing-trade-asia-legislative-reform.pdf

[110] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

[111] CMI Questionnaire, National Legislation for Electronic Bills of Lading, Reply from China MLA, available at: https://comitemaritime.org/work/rules-for-electronic-billing-of-lading-copy/ See also Guo Yu, "Functional Equivalence to a Piece of Paper: A Comment on the UNCITRAL Model Law on Electronic Transferrable Records", New Zealand Association of Comparative Law, Special Issue, Hore Serie, Vol XXVI, p 27.

in December 2022 and July 2023, in collaboration with the ADB and UNCITRAL. On 28 August 2023 with the ADB and MOFCOM (the Ministry of Commerce, Peoples Republic of China) over 50 government officials and private sector representatives met in Beijing to enhance their understanding of the MLETR and its benefits. CAREC is providing technical assistance to its member to "align their legal frameworks with UNCITRAL's Model Law on Electronic Transferable Records."[112]

On 22 November 2020 China ratified the Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific (CPTA). CPTA is a United Nations to provide an inclusive and neutral platform for the pilot testing of cross-border paperless trade solutions among over 50 member states, enabling harmonisation of electronic trade, encouraging the adoption of the MLETR.[113]

vi. Hong Kong, China

Legal framework

In 2000, the *Electronic Transactions Ordinance* came into force in Hong Kong, China to provide a legal framework to give electronic records and electronic signatures the same legal recognition as that of their paper-based counterparts. The Ordinance also includes provisions on certification authorities.[114] The Ordinance was primarily modelled on the MLEC. The Ordinance has been amended multiple times from 2000 to 2024 to cater for the changing needs. It currently excludes "negotiable instruments" except cheques that bear the words "not negotiable".

In 2018, facilitated by the Hong Kong Monetary Authority (HKMA), a consortium of major banks in Hong Kong, China launched eTradeConnect[115], a blockchain-based trade finance platform that enables digitising trade documents and automating trade finance processes. The Hong Kong, China Government has published specific technical requirements for the purposes of the *Electronic Transactions Ordinance* at times to meet the changes. There have also been bilateral agreements to develop trade finance platforms with the EU and China.[116]

Hong Kong, China is a Member party to the Agreement on Electronic Commerce negotiated under the WTO *Joint Statement Initiative on Electronic Commerce*, of which the text was concluded and published on 5 December 2024. Article 4.3 of the Agreement on Electronic Commerce requires its Member parties to endeavour to adopt or maintain a legal framework that takes into account the MLETR.[117]

MLETR adoption status

The Hong Kong, China's *Bills of Lading and Analogous Shipping Documents Ordinance* (Cap 440), S. 7 may enable the adoption of MLETR for e-B/L by regulation of the Secretary for Commerce and Economic Development, if so wished. Hong Kong, China has taken measures to align with the MLETR at present and may take further enhanced actions in future if it warrants to better implement MLETR.

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[112] CAREC: Capacity Building on Model Law on Electronic Transferable Records: https://www.carecprogram.org/?event=capacity-building-on-model-law-on-electronic-transferable-records

[113] See ESCAP Projects: https://www.unescap.org/projects/cpta

[114] Hong Kong, *Electronic Transactions Ordinance 2000*, https://www.elegislation.gov.hk/hk/cap553?xpid=ID_1438403432447_002

[115] The HKMA launched Commercial Data Interchange (CDI) in Oct 2022, a new financial data infrastructure that aims to enhance data sharing. Considering that CDI has already met the original intent of launching eTradeConnect and can deliver better network effects, the operation of eTradeConnect was ceased after Q3 2023.

[116] Clifford Chance, Paperless Trade: Achieving Harmony between the Law and Technological Potential, https://www.cliffordchance.com/content/dam/cliffordchance/briefings/2021/12/paperless-international-trade-achieving-harmony-between-the-law-and-technological-potential.pdf

[117] See World Trade Organization Incorporation of the Agreement on Electronic Commerce into Annex 4 of the WTO Agreement – 5 December 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/GC/W955.pdf

vii. Indonesia

Legal framework

The Law of the Republic of Indonesia - Number 11 of 2008 *Electronic Information and Transaction* legislation provides for the functional equivalence of writing and signatures, although it does not follow the structure or wording of the MLEC.[118] This law regulates the use of electronic documents as evidence before Indonesian Courts, electronic signatures, electronic transactions, domain name, intellectual properties, and protection of personal rights. The legislation was updated on 2 January 2024 by Law No. 1 of 2024 concerning the *Second Amendment of Law No. 11 of 2008 Concerning Electronic Information and Transactions.* This amendment addresses developments occurring internationally in relation to technology and provides for the practice and regulation of Electronic Certification Providers. The IT Law now provides that Electronic Certification Providers operating in Indonesia can be Indonesian or foreign but must have a legal presence and domicile in Indonesia. The business activities of an Electronic Certification Provider include providing services such as a. Electronic signatures, seals, timestamps, recorded electronic delivery services, website authentication, and digital identities.

In December 2021 Indonesia ratified the AAEC (ASEAN Agreement on Electronic Commerce)[119] the objectives of which are to facilitate cross-border e-commerce transactions in the ASEAN region; contribute to creating an environment of trust and confidence in the use of e-commerce in the ASEAN region; and deepen cooperation among Member States.[120]

Indonesia is a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce[121] has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR. Indonesia is also a member of the RCEP."[122]

MLETR adoption status

The Permanent Mission of the Republic of Indonesia to the UN in October 2017 made the following statement with regard to the MLETR:

> It is the view of Indonesia that the model law on electronic transferable records came up at the opportune moment as guidance for us in designing our national legislation on electronic transactions.[123]

viii. Japan

Legal framework

Japan has enacted the *Law Concerning Electronic Signatures and Certification Services*, Law No. 102 of 2000.[124] This legislation provides for the functional equivalence of information in electronic records and signatures. It also provides for the Accreditation of Certification Businesses, which is a service that confirms by certification certain electronic signatures. The legislation provides adequate and appropriate grounding for the later adoption of the MLETR, although does not formally follow the structure or wording of the MLEC.

Japan is party to the "Joint Minutes of the Second Meeting of the Committee on Trade in Services, Investment Liberalisation, and Electronic Commerce under the Agreement between the United Kingdom of Great Britain and Northern Ireland and Japan for a Comprehensive Economic

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[118] *Electronic Information and Transaction* legislation Indonesia: https://zaico.nl/files/RUU-ITE_english.pdf
[119] ASEAN Agreement on Electronic Commerce https://asean.org/asean-agreement-on-electronic-commerce-officially-enters-into-force/
[120] Article 4 ASEAN Agreement on Electronic Commerce.
[121] As at 26 July 2024, Indonesia was conducting domestic consultations and considerations of the stabilised text of the Agreement on E-commerce, see https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf
[122] Regional Comprehensive Economic Partnership Agreement (RCEP) https://www.dfat.gov.au/trade/agreements/in-force/rcep/rcep-text See also Chapter 12: https://www.dfat.gov.au/sites/default/files/rcep-chapter-12.pdf
[123] Statement by the Delegation of Indonesia at the Sixth Committee of the General Assembly on Agenda Item 79; Report of the United Nations Commission on the International Trade Law of its Fiftieth Session https://www.un.org/en/ga/sixth/72/pdfs/statements/uncitral/indonesia.pdf
[124] http://www.cas.go.jp/jp/seisaku/hourei/data/aescb.pdf

Partnership". Paragraph 4 deals with "Electronic Transferable Records" and states that the UK update Japan on the recently passed UK *Electronic Trade Documents Act* and of the benefits of electronic trade documents to businesses and the digitalisation of trade across the world. The Minutes noted: "that Japan is considering its own legislative reforms related to the Model Law on Electronic Transferable Records (MLETR)."[125] Japan has stated that it expects to legislature for bills of lading and warehouse receipts following the MLETR by 2025.

Japan is co-convenor, with Australia and Singapore, of the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.[126] Japan is a member of the RCEP and the CPTPP.

MLETR adoption status

Japan has established a study group dedicated to exploring the application of the MLETR to bills of lading and already possesses laws based on different principles for electronic promissory notes.[127] In April 2022, the Japan Legislative Council's Sub-committee on Commercial Law was established on the Electronic Bill of Lading law. In 2023, an Interim draft was compiled, public comments sought, and the outline of the bill completed with the Legislative Bureau review. It is proposed that submission of the Bill will be made to parliament in 2024-25, promulgation in 2025-26 and enforcement in 2027.[128]

As a member of the G7 and pursuant to the "Digital and Technology Ministerial Declaration" approved in April 2021, there is intention to develop a framework for use of electronic transferable records compatible with the MLETR.[129]

ix. Republic of Korea

Legal framework

The Republic of Korea adopted the MLEC in July 1999 when it enacted the *Framework Act on Electronic Commerce Act 1999.*[130] It was substantially amened in 2012 to conform to the ECC. In 2011 (effective in 2002) Korea enacted specialised legislation for electronic signatures, the *Electronic Signature Act.*[131] This is sufficient to facilitate that future consideration and adoption of the MLETR.

The Republic of Korea has enacted laws on electronic promissory notes and electronic bills of lading, but only applying to domestic trade to date.[132]

The Republic of Korea is a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the

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[125] Joint Minutes of the Second Meeting of the Committee on Trade in Services, Investment Liberalisation, and Electronic Commerce under the Agreement between the United Kingdom of Great Britain and Northern Ireland and Japan for a Comprehensive Economic Partnershiphttps://www.mofa.go.jp/mofaj/files/100595606.pdf

[126] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

[127] Trade Finance Global, "Status update: MLETR adoption in the G7 and emerging markets": https://www.tradefinanceglobal.com/posts/status-update-mletr-adoption-in-the-g7-and-emerging-markets/

[128] In June 2023, "digitalization of trade procedures" was listed for in the government's priority measures. https://uncitral.un.org/sites/uncitral.un.org/files/pages/RCAP/day_1_biz_track_2_mr._satoru_someya.pdf

[129] Ministerial Declaration G7 Digital and Technology Ministers' meeting 28 April 2021, available at: https://assets.publishing.service.gov.uk/media/608933688fa8f51b92e94d84/G7_Digital_and_Technology_Ministerial_Declaration.pdf

[130] *Framework Act on Electronic Commerce Act* (Korea) https://elaw.klri.re.kr/kor_service/lawView.do?hseq=61440&lang=ENG

[131] *Electronic Signature Act* (Korea) https://elaw.klri.re.kr/kor_service/lawView.do?hseq=55068&lang=ENG

132 Asian Development Bank: Digitalizing Trade in Asia Needs Legislative Reform https://www.adb.org/sites/default/files/publication/704041/digitalizing-trade-asia-legislative-reform.pdf

MLETR.[133]. The Republic of Korea is also a member of the RCEP, CPTA and DEPA, and is seeking accession to the CPTPP.

MLETR adoption status

According to the ESCAP Cross-Border Paperless Trade Database *MLETR Tracker*, the Republic of Korea has only reached stage 1 of eight possible stages towards 'Entry into Force'.[134] The stage completed to date is 'MLETR Socialisation' with the comment that there has been an advocacy effort contributed by ICC DSI.

x. Malaysia

Legal framework

he Malaysian *Electronic Commerce Act 2006*[135] was enacted in 2006 and was based substantially on the MLEC.[136] On 20 May 2020 Malaysia ratified the ASEAN Agreement on Electronic Commerce (AAEC).[137] Malaysia is also member of RCEP,[138] and CPTPP.

Malaysia is also a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.[139]

MLETR status

Malaysia's Electronic Commerce Act provides the functional equivalence provisions for writing and signatures to facilitate that future consideration and adoption of the MLETR.

According to the ESCAP Cross-Border Paperless Trade Database *MLETR Tracker*, the Malaysia has reached stage 3 of eight possible stages towards 'Entry into Force'.[140] The stages completed to date are: 'MLETR Socialisation', 'Political Support' and 'Domestic Analysis'. Other domestic initiatives at this stage are unclear.

xi. Mexico

Legal framework

Mexico enacted legislation consistent with both the MLEC in 2000, and the MLES in 2003.[141]

Mexico is a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.[142] Mexico is also a member of the CPTPP. Mexico is also a party to the *United States-Mexico-Canada Agreement*

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[133] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf
134 ESCAP *MLETR Tracker* Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr
135 Malaysian *Electronic Commerce Act 2006* https://aseanconsumer.org/file/post_image/Act%20658%20-%20Electronic%20Commerce%20Act%202006.pdf
136 Status: UNCITRAL Model Law on Electronic Commerce (1996) https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_commerce/status
137 ASEAN Agreement on Electronic Commerce https://asean.org/asean-agreement-on-electronic-commerce-officially-enters-into-force/
138 Regional Comprehensive Economic Partnership Agreement (RCEP) https://www.dfat.gov.au/trade/agreements/in-force/rcep/rcep-text See also Chapter 12: https://www.dfat.gov.au/sites/default/files/rcep-chapter-12.pdf
[139] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf
140 ESCAP *MLETR Tracker* Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr
141 Status: UNCITRAL Model Law on Electronic Commerce (1996) https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_commerce/status
Status: UNCITRAL Model Law on Electronic Signatures (2001) https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_signatures/status
[142] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

(UCMCA) which requires parties to endeavour to accept electronic documents in trade transactions and to accept cross-border transfer of information in business.[143]

MLETR adoption status

In March 2024, amendments were made to the Mexican Mexico *General Law of Negotiable Instruments and Credit Transactions* (*Ley General de Títulos y Operaciones de Crédito*), and to the *General Law of Credit Auxiliary Activities and Organizations* (*Ley General de Organizaciones y Actividades Auxiliares del Crédito*). The purpose of the amendments was to implement electronic negotiable instruments (*títulos de crédito electrónicos*), repeal provisions regarding pledge bonds (*bono de prenda*) as a negotiable instrument, and modify laws dealing with warehouse deposit certificates (*certificados de depósito*) and public bonded warehouses (*almacenes generales de depósito*). The general aim was to modernise and streamline commercial transaction, encourage and provide greater legal certainty to the execution of transactions and to the negotiability of negotiable instruments electronically.

The amendments do not follow the precise approach or wording of the MLETR, but do enable the electronic issue, transfer, and endorsement of negotiable instruments such as bills of exchange, promissory notes, cheques, convertible notes, certificates of ownership and warehouse deposit certificates. The amendments enhance functional equivalence by providing that electronic negotiable instruments shall be treated as "data messages" under the Mexican Code of Commerce (Código de Comercio) enabling the use of "electronic, optical or technological" means for such documents.

The requirement for the electronic negotiable instrument's integrity required that the electronic document remains complete and unaltered since its issuance, or any alteration made as a result of the ordinary trade, transfer, or delivery of such instrument has been recorded and remains traceable.

In relation to warehouse deposit certificates, effective 26 September 2025, new warehouse deposit certificates shall be issued electronically by the use of cryptographic certificate of deposit systems of the public bonded warehouses. These new electronic warehouse deposit certificates must be registered in the Sole Registry of Certificates, Warehouses and Merchandises (administered by the Ministry of Economy) and must include an advanced electronic signature of the issuing public bonded warehouse's legal representative.[144]

The amendments have been described as facilitating the reduction of paperwork, lower transaction costs, and provide a transparent mechanism for executing and enforcing financial transactions. It is considered that the amendments will positively impact businesses by reducing fraud and expediting legal and commercial transactions. According to the CTRMCenter "Businesses in Mexico will now be able to confidently explore digital transformation as a means of improving processes."[145]

xii. New Zealand

Legal framework

New Zealand enacted provisions of the MLEC and the ECC in the *Commerce and Commercial Law Act 2017* (NZ).[146] The legislation provides the functional equivalence provisions for writing and signatures to facilitate that future consideration and adoption of the MLETR.

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143 See article 19, USMCA https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement/agreement-between

144 Mexican law distinguishes between simple electronic signatures, and advanced electronic signatures. The advanced electronic signature may be issued by authorities or certification service providers which are individuals or public entities authorised by the Ministry of Economy. Advanced electronic signatures must provide for the preservation of data messages, the issuance of a digital time stamp, and the digitisation of printed documents, in accordance with the Official Mexican Standard Rule on Digitisation and Preservation of Data Messages.

145 CTRMCenter, "Mexico amends legislation, enables electronic financial documents, https://www.ctrmcenter.com/ctrm-community/mexico-amends-legislation-enables-electronic-financial-documents/

146 *Commerce and Commercial Law Act 2017* (NZ), see Part 4: https://www.legislation.govt.nz/act/public/2017/0005/21.0/DLM6844033.html

New Zealand is a party to the Digital Economy Partnership Agreement (DEPA), the RCEP and the CPTPP. It is also a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.[147]

MLETR adoption status

The *Digital Trade Review: Final Report for the New Zealand Ministry of Foreign Affairs and Trade* was conducted in 2023, including a Roadmap to 2027.[148] The Review includes a discussion of the MLETR. The Roadmap includes consideration of the principle of 'weightless trading', which is described as encompassing a wide range of activities that involve traders using digital technologies to improve the efficiencies in international trade.

The ESCAP Cross-Border Paperless Trade Database *MLETR Tracker*, provides that New Zealand has only reached stage 2 of eight possible stages towards "Entry into Force".[149] The stages completed to date are MLETR Socialisation and Political Support.

xiii. Papua New Guinea

Legal framework

The Papua New Guinea *Electronic Transactions Act 2021* (PNG)[150] came into operation on 22 May 2022.

MLETR adoption status

The Papua New Guinea *Electronic Transactions Act 2021* simultaneously incorporated provisions from the *Model Law on Electronic Commerce* (1996), the *Model Law on Electronic Signatures* (2001), the *United Nations Convention on the Use of Electronic Communications in International Contracts* (2005), and the *Model Law on the Use and Cross-border Recognition of Identity Management and Trust Services* (2022) in addition to the MLETR (*Model Law on Electronic Transferable Records* (2017).

Part V, sections 31 to 41 of the Act enacts the MLETR in full with no significant change. For example: *Electronic Transactions Act 2021* (PNG) PART V. - ELECTRONIC TRANSFERABLE RECORDS.

31. Electronic transferable records.

32. Legal recognition of an electronic transferable record.

33. Transferable documents or instruments.

34. Non-discrimination of foreign electronic transferable records.

35. Concept of control.

36. General reliability standard.

37. Indication of time and place in electronic transferable records.

38. Endorsement,

39. Amendment of a transferable document or instrument.

40. Replacement of a transferable document or instrument with an electronic transferable record.

41. Replacement of an electronic transferable record with a transferable document or instrument.

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[147] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

[148] See *Digital Trade Review: Final Report for the New Zealand Ministry of Foreign Affairs and Trade*, pages 1, 15-16 and 17-24; https://www.mfat.govt.nz/assets/Trade-General/Trade-policy/Digital-Trade-Review-Final-Report.pdf; see also the New Zealand Digital Trade Review: Principles and Actions, https://www.mfat.govt.nz/assets/Trade-General/Trade-policy/Digital-Trade-Review-principles.pdf

[149] ESCAP *MLETR Tracker,* Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr

[150] See the Papua New Guinea government web site: https://www.parliament.gov.pg/uploads/acts/21A_38.pdf

xiv. Peru

Legal framework

Law 27269 of 2000 - Law on Digital Signatures and Certification[151] provides for the functional equivalence of documents and signatures. UNCITRAL notes that "The legislation is influenced by the Model Law (of Electronic Signatures) and the principles on which it is based."[152] The legislation facilitates the future consideration and adoption of the MLETR.

Peru is a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.[153]

Peru is not yet a party DEPA with Chile; New Zealand; and Singapore but has expressed aspiration to join. DEPA includes provisions on a domestic electronic transaction's framework and paperless trading.

MLETR adoption status

The ESCAP Cross-Border Paperless Trade Database *MLETR Tracker*, provides that Peru has reached stage 2 of eight possible stages towards "Entry into Force".[154] The stages completed to date are MLETR Socialisation and Political Support. Other domestic initiatives at this stage are unclear.

xv. The Philippines

Legal framework

The Philippines has enacted provisions of the MLEC including articles 16 and 17; and the ECC *Electronic Commerce Act of 2000*. The Philippines ratified the ECC effective February 2023.[155]

The Philippines is one of two APEC economies that enacted Part 2 of the MLEC (1996) which was UNCITRAL's early attempt to provide for electronic transfer documents that includes a right or obligation. Part 2 formally addresses the carriage of goods, with the intention of providing an electronic equivalent for certain shipping documents such as bills of lading. Article 17 prescribes what the electronic document must do to serve the function of the shipping document on paper.[156] Equivalent provisions of Part 2 appear in Part III of the Philippines *Electronic Commerce Act.* Section 25 provides that the part applies any in connection with a contract of carriage of goods and section 26 provides in part for functional equivalence, provides a test for "the standard of reliability".

The Philippines is a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.[157] The Philippines has ratified the ASEAN Agreement on Electronic Commerce (AAEC).[158] The

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[151] *Law 27269 of 2000 - Law on Digital Signatures and Certification* https://www.uaipit.com/uploads/legislacion/files/0000000176_F1-IS-PE-L%2027269-2000.htm

[152] Status: UNCITRAL Model Law on Electronic Signatures (2001) https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_signatures/status

[153] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

[154] ESCAP *MLETR Tracker,* Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr

[155] Status: UNCITRAL Model Law on Electronic Commerce (1996) https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_commerce/status
Status: United Nations Convention on the Use of Electronic Communications in International Contracts (New York, 2005) https://uncitral.un.org/en/texts/ecommerce/conventions/electronic_communications/status

[156] The operation is explained in paragraphs 113 to 122 of the Guide to Enactment of the Model Law of Electronic Commerce.

[157] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

[158] ASEAN Agreement on Electronic Commerce https://asean.org/asean-agreement-on-electronic-commerce-officially-enters-into-force/

Philippines has signed the Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific (CPTA). It is also a member of the RCEP.

MLETR adoption status

According to the ESCAP Cross-Border Paperless Trade Database *MLETR Tracker*, the Philippines has reached stage 6 of eight possible stages towards "Entry into Force".[159] The stages completed to date are: MLETR Socialisation, Political Support, Domestic Analysis, Readiness Assessment, Stakeholder Consultation and sixthly Legislative Drafting.

According to the Asian Development Bank, of the ASEAN members, the Philippines one of three economies particularly well-disposed to MLETR adoption, "given familiarity with UNCITRAL model laws on e-commerce".[160]

xvi. The Russian Federation

Legal framework

The Russian Federation ratified the ECC effective August 2014.[161] Russia has legally accepted electronic signatures since the Federal Law of the Russian Federation No. 63-FZ "On Electronic Signature" was passed on 6th April 2011. Under Russian law, a written signature is not necessarily required for the majority of contracts. See Clauses 158 - 160 of Russian Civil Code.

The Russian Federation is a member of CPTA, and participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.[162]

MLETR adoption status

According to the ESCAP Cross-Border Paperless Trade Database *MLETR Tracker*, the Russian Federation has reached stage 2 of eight possible stages towards "Entry into Force".[163] The stages completed to date are: MLETR Socialisation and Political Support.

xvii. Singapore

Legal framework

In 1998 Singapore was the first economy to enact an Electronic Transactions legislation based on the MLEC. In 2010 it reenacted the legislation to conform to the ECC.

Singapore is also a member of the RCEP, the CPTPP, the Australia/Singapore Digital Economy Agreement, the DEPA, all of which include provisions to facilitate paperless trade.

Singapore is also co-convenor, with Australia and Japan, of the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-

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[159] ESCAP *MLETR Tracker* Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr

[160] Asian Development Bank: Digitalizing Trade in Asia Needs Legislative Reform https://www.adb.org/sites/default/files/publication/704041/digitalizing-trade-asia-legislative-reform.pdf

[161] Status: United Nations Convention on the Use of Electronic Communications in International Contracts (New York, 2005). The accompanying UN notes to the ratification state: "Upon acceptance, the Russian Federation declared: 1. In accordance with article 19, paragraph 1, of the Convention, the Russian Federation will apply the Convention when the parties to the international contract have agreed that it applies; 2. In accordance with article 19, paragraph 2, of the Convention, the Russian Federation will not apply the Convention to transactions for which a notarized form or State registration is required under Russian law or to transactions for the sale of goods whose transfer across the Customs Union border is either prohibited or restricted; 3. The Russian Federation understands the international contracts covered by the Convention to mean civil law contracts involving foreign citizens or legal entities, or a foreign element." https://uncitral.un.org/en/texts/ecommerce/conventions/electronic_communications/status

[162] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

[163] ESCAP *MLETR Tracker* Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr

commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.[164]

MLETR adoption status

Singapore has enacted the MLETR in full. Part 2A "Electronic Transferable Records" of the *Electronic Transactions Act 2010* (Sing) became operative in 2021. Divisions 1-5 of *Singapore Electronic Transactions Act* mainly incorporate the provisions of the MLETR with a few modifications.

One modification was to the key provision of article 10, being section 16H in the Singapore Act. Article 10(1)(b) provides in part for the requirement that: "(b) a reliable method is used: (i) to identify that electronic record as the electronic transferable record". The Working Group in drafting this sub paragraph considered several iterations. The concern surrounded the issue of a draft "electronic record" (defined in article 2) becoming functional when issued; that is when it operates as a fully functional "electronic transferable record". In the paper world, for example, a piece of paper becomes operative as a bill of lading when the information and signatures are placed on it, and it is delivered to the shipper. For 12 months of the drafting process the draft expression was, the "*operative* electronic transferable record" to make the distinction. The Working Group reviewed this and changed the wording to "identify that electronic record *as the authoritative record constituting* the electronic transferable record". At a subsequent drafting session, concern was expressed about the difference between an "*authoritative record constituting* the electronic transferable record" and simply an "electronic transferable record"; and whether the commercial parties and the Courts may make an interpretative distinction. It was determined that the descriptor was not necessary, as once the "electronic record" became functional, it was an "electronic transferable record" and that no additional descriptor was necessary. Indeed, the Working Group stressed that it was only necessary to use the article "the", with the final drafting being "*the* electronic transferable record". However, the Singapore provision choose to use the descriptor "authoritative" to emphasis when the "electronic record" became functional.[165] Although the descriptor was placed before "electronic record" instead of "record". Section 16H)(1)(b) states in part: "(b) a reliable method is used: (i) to identify that electronic record *as the authoritative electronic record constituting* the electronic transferable record".

Division 6 was added to deal with the registration, licensing or accreditation of providers of an electronic transferable records management system. Division 6 defines an "electronic transferable records management system" as an information system for the issuance, transfer, control, presentation and storage of electronic transferable records. The Minister is empowered to make regulations concerning: the system of registration, licensing or accreditation of providers of an electronic transferable records management system; the accreditation of electronic transferable records management systems; the accounts kept by a provider; the duties and liabilities of a provider, and to provide for the cross-border recognition of a provider of an electronic transferable records management system. The Singapore Act also empowers a responsible person, called the Controller, to require compliance with Part 2A and gives the power to investigate the activities of a provider of an electronic transferable records management system.

xviii. Chinese Taipei

Legal framework

Chinese Taipei enacted the *Electronic Signatures Act* in 2001. The Act applies to the functional equivalence of writing and of signatures. The Act encourages the use of electronic transactions and is intended to ensure the security of electronic transactions. Chinese Taipei promulgated the Electronic Signature Law as early as 2001 to promote the popularization and use of electronic

[164] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

[165] UNCITRAL Report of Working Group IV (Electronic Commerce) on the work of its fifty-third session (New York, 9-13 May 2016) paragraphs 52-60.

transactions, ensure the security of electronic transactions, and promote the development of e-commerce.

In response to the global trend of electronic signature applications and the needs of international commerce, on 2 December 2022, Chinese Taipei's Ministry of Digital Affairs issued an interpretation of the "Electronic Signature Technology with the Effectiveness of Electronic Signatures." This interpretation lists specific signature technologies or standards referred to in the law, incorporating commonly used international algorithms and information security standards, such as Public Key Infrastructure (PKI) technology and framework, signature formats or algorithms formulated by international organizations or major economies, such as the signature formats established by the European Telecommunications Standards Institute (ITU) and the signature algorithms formulated or approved by the National Institute of Standards and Technology (NIST) or ISO, to enhance the practical use of electronic signatures.

The Ministry of Digital Affairs announced the first draft amendment of the "Electronic Signature Act" in October 2023, explicitly stating that electronic documents and electronic signatures are equivalent to physical documents and signatures, thereby confirming the legal validity of electronic signatures. The draft amendment was promulgated on 15 May 2024.

The main points of this amendment are as follows:

1. Explicitly stating the equivalence of electronic and paper-based documents.
2. Clarifying the relationship between electronic signatures and digital signatures.
3. Differentiating the strength of digital signatures issued by government-authorized certification authorities.
4. Adjusting the requirements for obtaining the consent of the counterparty.
5. Reducing the possibility of excluding the application of the Electronic Signature Act through public notices.
6. Considering future opportunities for international interoperability of electronic signatures.
7. Requiring the competent authority to conduct regular surveys on the application of electronic signatures.

Chinese Taipei is also a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce[166] has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.

MLETR adoption status

According to the ESCAP Cross-Border Paperless Trade Database *MLETR Tracker*, Chinese Taipei has reached stage 2 of eight possible stages towards 'Political Support.'.[167] The stages completed to date are: 'MLETR Socialisation' and 'Political Support'. Other domestic initiatives at this stage are unclear.

xiv. Thailand

Legal framework

The Thai *Electronic Transactions Act B.E. 2544 (2001)*[168] promotes electronic transactions, provides for the legal recognition of electronic transactions and electronic signatures with the intention of enhancing trust in electronic information systems. In 2008 it was amended to permit and recognise the

[166] As at 26 July 2024, Chinese Taipei was conducting domestic consultations and considerations of the stabilised text of the Agreement on E-commerce, see https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf
[167] ESCAP *MLETR Tracker* Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr
[168] *Electronic Transactions Act B.E. 2544 (2001) (Thailand)* https://www.etda.or.th/getattachment/8faa736b-3235-49c8-8b01-d37ff53a9a45/ENG-Version.aspx

transition of paper-based documents to electronic documents and the of electronic documents to paper-based documents. In 2019 it was further amended twice, first to adopt certain principles from the ECC, namely with regard to invitations to make offers, the use of automated message systems for contract formation and provision dealing with errors in electronic communications with automated messaging systems; and second, to provide legal recognition of Digital ID. The Act follows both the MLEC[169] and the MLES.[170]

Thailand is a member of the RCEP, the ASEAN Agreement on Electronic Commerce[171] which include provisions to facilitate paperless trade.

Thailand is also a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.[172]

MLETR adoption status

In 2021, the Cabinet approved the inclusion of the MLETR in the Electronic Transactions Act.[173] The Electronic Trade Documents Bill has been drafted and is currently in the review stage.

The Center for Digital Trade and Innovation and the ADB have provided technical assistance to support the removal of legal barriers and to align the Thai *Electronic Transactions Act* with the MLETR.[174]

The Asian Development Bank has noted that "Thailand … appears particularly well-disposed to MLETR adoption, given familiarity with UNCITRAL model laws on e-commerce".[175]

ESCAP reports that the "Electronic Bill of Lading Pilot Infocomm Media Development Authority" partnered with industry stakeholders to successfully complete a live shipment from Singapore to Thailand in 2023. The shipment of liquid chemicals included an Electronic Transferable Record for an electronic bill of lading utilising Bunkerchain, a TradeTrust enabled digital platform.[176]

xx. United States

Legal framework

United States has equivalent laws to the MLETR at the sub central level. Provisions which predate the MLETR are in place in US domestic law. The US *Uniform Commercial Code* (UCC) comprises laws governing all commercial transactions in the United States. It is not a federal law but is generally adopted uniformly at sub economy level. These laws deal with specific instruments, and do not apply to all possible transferable documents and instruments as defined by the MLETR.

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[169] Status: UNCITRAL Model Law on Electronic Commerce (1996) https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_commerce/status

[170] Status: UNCITRAL Model Law on Electronic Signatures (2001) https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_signatures/status

[171] ASEAN Agreement on Electronic Commerce https://asean.org/asean-agreement-on-electronic-commerce-officially-enters-into-force/

[172] See World Trade Organization Joint Statement Initiative on Electronic Commerce - 26 July 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

[173] Dhiraphol Suwanprateep, Pattaraphan Paiboon and Khunawut Tongkak, "The Cabinet approved new principles for an amendment to the Electronic Transactions Act B.E. 2544 (2001)". Baker McKenzie, https://www.lexology.com/library/detail.aspx?g=157c937b-6292-4fdf-a5b7-b3c3d13a7400

[174] Asian Development Bank Briefs, No 208, December 2023 https://www.adb.org/sites/default/files/publication/932456/adb-brief-280-driving-digitalization-global-trade.pdf

[175] Asian Development Bank: Digitalizing Trade in Asia Needs Legislative Reform https://www.adb.org/sites/default/files/publication/704041/digitalizing-trade-asia-legislative-reform.pdf

[176] ESCAP: Document title: Cross-border paperless trade of the Parties to the Framework Agreement and other selected member states of ESCAP, May 2024, page 22, https://www.unescap.org/sites/default/d8files/event-documents/agenda%20item%203.b%20status%20of%20implementation_0.pdf

UCC Article 7 applies to electronic bills of lading and warehouse receipts,[177] and UCC Article 9 applies to security interests in electronic promissory notes.[178] The US *Uniform Electronic Transactions Act* (UETA) and *Electronic Signatures in Global and National Commerce Act 2000* (ESIGN) contain provisions on electronic records generally but not electronic transferable records. The UETA has been adopted by 49 sub central jurisdictions, the District of Columbia and the US Virgin Island. The remaining jurisdiction, New York, has its own separate complying enactment.

The ESIGN Act provides a general rule of validity for electronic records and signatures and is based on the MLEC (1996). It permits the use of electronic records to satisfy any statute, regulation, or rule of law requiring that such information be provided in writing. The ESIGN Act includes examination procedures for financial institutions.

As a member of the G7 and pursuant to the "Digital and Technology Ministerial Declaration" approved in April 2021, there is intention to develop a framework for use of electronic transferable records compatible with the MLETR.[179] United States is a participant in the WTO *Joint Statement Initiative on Electronic Commerce*, under which the Agreement on E-Commerce[180] has been negotiated; the stabilised text of which was published on 26 July 2024. Article 4.3 of the Agreement on E-commerce requires its members to endeavour to adopt or maintain a legal framework that takes into account the MLETR.

The US is a party to the *United States-Mexico-Canada Agreement* (UCMCA) which requires parties to endeavour to accept electronic documents in trade transactions and to accept cross-border transfer of information in business.[181]

MLETR adoption status

See above.

xxi. Viet Nam

Legal framework

The Viet Nam *Law on e-transactions Number: 51/2005/QH11*[182] is based on the MLEC and the MLES.[183] The legislation provides functional equivalence for documents and signatures. This provides the necessary foundation for the future adoption and implementation of the MLETR.

Viet Nam is party to the ASEAN Agreement on Electronic Commerce[184] the RCEP and the CPTPP.

MLETR adoption status

According to the ESCAP Cross-Border Paperless Trade Database *MLETR Tracker*, Viet Nam has only reached stage 1 of eight possible stages towards "Entry into Force".[185] The stage completed to date is "MLETR Socialisation".

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[177] UCC Article 7 deals generally with "Documents of Title" and has been adopted by all 50 US states and the District of Columbia. See Legal Information Institute, Cornell University, Article 7 https://www.law.cornell.edu/ucc/7

[178] UCC Article 9 deals generally with "Secured Transactions", and has been adopted by all 50 US states, the District of Columbia, US Virgin Islands and Puerto Rico. See Legal Information Institute, Cornell University, Article 9 https://www.law.cornell.edu/ucc/9

[179] Ministerial Declaration G7 Digital and Technology Ministers' meeting 28 April 2021, available at: https://assets.publishing.service.gov.uk/media/608933688fa8f51b92e94d84/G7_Digital_and_Technology_Ministerial_Declaration.pdf

[180] As at 26 July 2024, the US was conducting domestic consultations and considerations of the stabilised text of the Agreement on E-commerce, see https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf

[181] See article 19, USMCA https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement/agreement-between

[182] Viet Nam *Law On e-transactions Number: 51/2005/QH11*https://vbpl.vn/tw/Pages/vbpqen-toanvan.aspx?ItemID=6121

[183] Status: UNCITRAL Model Law on Electronic Commerce (1996) https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_commerce/status
Status: UNCITRAL Model Law on Electronic Signatures (2001) https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_signatures/status

[184] ASEAN Agreement on Electronic Commerce https://asean.org/asean-agreement-on-electronic-commerce-officially-enters-into-force/

[185] ESCAP *MLETR Tracker* Cross-Border Paperless Trade Database https://www.digitalizetrade.org/mletr

The Asian Development Bank has noted that "Viet Nam … appears particularly well-disposed to MLETR adoption, given familiarity with UNCITRAL model laws on e-commerce".[186]

[186] Asian Development Bank: Digitalizing Trade in Asia Needs Legislative Reform https://www.adb.org/sites/default/files/publication/704041/digitalizing-trade-asia-legislative-reform.pdf

Annex 2. Economic Modelling Results and Methodology

Paperless Trade in APEC:

Modelling the economic consequences of implementing the Model Law on Electronic Transferable Records (MLETR)

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November 2024

Executive summary

- Most jurisdictions globally do not have domestic laws in place that recognise electronic transferable records, and thus require that documents transferring the ownership of goods be presented in physical paper form.
- Since the adoption of the UNCITRAL Model Law on Electronic Transferable Records in 2017, several studies have noted that efficiency gains could be realized as economies switch from paper-based records to electronic records.
- We use the Centre of Policy Studies' GTAP-FIN computable general equilibrium model to quantify the potential economic effects arising from productivity gains from implementation of paperless trade in APEC.
- To quantify the potential productivity effects from implementation of paperless trade, we adapt estimates from Walmsley and Minor (2016), which simulated the impacts of the WTO's Trade Facilitation Agreement (TFA). We translate shocks from this TFA study to illustrate the potential gains from adoption of paperless trade in APEC over 2024-2033.
- The adoption of paperless trade in APEC is modelled as a series of productivity improvements to international trade over a three-year period, reflecting an assumed implementation phase for paperless trade that spans 2024-2026.
- Following the implementation period, we find that the average annual gain in real GDP in APEC is around 0.45 – 0.5 per cent, equivalent to approximately USD250b per annum in 2024-dollar terms. Aggregating the real GDP gains across all APEC regions over the study period 2024-2033, the present value of these gains is approximately USD2.0t.
- By 2033, the seven APEC economies experiencing the largest positive deviations in real GDP are Viet Nam (2.9%); Malaysia (1.5%); Singapore (1.3%); Thailand (1.2%); PNG (1.1%); Chinese Taipei (0.95%); and Mexico (0.89%). These economies are characterised by having some combination of high trade shares in GDP and high modelled potential trade efficiency gains from paperless trade adoption.
- By 2033, the seven APEC economies experiencing the next largest real GDP deviations are the Philippines (0.76%); Hong Kong, China (0.51%); Republic of Korea (0.36%); Peru (0.35%); People's Republic of China (0.35%); Russia (0.35%); and Brunei Darussalam (32%).
- By 2033, the seven APEC economies experiencing the smallest positive deviations in real GDP are Indonesia (0.27%); Canada (0.27%); Chile (0.22%); Japan (0.19%); New Zealand (0.17%); Australia (0.15%); and the U.S. (0.10%). These economies are characterised by having some combination of low trade shares in GDP and lower modelled potential efficiency gains from paperless trade adoption.
- Employment gains across APEC peak in 2026 at almost 0.15 per cent relative to baseline. The employment gain in Australia peaks in 2026 at 0.11. Thereafter, the positive labour market pressures generated by paperless trade gradually translate into higher real wages.
- Real wages increase in all APEC economies. By 2033, the average real wage increase experienced by APEC economies is 0.7 per cent. The highest real wage gains are experienced by economies that are developing and/or have high trade shares. Lower real wage gains are experienced by economies that are developed and/or have low trade shares in GDP. For Australia, real wages are project to rise by 0.23 per cent relative to baseline.
- A qualification to our study is that, while Walmsley and Minor's TFA shocks are relevant to the quantification of the magnitude of potential gains from paperless trade, they are not in themselves direct estimates of such gains. Hence, in our conclusions we suggest that future work should be addressed at direct estimation of paperless trade efficiency gains distinguishing commodities, trade origins, and trade destinations. Nevertheless, we

demonstrate that our aggregate results are within a plausible bound by comparing our results with estimates of paperless trade gains from ICC (2021a).

1. Introduction

As part of this report, The Centre of Policy Studies (CoPS) at Victoria University undertook economic modelling to identify the potential economic impacts derived from the adoption of the Model Law on Electronic Transferable Records (MLETR) by member economies of APEC.

Since the adoption of the UNCITRAL Model Law on Electronic Transferable Records in 2017, a number of studies have noted that considerable efficiency gains could be realized as economies align their trading systems with the MLETR. We integrate estimates of the potential efficiency gains into CoPS' GTAP-FIN computable general equilibrium (CGE) model to simulate the adoption of the MLETR and subsequent implementation of paperless trade by APEC economies, assuming these efficiency gains are phased in over 2024-2026. Results suggest that average annual real GDP gains across APEC of 0.45-0.5 per cent could be realized, equivalent to approximately USD250b per annum in 2024-dollar terms. Our modelling suggests that employment gains across APEC peak in 2026 at almost 0.15 per cent.

In interpreting the results of the modelling presented in this report, readers should keep in mind several qualifications and caveats.

- First, simply adopting or aligning legislation with the MLETR will not automatically generate economic benefits or practical changes in trade processes. Effective implementation will be required and must be in place to fully leverage legislative changes. This will likely require efforts that could take many years to fully implement, extending beyond adoption of MLETR, and which will vary by economy. The base assumptions adopted in the modelling exercise (beyond MLETR enactment), and therefore the results, must be viewed with this caveat in mind.
- Second, our literature review revealed that there is a lack of the type of detailed direct estimates of potential gains from paperless trade that would typically form inputs to modelling of the type presented in this report. While the ICC have undertaken studies providing a sense for the magnitude of potential aggregate savings from paperless trade, there are no existing studies that estimate the productivity shocks associated with paperless trade with high levels of commodity- and economy-specific detail. This required us to use inputs to proxy the effects of paperless trade adoption. The productivity shocks used in our simulations are adapted from Walmsley and Minor (2016), which were designed for evaluating the WTO's Trade Facilitation Agreement rather than paperless trade specifically. We expand on these qualifications in our conclusions and suggestions for future research.

2. Modelling the economic benefits of paperless trade

The development of the MLETR recognises that there are economic gains arising from the adoption of paperless trade. To model these gains, we require independent estimates of the direct economic efficiency gains from adoption of paperless trade for input to the economic model. In this section, we discuss our methodology. We begin with an overview of our economic model, GTAP-FIN. Next, we review some recent studies that have attempted to identify and quantify the potential benefits that economies could derive from a switch away from physical paper documents to electronic transferable records. Finally, we detail the methodology by which we integrate the efficiency gains due to the implementation of paperless trade into the GTAP-FIN CGE model.

2.1 The GTAP-FIN model

We use CoPS' GTAP-FIN model to quantify the economic effects from adoption of paperless trade in APEC. Here, we present an overview of the model. More detail describing the features of GTAP-FIN is available in the Appendix Annex A1.

GTAP-FIN is a dynamic CGE model built upon the database of the latest GTAPv.11 model with 2017 as its base period. We maintain the 65-commodity level of aggregation from the GTAPv.11 database, but aggregate the GTAPv.11 database to 43 economies, including separate representation of each of the 21 APEC economies. The commodity and regional aggregations are detailed in the Appendix (see Tables A4 and A5, respectively). The core theoretical structure of GTAP-FIN is based on the well-known GTAP model, but builds on that model in ways that enable dynamics and the tracking of international financial flows. In particular, GTAP-FIN contains: stock/flow accounting relationships to facilitate dynamics; industry-specific investment and capital stocks in each economy; specifications for labour markets that exhibit short-run wage stickiness, allowing for temporary movements in employment in each economy; and, modelling of bilateral international financial assets and liabilities. As the model is dynamic, we first undertake a baseline simulation that advances the model from 2017. The impact of paperless trade is reported by undertaking a simulation that adds paperless trade shocks to the baseline, and then reports differences between this new path and the underlying baseline path.

To model the baseline path, we first advance the GTAP-FIN model from the initial 2017 solution period to the current period using historical data derived from the IMF, World Bank, IEA, UN, and other sources. The model is then forecast to 2027 using available forecasts of GDP, working-age population and other variables from the IMF and other sources. Beyond 2027, the model is forecast to 2033 using average model-based all-factor productivity growth forecasts by region. In this way, we construct a baseline simulation for the period 2017-2033. Against this baseline, we contrast results generated by GTAP-FIN after incorporating shocks that simulate the impact of the adoption of paperless trade by all APEC economies.

2.2 Current literature on MLETR and the benefits of paperless trade

Despite advancements in the digitalisation of the trade ecosystem, the ICC[187] notes that most jurisdictions globally still require that transferrable records, that is, documents transferring the ownership of goods, be presented in physical paper form. These documents include bills of exchange, bills of lading, promissory notes, and warehouse receipts.

MLETR provides provisions covering the functional equivalence of electronic and paper records, the criteria for establishing control over electronic records, and the integrity and reliability of electronic records systems. It seeks to modernise trade practices and support the shift to digital documentation in global commerce.[188] The ICC[189] contends that legislative reform moving the international trading ecosystem away from outdated paper-based systems and their legal frameworks towards more reliance on paperless systems and a legal environment supportive of electronic transferable records will significantly enhance efficiencies in international trade facilitation. They advocate aligning domestic laws with the UNCITRAL MLETR as the best approach to achieving this reform.[190]

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[187] 2021a
[188] UNCITRAL 2017
[189] 2021a
[190] ICC 2021a: 4).

Castellani[191] identifies several potential economic advantages for economies transitioning to the use of electronic transferable records and digitised trade documents in international trade. These benefits include increased efficiency and reduced transaction costs, shorter processing times, decreased risk of document loss and fraud, real-time monitoring of commodities in transit, and enhanced supply chain management through improved transparency, and synchronisation and communication among the multiple parties involved in the trade process.

A number of studies have explored elements of the potential magnitude of economic gains from wider adoption of electronic transferable records. These studies are helpful in identifying the many potential sources of productivity gains from paperless trade, and in providing broad estimates of the potential value of aggregate efficiency gains. However, a limitation of these studies for the purposes of quantifying input shocks to a detailed economic model is that they tend to be economy or region specific and lack commodity and bilateral trade flow detail. Nevertheless, as we show in Section 3.1, by providing aggregate estimates of potential efficiency gains, these studies are helpful in providing a benchmark against which we can evaluate the plausibility of the magnitude of the total value of efficiency gains that we input to our CGE model.

The ICC[192] argue that paperless trade could significantly reduce trade costs across the G7 economies. Currently, trade-related costs account for 3 per cent of the total trade value within the G7, but this could drop to 0.7 per cent with the digitalisation of the trade ecosystem. More broadly, they conclude that a fully digitalised trade system could lead to an average 84 percent reduction in trade costs across the G7+.[193] Trade cost savings of a similar magnitude are anticipated by Commonwealth Secretariat,[194] who anticipate that digital trade facilitation across the Commonwealth could reduce trade costs by an average of around 75 percent.

ICC[195] also quantified the potential bureaucratic savings from digitalising the trade system. They argue that trade-related bureaucracy will be significantly reduced by decreasing the time spent on cross-border trade by approximately 81 per cent across the G7. This includes reducing the average number of days for border compliance from 25 days to less than one day and reducing time spent on compliance from an average of 2.3 days to under half a day.[196]

More broadly, ICC[197] anticipates that paperless trade will greatly reduce the time required for completing cross-border documentation and transport processes. Potential time savings of around 80 per cent across all economies might be achievable, with expert feedback suggesting that once standardisation is achieved, paperless trade could reduce time costs from 25 days to just 5 days worldwide.[198]

In the UK, the ICC[199] analysed the benefits of adopting electronic transferable records, concluding that this could reduce document processing times by up to 75 percent, and generate approximately GBP224 billion in efficiency savings. These savings could come from efficiency improvements

[191] Castellani 2023
[192] 2021a
[193] ICC 2021a: 2
[194] Commonwealth Secretariat 2022
[195] 2021a
[196] ICC 2021a: 2
[197] 2021a
[198]ICC 2021a: 24
[199] 2021b

related to bills of lading (GBP171 billion), bills of exchange (GBP26 billion), and promissory notes (£27 billion).

ADB[200] observes that international trade systems for physical goods largely remain paper-based and reliant on labour-intensive processes. Citing the ICC's Digital Standards Initiative and the WTO, they report that a typical international transaction involves multiple participants, 36 documents, and 240 copies. This is consistent with findings by McKinsey & Company[201], which examined the inefficiencies of paper-based trade systems. They found that documentation for a single shipment can involve up to 50 sheets of paper, exchanged among as many as 30 different stakeholders. They report that the bill of lading process still predominantly relies on the transfer of physical paper records, affecting approximately 40 per cent of containerised trade transactions. Their analysis indicates that the bill of lading process constitutes 10-30 per cent of trade documentation costs. Their analysis finds that implementing an electronic bill of lading system could generate significant efficiency gains in the international shipping ecosystem, estimated to be between USD14.9 - 15.5 billion. These gains would arise from benefits to container carriers, such as more direct interaction with shippers and streamlined, digitised workloads (USD1.5-2.1 billion); direct cost savings for all involved parties through digitised and automated processes (USD6.5 billion); and broader trade ecosystem gains arising from reduced inventory and financing costs for cargo owners, and the facilitation of new business models (USD6.9 billion).[202]

2.3 Quantifying the economic effects of paperless trade adoption in APEC for input to GTAP-FIN

Since paperless trade initiatives are themselves elements of trade facilitation, our modelling exercise builds on the literature on modelling of trade facilitation in CGE models that uses the so-called "Iceberg Method", by which costly documentary, border and customs clearance procedures cause some amount of trade to "melt". The adoption of paperless trade measures implies that documentary procedures become more efficient and less costly, so the amount of trade that "melts" diminishes. These efficiency gains are incorporated into our GTAP-FIN CGE model through a series of calibrated shocks that simulate the impact of trade facilitation as export- and import-augmenting technical change, by which the same amount is exported, but a larger amount arrives at the importer compared to before trade facilitation measures were adopted.

To our knowledge, there are no studies that provide estimates of the potential efficiency gains that can be expected when trade in a commodity is shifted from paper-based trade to paperless trade. The studies reviewed in Section 2.2 all present aggregate or economy-wide results. To simulate the impacts of a transition to paperless trade using GTAP-FIN, we require estimates of the potential efficiency gains by commodity. Since some economies likely already have more efficient documentary compliance systems in place, it is also necessary to incorporate efficiency gains differentiated by trade origin and destination economy.

In the absence of estimates of the potential efficiency gains due to the adoption of paperless trade by commodity and economy, we begin with the shocks derived in Walmsley and Minor (2016) that are constructed and used to simulate the impact of adoption of the WTO's Trade Facilitation Agreement (TFA). The shocks in Walmsley and Minor (2016) are derived by first establishing a relationship between the average number of days to clear customs and a number of the OECD's Trade Facilitation Indicators: fees and charges, formalities-documents and formalities procedures.

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[200] ADB 2023
[201] McKinsey & Company 2022
[202] McKinsey & Company 2022: 6

This relationship is then exploited to estimate the efficiency gains (in terms of a reduction in days to clear customs) upon adoption of "best practice'' as characterized in the WTO's TFA. The efficiency gains are then converted into ad valorem equivalents using estimates from the literature on the willingness to pay for reduced shipping times.[203]

Of course, the adoption of paperless trade systems is a different exercise to the adoption of reforms under the WTO's TFA. Paperless trade is characterized primarily by changes in documentary compliance, while the efficiency gains estimated in Walmsley and Minor (2016) are derived from adoption of the WTO's TFA, which features improvements to documentary compliance, border compliance and customs compliance measures. The shocks derived in Walmsley and Minor (2016) are dated, being based on data from 2012 and earlier. The current efficiency gains due to the adoption of paperless trade are likely greater than those that were characterized in the elements of the WTO's TFA that dealt with improved documentary compliance measures. Nonetheless, the shocks in Walmsley and Minor (2016) were assessed as the best available suited to our purpose. To account for the inappropriate features we have just described, we scale the shocks in Walmsley and Minor (2016) by 50 per cent. To account for the fact that the shift to paperless trade will take place over time, we assume that the shocks are implemented in three equal steps over the three-year period 2024-2026. That is, the Walmsley and Minor (2016) shocks that were multiplied by 50 per cent are multiplied by a further 1/3 and are applied in each of 2024, 2025 and 2026. In reality, implementation of paperless trade will commence at different times across economies and be phased-in over different time periods. For our results, this is largely a cosmetic matter: by 2033 economies in our modelling are attaining long-run positions in which labour and capital markets have adjusted to the shocks. We encourage readers to focus on the long-run results. Those readers with an interest in the economic effects of potentially different phase-in periods can deduce the likely paths by making appropriate adjustments to the results presented for the first three years of the simulation period.[204] To assist in this regard, Annex A3 in the Appendix presents short-run macroeconomic outcomes for APEC economies for 2024, 2025 and 2026. The shocks from Walmsley and Minor (2016) are reproduced in the Appendix (see Table A1). The actual export-augmenting and import-augmenting technical change shocks applied in the GTAP-FIN model in each of 2024, 2025 and 2026 are presented in the Appendix for all 65

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[203] Walmsley and Minor (2016) regress the average number of days to clear customs against 12 OECD Trade Facilitation Indicators collected over the 2010-2011 period, including: information availability, involvement of the trade community, advanced rulings, appeal processes, fees and charges, formalities-documents, formalities-automation, formalities-procedures, cooperation-internal, cooperation-external, consularization, governance and impartiality. Of the TFI variables, only fees and charges, formalities-documents and formalities-procedures (formalities-documents and formalities-procedures) were found to be significant for import (export) clearance times. Efficiency gains in terms of the number of days to clear customs are converted into ad valorem equivalents using Hummels *et al*. (2007).

[204] Modelling different implementation periods across economies was beyond the scope of the current project. In dynamic simulations with explicit baseline forecasts, like that presented in this report, details of policy shocks can interact with details of the baseline shocks. As a result, deviation paths (i.e. differences between policy and baseline outcomes) can differ depending on the timing of the introduction of the policy shocks. However, for the simulations presented in this report, our knowledge of the baseline forecast leads us to think that different time periods for the introduction of the paperless trade policy shocks would not have a material impact on the measured deviation results. As such, we encourage readers who would like insights into the magnitudes of the potential economic impacts of different phasing periods to scale our results, and/or shift the time axis of the presented results, accordingly. For example, readers who believe implementation might begin in, say, 2026, can map the year t results presented herein for 2024 – 2033 to year t+2 and thus generate 2026-2035 results. Our sense of the model's baseline is that it does not contain any details that interact with the policy shocks in ways that would lead the outcome from such a mapping exercise to differ materially from outcomes generated by running the model with the implementation shifted to 2026-2028 and the time horizon expanded two years to 2035.

commodities and all 21 APEC regions (see Tables A2 and A3, respectively - shocks applied to all non-APEC regions are zero).

3. Simulation results

3.1 Real GDP impacts

The impacts of the implementation of paperless trade measures on real GDP in each APEC economy are reported in Figs.1a – 1c. To make the charts easier to read, we report the deviation paths for real GDP for APEC economies classified into three groups on the basis of their 2033 real GDP deviations relative to the 2033 average APEC-wide real GDP deviation: Group A (the seven APEC economies with 2033 real GDP deviations above the 2033 APEC average); Group B (the seven APEC economies with 2033 real GDP deviations around the 2033 APEC average); and Group C (the seven APEC economies with 2033 real GDP deviations below the 2033 APEC average). Table 1 presents a summary measure of the real GDP gains, reporting the present value (at a real discount rate of 2.5%) of the deviations in real GDP over the reference period 2024-2033.[205]

For comparison, in each of Figs. 1a – 1c, we report the deviation path for real GDP in aggregate across APEC economies. This path shows that, following the three-year implementation phase, average real GDP gains in APEC are approximately 0.45-0.5 per cent of baseline, equivalent to approximately USD250b per annum in 2024-dollar terms. As reported in Table 1, the present value of these real GDP gains across APEC over 2024-2033 is approximately USD2.0t.

Larger real GDP gains (Fig. 1a) generally reflect more open economies for which trade represents a larger share of GDP. Also, developing economies will generally experience larger efficiency gains upon adopting paperless trade. This result mimics that found in studies of the WTO's TFA, which found that developing economies could expect larger increases in real GDP upon adoption of the WTO TFA. The corollary of this is that real GDP gains tend to be lower for those economies that are more developed and/or have lower trade shares in GDP (Fig. 1c).

These are relatively large increases in real GDP: for example, Malaysia, Singapore and Thailand each see increases in real GDP relative to baseline of 1-1.5 per cent, and Viet Nam sees increases in real GDP of almost 3 per cent (Fig 1a). These gains are largely attributable to the direct effects on GDP of the improvements in efficiency arising from the adoption of paperless trade.

To demonstrate this, we report a decomposition of the deviation in real GDP in terms of the four broad contributors to changes in GDP, namely: movements in resource supply (employment and capital), changes in the efficiency with which resources are used to produce output (productivity), and changes in efficiency arising from movements of resources across sectors with differing rates of indirect tax and thus differing wedges between production costs and market prices (allocative efficiency). We illustrate these results for the case of Australia.

[205] We use 2.5% as the real discount rate based on the latest Office of Management and Budget guidelines (see OMB Circular No. A-94, Appendix C, https://www.whitehouse.gov/wp-content/uploads/2023/12/CircularA-94AppendixC.pdf).

Figure 1a: Real GDP deviations for Group A (% deviation from baseline)

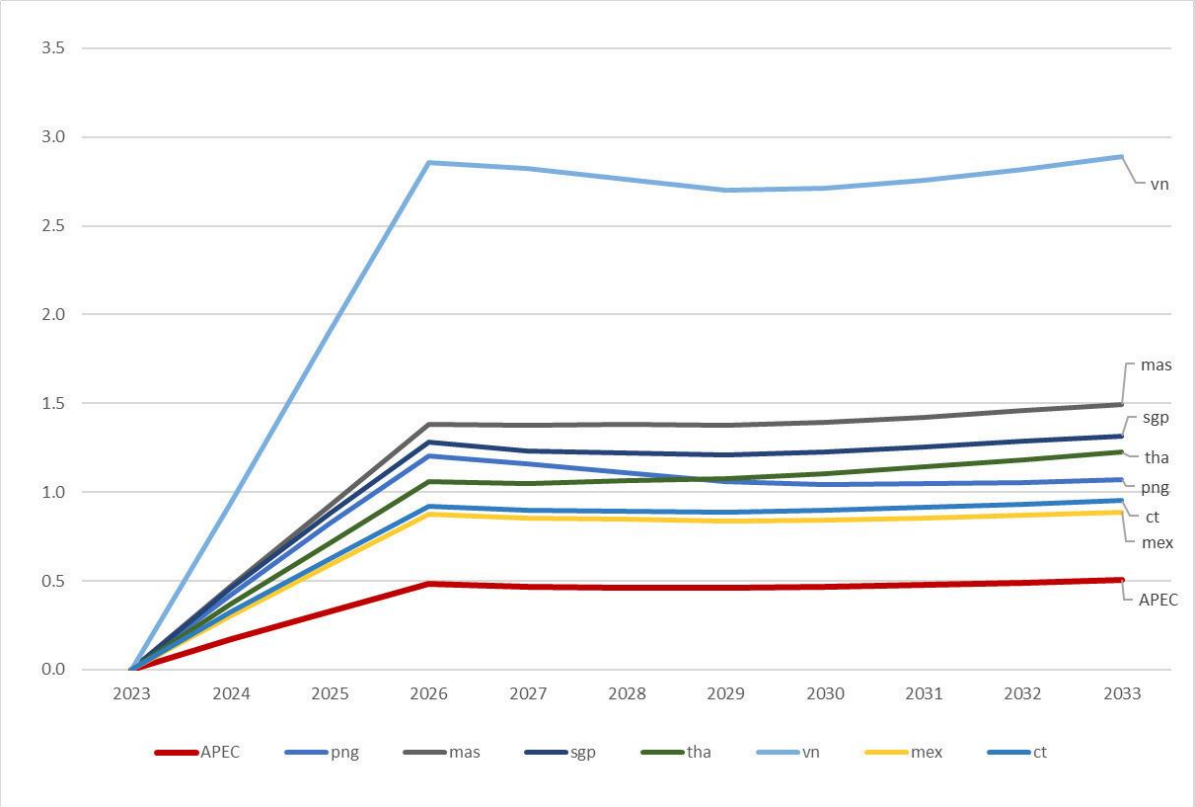


Figure 1b: Real GDP deviations for Group B (% deviation from baseline)

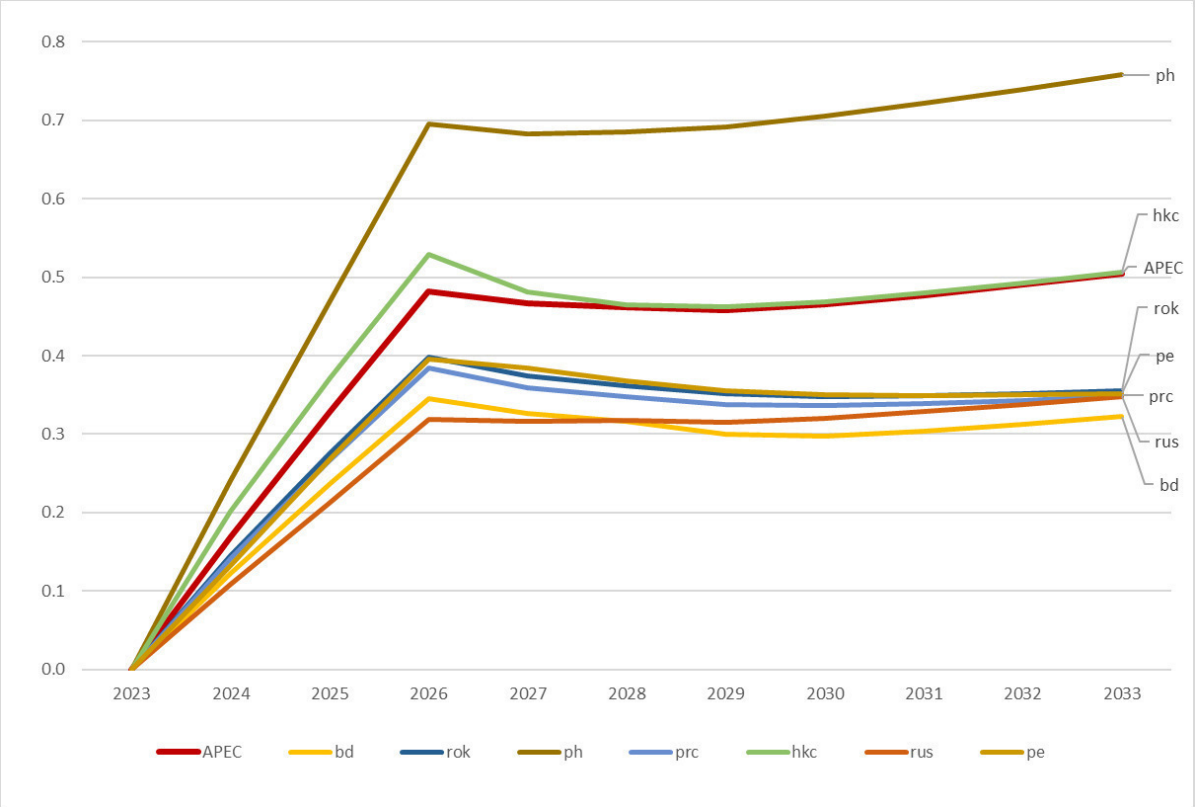


Figure 1c: Real GDP deviations for Group C (% deviation from baseline)

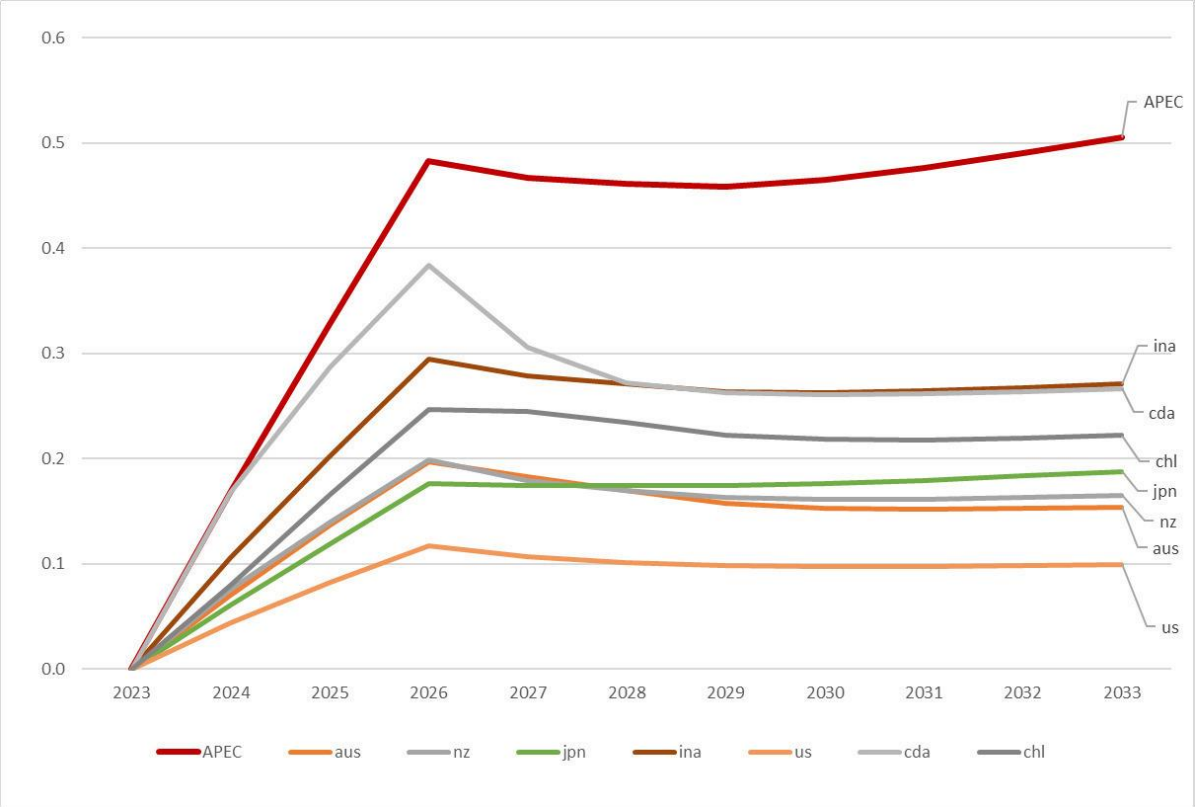
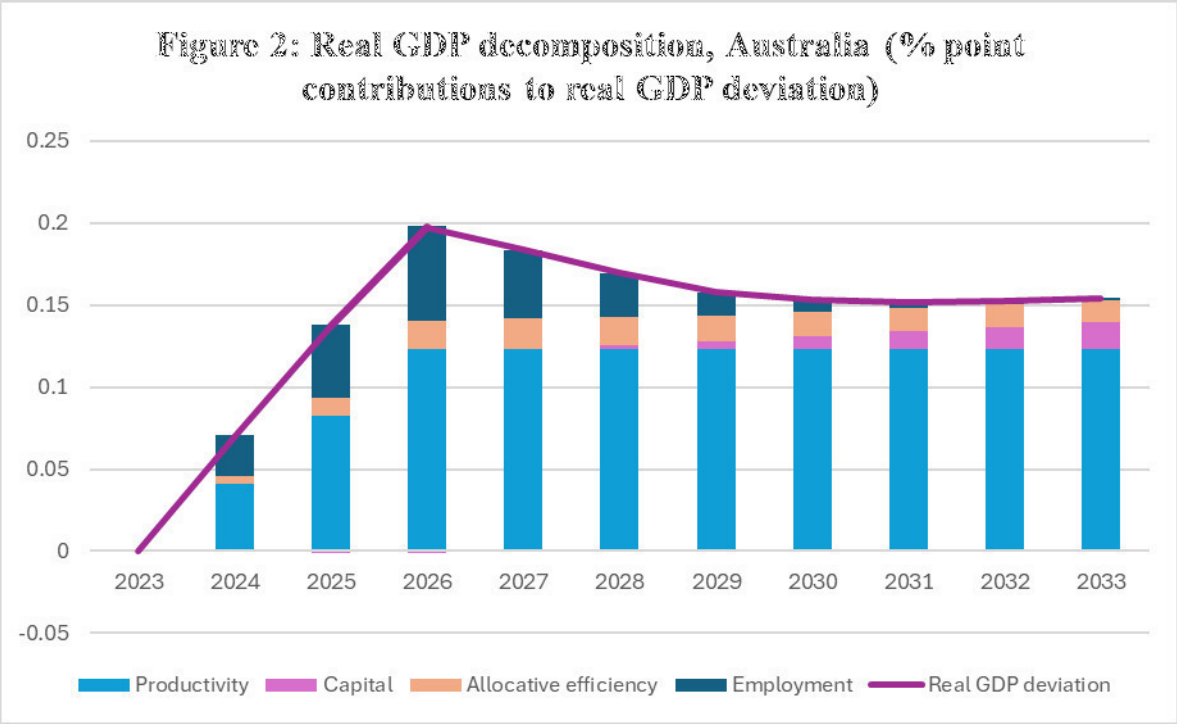


Table 1: Present value of real GDP deviations over 2024-2033 (USD millions, 2024 terms)

Australia	30,389	New Zealand	4,906
Brunei Darussalam	477	Papua New Guinea	7,823
Canada	63,470	Peru	10,924
Chile	8,478	The Philippines	40,250
China	759,890	Russia	57,731
Hong Kong, China	22,389	Singapore	60,795
Indonesia	48,749	Chinese Taipei	81,921
Japan	97,918	Thailand	71,951
Korea, Republic of	86,321	United States	250,954
Malaysia	73,404	Viet Nam	124,228
Mexico	118,417	APEC total	2,021,383

To illustrate these results using the case of Australia, in 2024, Australian real GDP increases by 0.07 per cent relative to baseline, increasing steadily to about 0.2 per cent above baseline by 2026, before stabilising at about 0.15 per cent above baseline thereafter (Fig. 1c). It is evident from the GDP decomposition reported in Fig.2 that the largest contributors to Australia's real GDP gain are the improvements in productivity that we have integrated into GTAP-FIN to account for the efficiency improvements arising from adoption of paperless trade. Because the paperless trade shocks are phased in over three years, productivity contributes a cumulative 0.04 percentage points to the real GDP gain each year over 2024-2026, reaching 0.12 percentage points over 2026-2033.



How do we account for this improvement in productivity? We begin by converting the 2024 paperless trade shocks into USD by multiplying the shocks by the value of Australian trade by commodity in 2024. This exercise quantifies export-efficiency gains at $0.404b and import-efficiency gains at $0.425b in 2024. The GTAP-FIN model forecasts baseline GDP in Australia in 2024 at just under $1974b, implying an efficiency gain of just over 0.04 per cent [≈100·(0.404+0.425)/1974] of GDP in 2024. Similar results are obtained for 2025 and 2026.

Are the real GDP gains large or small relative to expectations from other studies? To put the impact of the implementation of paperless trade measures derived using our GTAP-FIN CGE model in perspective, we contrast results from this paperless trade simulation to estimated efficiency gains identified in other studies. As noted in section 2.2, the ICC[206] argue that current trade-related costs account for 3 per cent of the total trade value within the G7, but this could drop to 0.7 per cent with the digitalisation of the trade system, implying an efficiency gain equivalent to 2.3 per cent of the total trade value within the G7. We argued earlier that in 2024, the efficiency gains due to export- and import-augmenting technical change for Australia were equivalent to about US$404m and US$425m, respectively. If we repeat this exercise for all APEC economies for the period 2024-2026, we arrive at export- and import-augmenting technical change gains of about US$150b. The GTAP-FIN model forecasts baseline total trade (exports plus imports) in 2024 at just under US$28,446b. This suggests that our GTAP-FIN model forecasts efficiency gains of 0.52 per cent [≈ 100·150/28446] of trade. This is considerably lower than the gain of 2.3 per cent of total trade forecast by the ICC.

In Fig. 2, we see that over 2024-2026, the bulk of the remaining increase in Australia's real GDP is explained by the increase in employment. Employment increases by 0.05 per cent, 0.09 per cent and 0.11 per cent above baseline over 2024-2026, contributing 0.024 percentage points, 0.045 percentage points, and 0.058 percentage points to Australia's real GDP deviation in each of the corresponding years (see Fig.2). We explore labour market impacts in Section 3.2.

[206] 2021a

3.2 Labour market impacts

We report the effect of the switch to paperless trade on employment in all APEC economies in Figs. 3a – 3c. For comparison, in each figure we report the average employment deviation in APEC, which shows employment gains across APEC peaking in 2026 at almost 0.15 per cent.

Malaysia, Thailand and Singapore all see increases in employment that reach around 0.6 per cent above baseline by 2026, while Viet Nam sees an increase in employment of almost 1.2 per cent above baseline by 2026 (Fig. 3a). Employment deviations in developed economies are more muted (Fig. 3c), while still exhibiting the pattern of peak and gradual return to baseline exhibited by developing economies and economies with high trade shares (Fig 3a.). As is clear from Figs. 3a – 3c., the time paths for the employment deviations in all APEC economies follow a pattern of growth and peak over the three years of the implementation period, followed by decline as wage growth returns employment to baseline.

To simplify the presentation of employment outcomes, Fig 4. reports the annual average of the employment deviations for each APEC economy over the period 2024-2033.

Figure 3a: Employment deviations for the seven APEC economies with 2026 employment deviations well above the 2026 APEC average (% dev'n from baseline)

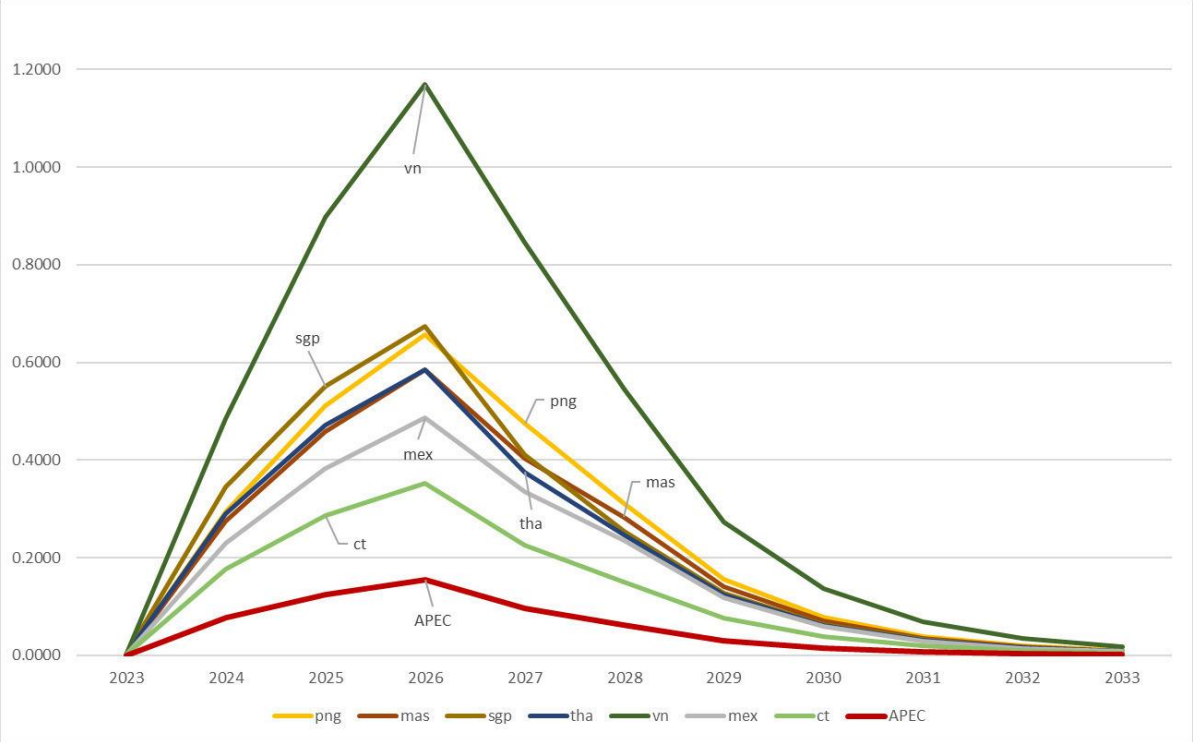


Figure 3b: Employment deviations for the next seven APEC economies with 2026 employment deviations at or above the 2026 APEC average (% dev'n from baseline)

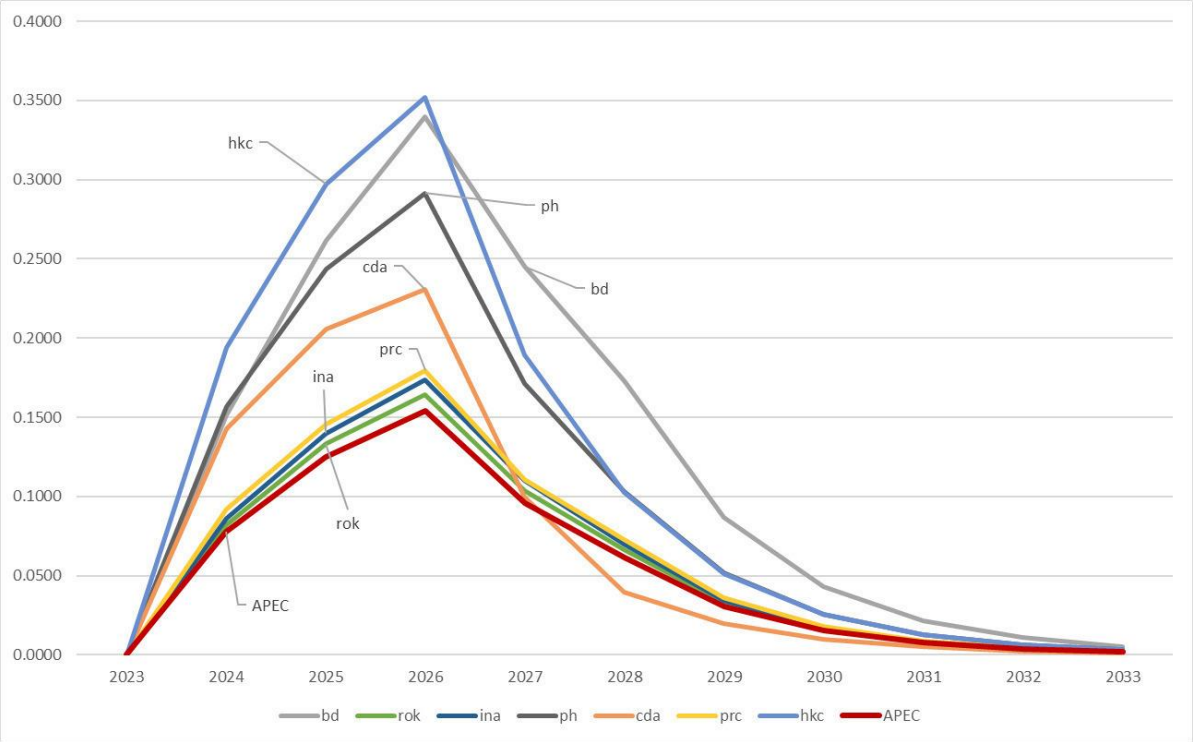


Figure 3c: Employment deviations for the remaining seven APEC economies with 2026 employment deviations at or below the 2026 APEC average (% dev'n from baseline)

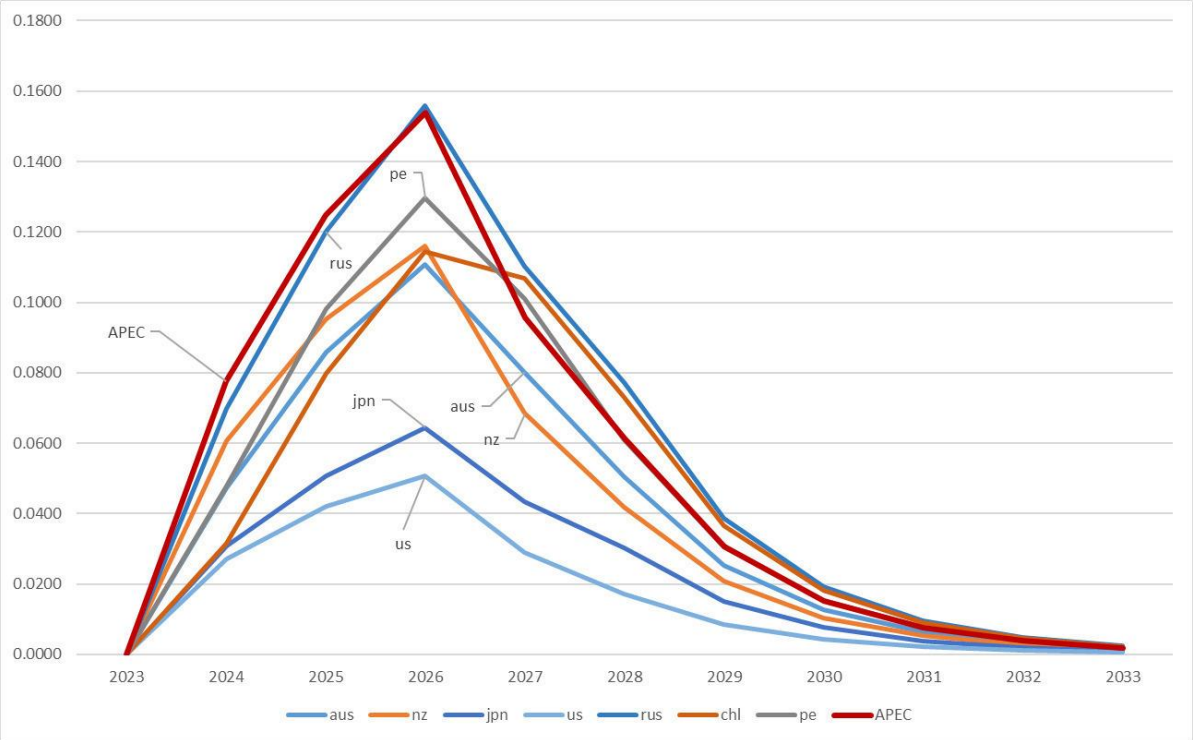
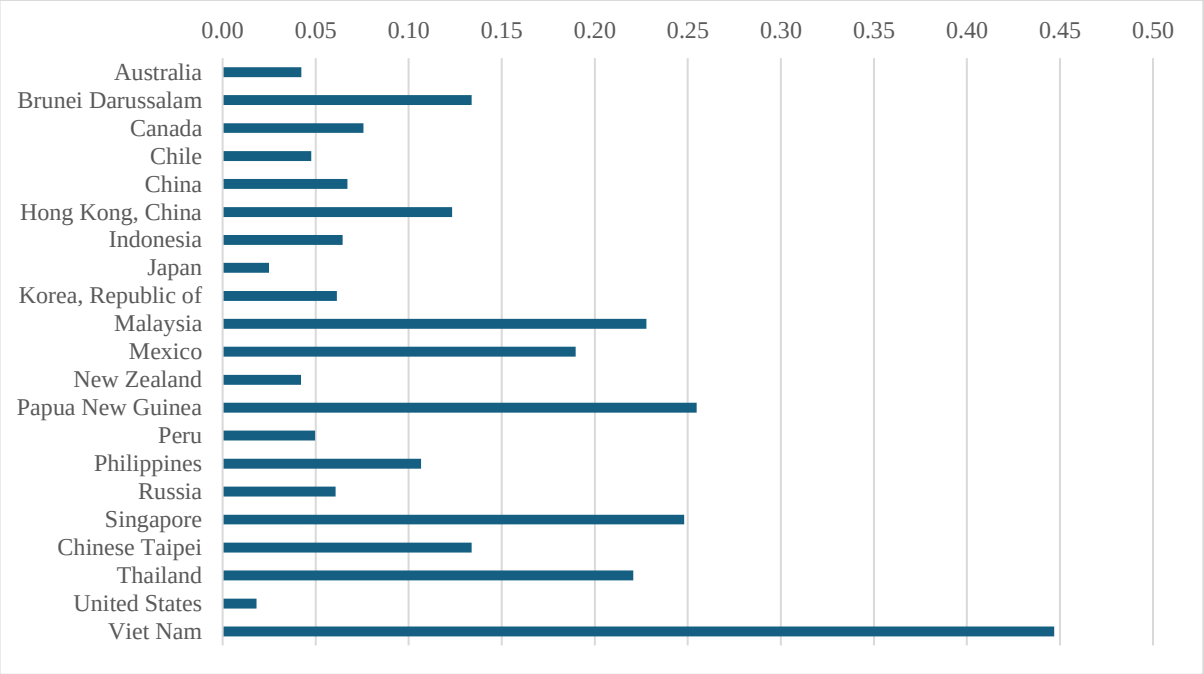


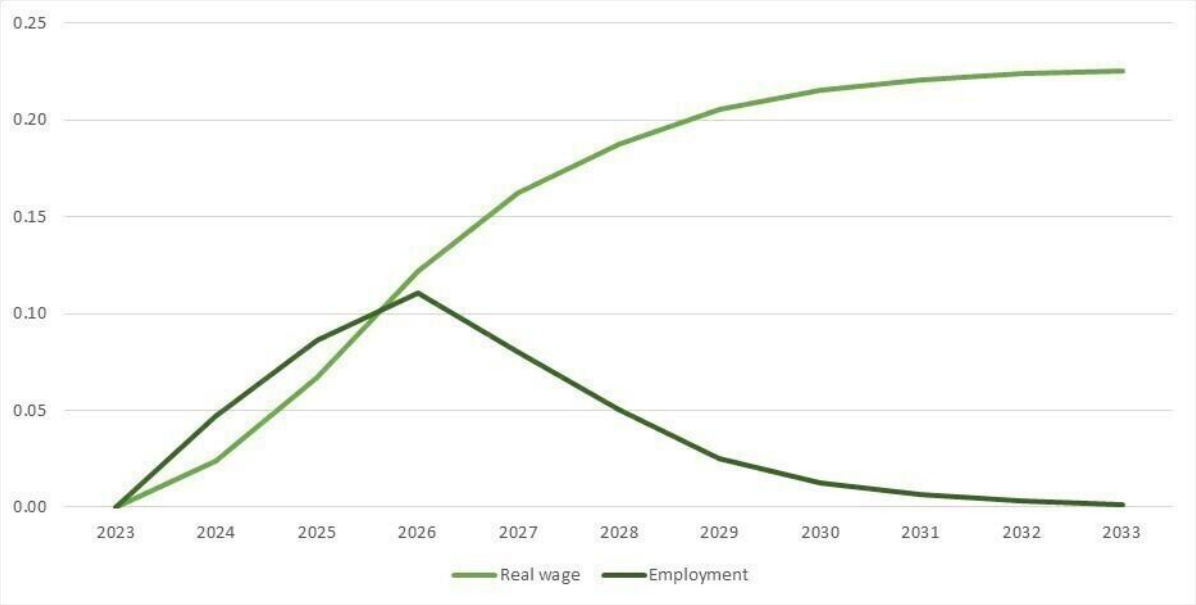
Figure 4: Annual average employment deviations, (% from baseline) 2024-2033.



We refer to the case of Australia as an example to describe the labour market processes operating in our modelling. The same process drives changes in the labour markets of all APEC economies, though of course, as with real GDP, the impact on employment in some economies is larger than others. We take a closer look at the deviations in Australian labour market variables in Fig.5 by plotting the deviations, relative to baseline, in Australian employment and the Australian real wage over the simulation period.

In 2024, the switch to paperless trade increases efficiency for Australian exports and imports. To understand the impact on the labour market, we recognize that these shocks increase the productivity of labour: the same amount of labour can now produce more output because of the efficiency improvements arising from the switch to paperless trade. This causes an increase in labour demand. We model regional labour markets as being characterised in the short-run by stickiness in real wages with the attendant possibility of temporary deviations in employment rates, transitioning in the long-run to flexible real wages with employment rates returning to baseline levels. Hence, in the short-run, with wages sticky the increase in labour demand translates to an increase in employment, which reaches about 0.05 per cent above baseline in 2024. While short-run wages are sticky, they are not fixed, and thus the increase in labour demand also places immediate upward pressure on real wages, which increase by almost 0.025 per cent in 2024. Up to 2026, further efficiency improvements due to the adoption of paperless trade continue to apply upward pressure on labour demand, and thus the deviations in employment and the real wage continue to increase. After 2026, the incremental additions to productivity arising from the move to paperless trade end, leaving productivity permanently higher. Thereafter, the real wage deviation continues to rise, but at a decreasing rate, ultimately moving employment back to baseline by the end of the simulation period.

Figure 5: Employment and the real wage, Australia (% dev'n from baseline).



3.3 Impacts on other key macroeconomic variables

Table 2 reports 2033 results for a range of macroeconomic variables. As is apparent from Figs 1 – 3, by 2033 APEC economies have largely adjusted to the implementation of paperless trade. Hence, the Table 2 results can be interpreted in terms of the policy's enduring economic consequences. We refer readers interested in short-run results for these variables to Appendix A4. The results in Table 2 provide insights into the distribution of the gains of paperless trade across industry, consumers, and workers, together with the consequences for trade.

Consistent with our earlier discussions, in column (1) we see GDP rising in all economies, with these increases largest for developing economies and economies with high trade shares. Columns (5) and (6) report deviations in export and import volumes. These results show adoption of paperless trade generating positive deviations in trade volumes for all APEC economies. Columns (2) and (4) report deviations in private and public consumption. In our modelling, private and public consumption in each economy move in proportion with each economy's net domestic income. As is clear from column (1), adoption of paperless trade generates real GDP gains which, after accounting for capital payments and terms of trade effects, translate into domestic income gains for all economies. These domestic income gains account for the positive outcomes for private and public consumption spending in columns (2) and (4).

At the macroeconomic level, we see that industry benefits in each economy, via the positive outcomes for investment and capital reported in columns (3) and (8). As noted in our earlier labour market discussion, short-run gains from paperless trade are largely manifested in employment expansions in APEC economies, but in the long-run are largely expressed as real wage gains. We see this in columns (7) and (9), which report employment outcomes that have largely returned to baseline, and positive labour demand being expressed in real wage increases.

Table 2: 2033 Macroeconomic outcomes (% deviation from baseline)

	(1) Real GDP	(2) Real private consumption	(3) Real investment	(4) Real public consumption	(5) Real exports	(6) Real imports	(7) Real wage	(8) Capital stock	(9) Employment
Australia	0.15	0.14	0.13	0.14	0.27	0.24	0.23	0.03	0.00
Brunei Darussalam	0.32	0.34	0.50	0.34	0.06	0.27	0.78	0.16	0.01
Canada	0.27	0.29	0.35	0.29	0.31	0.44	0.37	0.13	0.00
Chile	0.22	0.14	0.16	0.14	0.40	0.15	0.25	0.04	0.00
China	0.35	0.33	0.37	0.33	0.98	0.92	0.39	0.16	0.00
Hong Kong, China	0.51	0.62	0.82	0.62	0.17	0.45	0.64	0.30	0.00
Indonesia	0.27	0.30	0.22	0.30	0.59	0.61	0.35	0.08	0.00
Japan	0.19	0.18	0.25	0.18	0.44	0.53	0.15	0.09	0.00
Korea, Republic of	0.36	0.30	0.26	0.30	0.60	0.49	0.35	0.10	0.00
Malaysia	1.50	1.13	1.85	1.13	1.36	1.12	1.35	0.83	0.01
Mexico	0.89	0.72	0.94	0.72	1.21	0.92	1.11	0.32	0.01
New Zealand	0.17	0.21	0.18	0.21	0.24	0.41	0.23	0.08	0.00
Papua New Guinea	1.07	0.79	1.45	0.79	0.90	0.58	1.32	0.72	0.01
Peru	0.35	0.21	0.24	0.21	1.20	0.63	0.26	0.10	0.00
Philippines	0.76	0.47	0.78	0.47	1.30	0.74	0.58	0.39	0.00
Russia	0.35	0.33	0.56	0.33	0.43	0.63	0.36	0.17	0.00
Singapore	1.32	0.87	1.72	0.87	1.17	1.01	1.36	0.79	0.01
Chinese Taipei	0.95	0.61	1.30	0.61	1.29	0.99	0.77	0.58	0.00
Thailand	1.23	0.97	2.01	0.97	1.12	1.15	1.28	0.79	0.01
United States	0.10	0.08	0.11	0.08	0.46	0.39	0.10	0.04	0.00
Viet Nam	2.89	2.15	3.38	2.15	2.99	2.57	2.59	1.79	0.02

4. Conclusions and future work

Since the adoption of the UNCITRAL Model Law on Electronic Transferable Records in 2017, a number of studies have noted that efficiency gains could be realized as economies switch from paper-based records to electronic records. In this study, we used the Centre of Policy Studies' GTAP-FIN CGE model to quantify the potential gains from the implementation of paperless trade in APEC. We simulate the adoption of paperless trade using a series of productivity improvements to international trade that are implemented over the 3-year period 2024-2026. Following this implementation phase, average real GDP gains over the period 2026-2033 in APEC are 0.45-0.5 per cent, equivalent to approximately USD250b per annum in 2024-dollar terms, with larger real GDP gains generally reflecting economies for which trade represents a larger share of GDP.

To our knowledge, there are no studies that estimate the productivity shocks used to simulate the impacts of paperless trade. This is an obvious important constraint on our results. To proceed, we adopted the shocks estimated by Walmsley and Minor (2016) to evaluate the impacts of the adoption of the WTO's Trade Facilitation Agreement. In constructing their shocks, Walmsley and Minor incorporated information to account for both documentary compliance (which would account for some features of paperless trade) and border compliance measures. But since the estimated shocks in Walmsley and Minor (2016) are dated, it is not clear how well their shocks accounting for documentary compliance capture the improvements from paperless trade. And their shocks also account for border compliance measures which are not directly features of a move to paperless trade systems, except in so far as paperless trade might ease border compliance costs.

For our purposes, the ideal data would be both economy specific (identifying both importer and exporter) and commodity specific and would focus specifically on the resource savings due to a move to paperless trade. For now, the closest we have of an estimate of the resource savings from the adoption of paperless trade are from the ICC (2021a). However, these are aggregate measures that do not identify savings related to trade in specific commodities, and the savings seem very large, equivalent to 2.3 per cent of the total trade value within the G7. At the commodity level, the best information we have found is from Walmsley and Minor (2016). Of course, the commodity detail in Walmsley and Minor (2016) is quite broad, since they only identify 7 aggregate commodity groups.

To reflect the fact that the Walmsley and Minor (2016) shocks accounted for gains due to both documentary compliance and border compliance measures, we adjusted these shocks by multiplying them by 50 per cent. An alternative might use information from the OECD Trade Facilitation Indicators (TFIs) to construct a more sophisticated set of multipliers to use with the Walmsley and Minor shocks. For example, results from TFIs F.75 "Time to prepare documents for import (days)" and F.76 "Time to prepare documents for export (days)" might be used to account for changes in documentary compliance procedures since Walmsley and Minor produced their estimates. Unfortunately, the background data for F.75 and F.76 measures between 2015 and 2022 rely on various sources, including World Bank Trading Across Borders Data whose information was adjusted between 2015 and 2019. This implies that these OECD TFIs are not directly comparable over this period. Any further construction and implementation of updated shocks based upon such data remains beyond the current scope of this project.

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6. Appendix

Annex A1: The GTAP-FIN model

GTAP-FIN is a 65-sector dynamic computable general equilibrium (CGE) model of the global economy suitable for baseline forecasting and policy analysis, documented in Dixon *et al.* (2021). In this paper, the regional aggregation identifies 43 separate economies/regions (see Table A5 for a complete list of these 43 economies/regions).

The starting point for the development of the GTAP-FIN model is the comparative-static GTAP model (Hertel 1997). To this model CoPS has added theory that produces a dynamic model with forecasting and policy analytic capabilities. In particular, we add:

(1) Accounting relationships that link stock variables (like capital stocks) in each period to relevant flow variables (like investment) in previous periods.

(2) A new treatment for investment that allows regional capital stocks in GTAP-FIN to be industry specific. This replaces the standard GTAP treatment of capital that allows unrealistic instantaneous movements of capital across sectors.

(3) Regional labour market theory that provides for short-run stickiness in real wages and a gradual transition to long-run wage flexibility. This allows short-run labour market pressures to generate short-run movements in unemployment rates. In the long run, regional labour markets adjust via flexible wages to return regional unemployment rates to baseline forecast levels.

(4) A financial module that accounts for the bilateral international financial assets and liabilities of each region, and links the accounting for bilateral international financial stocks and flows with regional investment and savings outcomes, movements in regional rates of return, and regional current account financing needs.

(5) Sector-specific treatment of natural resources. This replaces the standard GTAP treatment of natural resources, which allows for unrealistic movements of region-specific natural resources between potentially unrelated industrial sectors.

GTAP-FIN uses the latest version of the GTAP database, GTAP v.11. This represents a global trading equilibrium for the year 2017. Because GTAP-FIN includes modelling of bilateral international financial asset and liability holdings, we supplement the GTAP data with international financial data. We use financial data from the IMF on the international assets and liabilities of each region, together with US data from the Bureau of Economic Analysis and the US Treasury on the regional composition of US international asset holdings and the ownership of US international liabilities.

The baseline solution of GTAP-FIN covers the period 2018–2033. This period covers historical (2018-2022/23) and forecast (2022/23 – 2033) periods. To generate the baseline, we impose on the model observed outcomes (for the historical period) and forecast values (for the forecast period) for a variety of variables. Broadly, these variables include: real regional GDP; regional employment; regional population; regional energy demands based on International Energy Agency forecasts; trade tariffs including the US-China trade war tariffs and announced future tariff changes, and CO2e emissions.

Annex A2: Supporting data and specific model details

Table A1: Average WTO Trade Facilitation Agreement shocks (per cent ad valorem equivalents)

	OECD	High Income	Medium Income	Low Income
Import-augmenting				
Primary agric	0.46	1.00	0.55	0.19
Processed agric	0.46	1.32	1.27	1.38
Coal, oil and gas	0.00	0.00	0.00	0.00
Mining & petrol	1.26	1.47	2.11	4.07
Light manuf	0.53	1.64	1.51	2.53
Heavy manuf	0.83	1.98	2.15	2.65
Services	0.00	0.00	0.00	0.00
Export augmenting				
Primary agric	0.27	0.27	0.88	0.47
Processed agric	0.61	1.05	0.95	1.15
Coal, oil and gas	0.00	0.00	0.00	0.00
Mining & petrol	1.02	2.89	1.74	1.64
Light manuf	0.61	1.08	0.92	1.45
Heavy manuf	1.16	1.44	1.58	5.01
Services	0.00	0.00	0.00	0.00

Source: Walmsley and Minor (2016:33), Table 4.5.

Table A2: Export-augmenting technical change shocks (per cent ad valorem equivalents)

	aus	bd	cda	chl	prc	hkc	ina	jpn	rok	mas	mex	nz	png	pe	ph	rus	sgp	ct	tha	us	vn
pdr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
wht	0.04	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.03	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.02	0.03
gro	0.03	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.05	0.01	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.04	0.01	0.00
v_f	0.02	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.13	0.03	0.00	0.07	0.04	0.00	0.01	0.00	0.06	0.01	0.02
osd	0.02	0.00	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.10	0.03	0.00	0.01	0.00	0.00	0.00	0.02	0.00
c_b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
pfb	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.12	0.01	0.00	0.00	0.00	0.06	0.01	0.03	0.00	0.08	0.02	0.01
ocr	0.01	0.00	0.02	0.02	0.02	0.00	0.05	0.00	0.00	0.03	0.03	0.03	0.13	0.04	0.01	0.00	0.04	0.04	0.01	0.01	0.10
ctl	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.00
oap	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
rmk	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
wol	0.04	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.00
oxt	0.11	0.00	0.06	0.16	0.00	0.00	0.03	0.01	0.01	0.11	0.08	0.01	0.18	0.22	0.08	0.09	0.25	0.07	0.02	0.01	0.05
cmt	0.04	0.08	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00
omt	0.01	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.05	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.01	0.00
vol	0.04	0.05	0.04	0.03	0.00	0.04	0.12	0.00	0.00	0.07	0.01	0.02	0.12	0.02	0.02	0.06	0.07	0.01	0.02	0.01	0.02
mil	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.09	0.00	0.00	0.00	0.00	0.06	0.00	0.01	0.00	0.00
pcr	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.05	0.02	0.04
sgr	0.03	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.02	0.05	0.01	0.02	0.00	0.00	0.01	0.07	0.04	0.02	0.07	0.00	0.01
ofd	0.02	0.03	0.05	0.04	0.01	0.01	0.02	0.00	0.01	0.05	0.03	0.04	0.08	0.04	0.01	0.03	0.12	0.04	0.09	0.01	0.06
b_t	0.03	0.03	0.01	0.03	0.00	0.02	0.01	0.00	0.02	0.02	0.04	0.03	0.00	0.00	0.01	0.01	0.07	0.02	0.02	0.01	0.02
tex	0.02	0.01	0.06	0.02	0.03	0.00	0.06	0.05	0.04	0.06	0.04	0.07	0.02	0.01	0.02	0.02	0.14	0.10	0.06	0.02	0.06
wap	0.05	0.07	0.05	0.00	0.05	0.00	0.09	0.00	0.01	0.10	0.06	0.01	0.00	0.01	0.07	0.02	0.05	0.04	0.04	0.03	0.13
lea	0.08	0.03	0.06	0.02	0.06	0.00	0.13	0.01	0.03	0.07	0.04	0.09	0.04	0.00	0.10	0.05	0.12	0.08	0.10	0.04	0.11
lum	0.01	0.01	0.04	0.06	0.01	0.00	0.03	0.00	0.00	0.07	0.01	0.03	0.01	0.00	0.06	0.10	0.02	0.01	0.06	0.01	0.03
ppp	0.02	0.02	0.05	0.05	0.01	0.01	0.03	0.01	0.01	0.03	0.02	0.03	0.00	0.01	0.01	0.05	0.09	0.03	0.03	0.01	0.01
p_c	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.05	0.07	0.03	0.02	0.02	0.07	0.03	0.15	0.34	0.08	0.06	0.04	0.02
chm	0.06	0.24	0.11	0.09	0.03	0.03	0.16	0.06	0.09	0.13	0.05	0.04	0.04	0.01	0.02	0.10	0.19	0.10	0.13	0.05	0.05
bph	0.05	0.01	0.12	0.01	0.01	0.09	0.04	0.02	0.03	0.06	0.08	0.05	0.00	0.01	0.02	0.02	0.21	0.09	0.04	0.06	0.01
rpp	0.02	0.08	0.08	0.04	0.03	0.01	0.11	0.04	0.04	0.11	0.10	0.03	0.04	0.02	0.06	0.13	0.11	0.07	0.17	0.03	0.08
nmm	0.00	0.00	0.04	0.00	0.01	0.00	0.03	0.02	0.02	0.08	0.06	0.01	0.00	0.01	0.01	0.02	0.00	0.04	0.04	0.02	0.05
i_s	0.03	0.08	0.08	0.02	0.02	0.05	0.10	0.02	0.06	0.05	0.04	0.03	0.17	0.02	0.01	0.10	0.10	0.05	0.03	0.02	0.07
nfm	0.18	0.04	0.15	0.17	0.01	0.24	0.20	0.05	0.07	0.20	0.13	0.13	0.24	0.20	0.21	0.16	0.21	0.10	0.22	0.05	0.07
fmp	0.01	0.01	0.05	0.02	0.03	0.00	0.02	0.02	0.03	0.04	0.09	0.01	0.02	0.01	0.08	0.02	0.05	0.09	0.16	0.02	0.06
ele	0.08	0.07	0.16	0.15	0.17	0.07	0.14	0.10	0.14	0.19	0.25	0.07	0.06	0.00	0.19	0.04	0.19	0.19	0.16	0.10	0.20
eeq	0.11	0.21	0.13	0.05	0.03	0.03	0.16	0.07	0.06	0.19	0.22	0.06	0.05	0.01	0.12	0.03	0.15	0.12	0.21	0.08	0.09
ome	0.07	0.18	0.12	0.03	0.04	0.02	0.09	0.07	0.06	0.17	0.20	0.05	0.03	0.01	0.14	0.03	0.15	0.12	0.18	0.06	0.18
mvh	0.04	0.07	0.14	0.16	0.01	0.00	0.08	0.07	0.08	0.01	0.18	0.03	0.03	0.00	0.08	0.03	0.19	0.06	0.15	0.05	0.10
otn	0.03	0.22	0.12	0.05	0.05	0.00	0.04	0.04	0.14	0.15	0.22	0.07	0.22	0.00	0.11	0.03	0.12	0.15	0.12	0.04	0.05
omf	0.07	0.19	0.08	0.00	0.10	0.07	0.15	0.03	0.01	0.15	0.18	0.06	0.00	0.01	0.05	0.03	0.17	0.08	0.12	0.03	0.12

Table A3: Import-augmenting technical change shocks (per cent ad valorem equivalents)

	aus	bd	cda	chl	prc	hkc	ina	jpn	rok	mas	mex	nz	png	pe	ph	rus	sgp	ct	tha	us	vn
pdr	0.08	0.17	0.08	0.08	0.09	0.17	0.09	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.17	0.17	0.17	0.09	0.08	0.09
wht	0.08	0.17	0.08	0.08	0.09	0.17	0.09	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.17	0.17	0.17	0.09	0.08	0.09
gro	0.08	0.17	0.08	0.08	0.09	0.17	0.09	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.17	0.17	0.17	0.09	0.08	0.09
v_f	0.08	0.17	0.08	0.08	0.09	0.17	0.09	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.17	0.17	0.17	0.09	0.08	0.09
osd	0.08	0.17	0.08	0.08	0.09	0.17	0.09	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.17	0.17	0.17	0.09	0.08	0.09
c_b	0.08	0.17	0.08	0.08	0.09	0.17	0.09	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.17	0.17	0.17	0.09	0.08	0.09
pfb	0.08	0.17	0.08	0.08	0.09	0.17	0.09	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.17	0.17	0.17	0.09	0.08	0.09
ocr	0.08	0.17	0.08	0.08	0.09	0.17	0.09	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.17	0.17	0.17	0.09	0.08	0.09
ctl	0.08	0.17	0.08	0.08	0.09	0.17	0.09	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.17	0.17	0.17	0.09	0.08	0.09
oap	0.08	0.17	0.08	0.08	0.09	0.17	0.09	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.17	0.17	0.17	0.09	0.08	0.09
rmk	0.08	0.17	0.08	0.08	0.09	0.17	0.09	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.17	0.17	0.17	0.09	0.08	0.09
wol	0.08	0.17	0.08	0.08	0.09	0.17	0.09	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.17	0.17	0.17	0.09	0.08	0.09
oxt	0.21	0.25	0.21	0.21	0.35	0.25	0.35	0.21	0.21	0.35	0.35	0.21	0.35	0.35	0.35	0.25	0.25	0.25	0.35	0.21	0.35
cmt	0.08	0.22	0.08	0.08	0.21	0.22	0.21	0.08	0.08	0.21	0.21	0.08	0.21	0.21	0.21	0.22	0.22	0.22	0.21	0.08	0.21
omt	0.08	0.22	0.08	0.08	0.21	0.22	0.21	0.08	0.08	0.21	0.21	0.08	0.21	0.21	0.21	0.22	0.22	0.22	0.21	0.08	0.21
vol	0.08	0.22	0.08	0.08	0.21	0.22	0.21	0.08	0.08	0.21	0.21	0.08	0.21	0.21	0.21	0.22	0.22	0.22	0.21	0.08	0.21
mil	0.08	0.22	0.08	0.08	0.21	0.22	0.21	0.08	0.08	0.21	0.21	0.08	0.21	0.21	0.21	0.22	0.22	0.22	0.21	0.08	0.21
pcr	0.08	0.22	0.08	0.08	0.21	0.22	0.21	0.08	0.08	0.21	0.21	0.08	0.21	0.21	0.21	0.22	0.22	0.22	0.21	0.08	0.21
sgr	0.08	0.22	0.08	0.08	0.21	0.22	0.21	0.08	0.08	0.21	0.21	0.08	0.21	0.21	0.21	0.22	0.22	0.22	0.21	0.08	0.21
ofd	0.08	0.22	0.08	0.08	0.21	0.22	0.21	0.08	0.08	0.21	0.21	0.08	0.21	0.21	0.21	0.22	0.22	0.22	0.21	0.08	0.21
b_t	0.08	0.22	0.08	0.08	0.21	0.22	0.21	0.08	0.08	0.21	0.21	0.08	0.21	0.21	0.21	0.22	0.22	0.22	0.21	0.08	0.21
tex	0.09	0.27	0.09	0.09	0.25	0.27	0.25	0.09	0.09	0.25	0.25	0.09	0.25	0.25	0.25	0.27	0.27	0.27	0.25	0.09	0.25
wap	0.09	0.27	0.09	0.09	0.25	0.27	0.25	0.09	0.09	0.25	0.25	0.09	0.25	0.25	0.25	0.27	0.27	0.27	0.25	0.09	0.25
lea	0.09	0.27	0.09	0.09	0.25	0.27	0.25	0.09	0.09	0.25	0.25	0.09	0.25	0.25	0.25	0.27	0.27	0.27	0.25	0.09	0.25
lum	0.09	0.27	0.09	0.09	0.25	0.27	0.25	0.09	0.09	0.25	0.25	0.09	0.25	0.25	0.25	0.27	0.27	0.27	0.25	0.09	0.25
ppp	0.09	0.27	0.09	0.09	0.25	0.27	0.25	0.09	0.09	0.25	0.25	0.09	0.25	0.25	0.25	0.27	0.27	0.27	0.25	0.09	0.25
p_c	0.21	0.25	0.21	0.21	0.35	0.25	0.35	0.21	0.21	0.35	0.35	0.21	0.35	0.35	0.35	0.25	0.25	0.25	0.35	0.21	0.35
chm	0.14	0.33	0.14	0.14	0.36	0.33	0.36	0.14	0.14	0.36	0.36	0.14	0.36	0.36	0.36	0.33	0.33	0.33	0.36	0.14	0.36
bph	0.14	0.33	0.14	0.14	0.36	0.33	0.36	0.14	0.14	0.36	0.36	0.14	0.36	0.36	0.36	0.33	0.33	0.33	0.36	0.14	0.36
rpp	0.14	0.33	0.14	0.14	0.36	0.33	0.36	0.14	0.14	0.36	0.36	0.14	0.36	0.36	0.36	0.33	0.33	0.33	0.36	0.14	0.36
nmm	0.14	0.33	0.14	0.14	0.36	0.33	0.36	0.14	0.14	0.36	0.36	0.14	0.36	0.36	0.36	0.33	0.33	0.33	0.36	0.14	0.36
i_s	0.14	0.33	0.14	0.14	0.36	0.33	0.36	0.14	0.14	0.36	0.36	0.14	0.36	0.36	0.36	0.33	0.33	0.33	0.36	0.14	0.36
nfm	0.14	0.33	0.14	0.14	0.36	0.33	0.36	0.14	0.14	0.36	0.36	0.14	0.36	0.36	0.36	0.33	0.33	0.33	0.36	0.14	0.36
fmp	0.14	0.33	0.14	0.14	0.36	0.33	0.36	0.14	0.14	0.36	0.36	0.14	0.36	0.36	0.36	0.33	0.33	0.33	0.36	0.14	0.36
ele	0.14	0.33	0.14	0.14	0.36	0.33	0.36	0.14	0.14	0.36	0.36	0.14	0.36	0.36	0.36	0.33	0.33	0.33	0.36	0.14	0.36
eeq	0.14	0.33	0.14	0.14	0.36	0.33	0.36	0.14	0.14	0.36	0.36	0.14	0.36	0.36	0.36	0.33	0.33	0.33	0.36	0.14	0.36
ome	0.14	0.33	0.14	0.14	0.36	0.33	0.36	0.14	0.14	0.36	0.36	0.14	0.36	0.36	0.36	0.33	0.33	0.33	0.36	0.14	0.36
mvh	0.14	0.33	0.14	0.14	0.36	0.33	0.36	0.14	0.14	0.36	0.36	0.14	0.36	0.36	0.36	0.33	0.33	0.33	0.36	0.14	0.36
otn	0.14	0.33	0.14	0.14	0.36	0.33	0.36	0.14	0.14	0.36	0.36	0.14	0.36	0.36	0.36	0.33	0.33	0.33	0.36	0.14	0.36
omf	0.14	0.33	0.14	0.14	0.36	0.33	0.36	0.14	0.14	0.36	0.36	0.14	0.36	0.36	0.36	0.33	0.33	0.33	0.36	0.14	0.36

Table A4: GTAP-FIN sectors

No.	Code	Commodity	No.	Code	Commodity
1	pdr	Paddy rice	34	bph	Basic pharmaceutical products
2	wht	Wheat	35	rpp	Rubber and plastic products
3	gro	Cereal grains nec	36	nmm	Mineral products nec
4	v_f	Vegetables, fruit, nuts	37	i_s	Ferrous metals
5	osd	Oil seeds	38	nfm	Metals nec
6	c_b	Sugar cane, sugar beet	39	fmp	Metal products
7	pfb	Plant-based fibers	40	ele	Computer, electronic and optical products
8	ocr	Crops nec	41	eeq	Electrical equipment
9	ctl	Bovine cattle, sheep and goats, horses	42	ome	Machinery and equipment nec
10	oap	Animal products nec	43	mvh	Motor vehicles and parts
11	rmk	Raw milk	44	otn	Transport equipment nec
12	wol	Wool, silk-worm cocoons	45	omf	Manufactures nec
13	frs	Forestry	46	ely	Electricity
14	fsh	Fishing	47	gdt	Gas manufacture, distribution
15	coa	Coal	48	wtr	Water
16	oil	Oil	49	cns	Construction
17	gas	Gas	50	trd	Trade
18	oxt	Minerals nec	51	afs	Accommodation, Food and service activities
19	cmt	Bovine meat products	52	otp	Transport nec
20	omt	Meat products nec	53	wtp	Water transport
21	vol	Vegetable oils and fats	54	atp	Air transport
22	mil	Dairy products	55	whs	Warehousing and support activities
23	pcr	Processed rice	56	cmn	Communication
24	sgr	Sugar	57	ofi	Financial services nec
25	ofd	Food products nec	58	ins	Insurance
26	b_t	Beverages and tobacco products	59	rsa	Real estate activities
27	tex	Textiles	60	obs	Business services nec
28	wap	Wearing apparel	61	ros	Recreational and other services
29	lea	Leather products	62	osg	Public Administration and defense
30	lum	Wood products	63	edu	Education
31	ppp	Paper products, publishing	64	hht	Human health and social work activities
32	p_c	Petroleum, coal products	65	dwe	Dwellings
33	chm	Chemical products			

Table A5: GTAP-FIN regions

No.	Code	Region	No.	Code	Region	No.	Code	Region
1	aus	Australia	16	can	Canada	31	fsu	Former Soviet Union
2	nzl	New Zealand	17	mex	Mexico	32	afr	Africa
3	brn	Brunei Darussalam	18	ram	Rest of Americas	33	lka	Sri Lanka
4	fji	Fiji	19	deu	Germany	34	brb	Barbados
5	roc	Rest of Oceania	20	gbr	United Kingdom	35	chl	Chile
6	jpn	Japan	21	fra	France	36	col	Colombia
7	kor	Republic of Korea	22	esp	Spain	37	cri	Costa Rica
8	ind	India	23	ita	Italy	38	dom	Dominican Republic
9	idn	Indonesia	24	reu	Rest of EU27	39	ecu	Ecuador
10	mys	Malaysia	25	roe	Rest of Europe	40	pan	Panama
11	phl	Philippines	26	chn	China, PRC	41	per	Peru
12	sgp	Singapore	27	hkg	China, Hong Kong	42	ury	Uruguay
13	tha	Thailand	28	ct	Chinese Taipei	43	mea	Middle East
14	vnm	Viet Nam	29	ras	Rest of Asia			
15	usa	United States	30	rus	Russia			

The aggregate regions are constructed as follows:

No.	Code	Region	Composed of:
5	roc	Rest of Oceania	American Samoa, Cook Islands, French Polynesia, Guam, Kiribati, Marshall Islands, Micronesia, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, United States Minor Outlying Islands, Vanuatu
18	ram	Rest of Americas	Rest of North America, Costa Rica, Guatemala, Honduras, Nicaragua, Panama, El Salvador, Belize, Dominican Republic, Haiti, Jamaica, Puerto Rico, Trinidad and Tobago, Rest of Caribbean, Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela, Rest of South America
24	reu	Rest of EU27	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden
25	roe	Rest of Europe	Iceland, Norway, Switzerland, Albania, Bosnia, North, Serbia, Belarus, Ukraine
29	ras	Rest of Asia	Macao, Mongolia, Cambodia, Myanmar, Lao, Bangladesh, Pakistan, Afghanistan, Bhutan, Nepal, Sri Lanka
31	fsu	West and Central Asia	Iran, Iraq, Saudi Arabia, Turkey, Bahrain, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Syrian Arab Republic, United Arab Emirates, Yemen, Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Uzbekistan
32	afr	Africa	Algeria, Egypt, Morocco, Tunisia, Libya, Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Ghana, Guinea, Mali, Niger, Nigeria, Senegal, Togo, Central African Republic, Chad, Congo, Congo Democratic Republic, Equatorial Guinea, Gabon, Angola, Comoros, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Sudan, Tanzania, Uganda, Zambia, Zimbabwe, Burundi, Djibouti, Eritrea, Seychelles, Botswana, Eswatini, Namibia, South Africa, Lesotho

Annex A3: Macroeconomic outcomes over the implementation phase.

Table A6: 2024 Macroeconomic outcomes (% deviation from baseline)

	(1) Real GDP	(2) Real private consumption	(3) Real investment	(4) Real public consumption	(5) Real exports	(6) Real imports	(7) Real wage	(8) Capital stock	(9) Employment
Australia	0.07	0.05	-0.04	0.05	0.22	0.03	0.02	0.00	0.05
Brunei Darussalam	0.12	0.14	0.11	0.14	0.05	0.05	0.08	0.00	0.15
Canada	0.17	0.19	0.21	0.19	0.13	0.21	0.07	0.00	0.14
Chile	0.08	0.03	-0.05	0.03	0.22	-0.03	0.02	0.00	0.03
China	0.14	0.15	0.16	0.15	0.26	0.33	0.05	0.00	0.09
Hong Kong, China	0.20	0.24	0.43	0.24	0.05	0.19	0.10	0.00	0.19
Indonesia	0.11	0.13	0.10	0.13	0.16	0.24	0.04	0.00	0.09
Japan	0.06	0.06	0.09	0.06	0.13	0.18	0.02	0.00	0.03
Korea, Republic of	0.14	0.12	0.11	0.12	0.23	0.16	0.04	0.00	0.08
Malaysia	0.47	0.39	0.80	0.39	0.35	0.36	0.14	0.00	0.27
Mexico	0.30	0.29	0.34	0.29	0.26	0.25	0.11	0.00	0.23
New Zealand	0.08	0.10	0.09	0.10	0.08	0.16	0.03	0.00	0.06
Papua New Guinea	0.42	0.52	1.52	0.52	-0.14	0.57	0.15	0.00	0.29
Peru	0.13	0.06	0.04	0.06	0.42	0.10	0.02	0.00	0.05
Philippines	0.24	0.23	0.37	0.23	0.23	0.28	0.08	0.00	0.16
Russia	0.11	0.11	0.21	0.11	0.11	0.24	0.03	0.00	0.07
Singapore	0.46	0.38	0.74	0.38	0.24	0.31	0.17	0.00	0.34
Chinese Taipei	0.32	0.23	0.63	0.23	0.32	0.32	0.09	0.00	0.18
Thailand	0.37	0.39	0.87	0.39	0.14	0.37	0.15	0.00	0.29
United States	0.04	0.05	0.04	0.05	0.13	0.15	0.01	0.00	0.03
Viet Nam	0.94	0.78	1.41	0.78	0.62	0.64	0.24	0.00	0.48

Table A7: 2025 Macroeconomic outcomes (% deviation from baseline)

	(1) Real GDP	(2) Real private consumption	(3) Real investment	(4) Real public consumption	(5) Real exports	(6) Real imports	(7) Real wage	(8) Capital stock	(9) Employment
Australia	0.14	0.11	-0.01	0.11	0.35	0.11	0.07	0.00	0.09
Brunei Darussalam	0.24	0.27	0.22	0.27	0.08	0.12	0.21	0.01	0.26
Canada	0.29	0.33	0.36	0.33	0.22	0.38	0.17	0.01	0.21
Chile	0.17	0.08	-0.01	0.08	0.37	0.02	0.06	0.00	0.08
China	0.27	0.28	0.28	0.28	0.56	0.63	0.12	0.01	0.15
Hong Kong, China	0.37	0.48	0.80	0.48	0.06	0.37	0.25	0.02	0.30
Indonesia	0.20	0.24	0.18	0.24	0.33	0.45	0.11	0.01	0.14
Japan	0.12	0.12	0.19	0.12	0.24	0.37	0.04	0.00	0.05
Korea, Republic of	0.28	0.23	0.20	0.23	0.45	0.32	0.11	0.01	0.13
Malaysia	0.93	0.76	1.50	0.76	0.71	0.70	0.37	0.05	0.46
Mexico	0.59	0.59	0.69	0.59	0.47	0.50	0.31	0.02	0.38
New Zealand	0.14	0.18	0.16	0.18	0.15	0.31	0.08	0.01	0.10
Papua New Guinea	0.83	0.94	2.45	0.94	-0.04	0.93	0.40	0.07	0.51
Peru	0.27	0.15	0.17	0.15	0.76	0.31	0.07	0.00	0.10
Philippines	0.47	0.41	0.67	0.41	0.53	0.52	0.20	0.03	0.24
Russia	0.21	0.23	0.41	0.23	0.20	0.48	0.10	0.01	0.12
Singapore	0.88	0.72	1.41	0.72	0.47	0.60	0.45	0.05	0.55
Chinese Taipei	0.63	0.45	1.19	0.45	0.64	0.63	0.23	0.04	0.29
Thailand	0.72	0.74	1.65	0.74	0.31	0.72	0.38	0.05	0.47
United States	0.08	0.08	0.07	0.08	0.28	0.27	0.03	0.00	0.04
Viet Nam	1.91	1.58	2.61	1.58	1.33	1.29	0.69	0.13	0.90

Table A8: 2026 Macroeconomic outcomes (% deviation from baseline)

	(1) Real GDP	(2) Real private consumption	(3) Real investment	(4) Real public consumption	(5) Real exports	(6) Real imports	(7) Real wage	(8) Capital stock	(9) Employment
Australia	0.20	0.17	0.03	0.17	0.45	0.20	0.12	0.00	0.11
Brunei Darussalam	0.35	0.40	0.34	0.40	0.11	0.18	0.38	0.02	0.34
Canada	0.38	0.44	0.48	0.44	0.31	0.54	0.29	0.03	0.23
Chile	0.25	0.15	0.03	0.15	0.50	0.07	0.11	0.00	0.11
China	0.38	0.39	0.40	0.39	0.86	0.92	0.21	0.03	0.18
Hong Kong, China	0.53	0.70	1.12	0.70	0.08	0.53	0.42	0.05	0.35
Indonesia	0.29	0.35	0.25	0.35	0.50	0.66	0.20	0.02	0.17
Japan	0.18	0.18	0.28	0.18	0.35	0.56	0.07	0.01	0.06
Korea, Republic of	0.40	0.33	0.29	0.33	0.66	0.47	0.19	0.02	0.16
Malaysia	1.38	1.11	2.15	1.11	1.08	1.03	0.66	0.15	0.58
Mexico	0.87	0.89	1.01	0.89	0.69	0.75	0.55	0.05	0.49
New Zealand	0.20	0.26	0.22	0.26	0.23	0.44	0.14	0.01	0.12
Papua New Guinea	1.21	1.28	3.08	1.28	0.17	1.18	0.73	0.19	0.66
Peru	0.40	0.24	0.29	0.24	1.10	0.52	0.14	0.01	0.13
Philippines	0.70	0.57	0.93	0.57	0.87	0.74	0.35	0.07	0.29
Russia	0.32	0.34	0.62	0.34	0.29	0.72	0.17	0.03	0.16
Singapore	1.28	1.03	2.04	1.03	0.71	0.87	0.78	0.15	0.67
Chinese Taipei	0.92	0.65	1.69	0.65	0.98	0.93	0.41	0.11	0.35
Thailand	1.06	1.06	2.38	1.06	0.50	1.05	0.67	0.13	0.58
United States	0.12	0.11	0.11	0.11	0.44	0.39	0.06	0.01	0.05
Viet Nam	2.86	2.34	3.67	2.34	2.08	1.94	1.28	0.35	1.17

Annex 3. Areas of convergence and divergence in selected agreements on electronic transactions frameworks, paperless trade and MLETR

***Note**: While every care has been taken, the table below provides a high-level summary only – please refer to the legal texts of the agreements for exact wording. For simplicity, a range of related topics is not included in the table below including Single Windows, electronic authentication, electronic signatures and electronic contracts.*
TAD = trade administration document; ETF = electronic transactions framework; ETR = electronic transferable record
MLEC = Model Law on Electronic Commerce; UN CUECIC = United Nations Convention on the Use of Electronic Communications in International Contracts

Agreement	Electronic Transactions Frameworks provisions	Paperless trade provisions	MLETR references	Comment/comparison
CPTPP (2018)	Article 14.5: Domestic Electronic Transactions Framework - Parties shall maintain a legal framework governing electronic transactions consistent with the principles of UNCITRAL MLEC or UN CUECIC. - Parties shall endeavor to avoid unnecessary regulatory burden on electronic transactions - Parties shall endeavor to facilitate input by interested persons in the development of its legal framework	Article 14.9: Paperless Trading - Parties shall endeavor to make available TAD in electronic form - Parties shall accept TAD submitted electronically as the legal equivalent of the paper version	None	CPTPP is a significant model for subsequent agreements. Parties **agree** to: - Maintain a legal framework - Accept TAD submitted electronically as legal equivalent of paper Parties only **endeavor** to: - Avoid unnecessary regulatory burden - Make TAD available in electronic form ⇒ ***No mention of MLETR***
USMCA (2020)	Article 19.5: Domestic Electronic Transactions Framework - Parties shall maintain a legal framework governing electronic transactions consistent with the principles of UNCITRAL MLEC. - Parties shall endeavor to avoid unnecessary regulatory burden on electronic transactions - Parties shall endeavor to facilitate input by interested persons in the development of its legal framework	Article 19.9: Paperless Trading - Parties shall endeavor to accept TAD submitted electronically as the legal equivalent of the paper version Article 7.9: Trade Facilitation: Use of Information Technology (IT) - Parties shall make available by electronic means any declaration or other form that is required for import, export or transit; shall allow customs declarations and related documentation to be submitted in electronic format; shall make electronic systems available; shall promote the use of its electronic systems	None	Overall: Similar to CPTPP Somewhat weaker on acceptance of electronic TAD than CPTPP ⇒ ***No mention of MLETR***

RCEP (2022)	Article 12.10: Creating a conducive environment for electronic commerce - Parties shall adopt or maintain a legal framework governing electronic transactions, taking into account UNCITRAL MLEC or UN CUECIC, or other applicable international conventions and model laws relating to electronic commerce. - Parties shall endeavor to avoid any unnecessary regulatory burden on electronic transactions	Article 12.5: Paperless Trading - Parties shall work towards implementing initiatives which provide for the use of paperless trading, taking into account the "methods agreed by international organisations" - Parties shall endeavor to accept electronic versions of TAD as the legal equivalent of paper documents - Parties shall endeavor to make TAD available in electronic form - Parties shall cooperate in international fora to enhance acceptance of electronic versions of TAD		Overall: Similar to CPTPP Somewhat more enabling on ETF (refers to "other applicable international conventions and model laws" as the basis for ETF) Provides for cooperation in international fora on TAD acceptance ⇒ ***No mention of MLETR***
AANZFTA Second Protocol (2023)	Article 12: Domestic Regulatory Framework - Parties shall adopt or maintain a legal framework governing electronic transactions, taking into account UNCITRAL MLEC, UN CUECIC or other applicable international conventions and model laws relating to electronic commerce.	Article 5: Paperless Trading - Parties shall work towards implementing initiatives which provide for the use of paperless trading, taking into account the methods agreed by international organisations - Parties shall endeavor to accept TAD submitted electronically as the legal equivalent of the paper version - Parties shall endeavor to make TAD available in electronic form - Parties shall cooperate in international fora to enhance acceptance of electronic versions of TAD	None – but reference to "other applicable international conventions and model laws relating to electronic commerce"	Overall: similar to RCEP Does not refer to avoiding any unnecessary regulatory burden in ETF ⇒ ***No mention of MLETR***
DEPA (2020)	Article 2.3: Domestic Electronic Transactions Framework - Parties shall maintain a legal framework governing electronic transactions consistent with the principles of UNCITRAL MLEC or UN CUECIC. - Parties shall endeavor to adopt MLETR - Parties shall endeavor to avoid imposing any unnecessary regulatory burden on electronic transactions - Parties shall endeavor to facilitate input by interested persons in the development of its legal framework	Article 2.2: Paperless Trading - Parties shall make available electronic versions of all existing publicly available TADs - Parties shall endeavor to provide electronic versions in a machine-readable format - Parties shall accept electronic versions of TADs as legal equivalent of paper documents, subject to domestic and international legal requirements and the effectiveness of the trade administration process - Includes provisions regarding to electronic data exchange systems, including for data relating to TADs and electronic records used	Article 2.3 Parties shall endeavor to adopt MLETR	Overall: Stronger than CPTPP Parties **agree** to: - Maintain a legal framework - Make available electronic TAD - Accept electronic TAD as legal equivalent, subject to domestic and international laws and effectiveness - Develop electronic data exchange systems relating to TADs and commercial electronic records - Cooperate bilaterally and internationally on electronic TAD acceptance

		in commercial trading activities between the Parties - Parties commit to cooperate bilaterally and internationally to enhance acceptance of electronic versions of TADs and electronic records used in commercial trading activities between businesses - In developing initiatives on paperless trade, Parties shall endeavor to take into account the methods agreed by relevant international organisations		Parties only **endeavor** to: - Adopt MLETR - Avoid unnecessary regulatory burden in ETF - Facilitate input by interested parties on ETF - On paperless, take into account the methods agreed by international organisations ⇒ ***Mentions MLETR***
Singapore-Australia Digital Economy Agreement (2020)	Article 8: Domestic Electronic Transactions Framework - Refers to the MLETR definition of electronic transferable records - Parties shall maintain a legal framework governing electronic transactions consistent with the principles of UNCITRAL MLEC or UN CUECIC. - Parties shall endeavor to adopt MLETR - Parties shall endeavor to avoid imposing any unnecessary regulatory burden on electronic transactions - Parties shall endeavor to facilitate input by interested persons in the development of its legal framework - Parties shall endeavor to take into account, as appropriate, relevant model legislative texts developed and adopted by international bodies, such as UNCITRAL MLETR	Article 12: Paperless Trading - Parties shall make available electronic versions of TAD - Parties shall accept completed electronic versions of TAD as the legal equivalent, subject to domestic and international legal requirements and the effectiveness of the trade administration process - Parties shall endeavor to develop data exchange systems to support the exchange of data relating to TAD and electronic records used in commercial trading activities between enterprises - Parties shall cooperate bilaterally and internationally, where appropriate, to promote acceptance of electronic versions of TAD and electronic records used in commercial trading between enterprises - In developing initiatives on paperless trading, Parties shall endeavor to take into account the methods agreed by international organisations	Article 8 Parties shall endeavor to take into account, as appropriate, relevant model legislative texts developed and adopted by international bodies, such as UNCITR MLETR	Overall: Similar to DEPA, but weaker/less detailed in specific elements Additionally refers to the MLETR definition of electronic transferable records ⇒ ***Mentions MLETR***
Singapore-Korea Digital Partnership Agreement (2023)	Article 14.7: Domestic Electronic Transaction Framework - Parties shall maintain a legal framework governing electronic transactions consistent with the principles of the UNCITRAL MLEC or the UNCECIC - Parties shall endeavor to adopt the UNCITRAL MLETR	Article 14:12: Paperless Trading - Parties shall make publicly available electronic versions of all existing publicly available trade administration documents - Whenever practicable, Parties shall provide electronic versions of TAD - Each Party shall accept completed electronic versions of TAD as the legal equivalent of paper documents	Article 17.7 Parties shall endeavor to adopt MLETR	Overall: Similar to DEPA, but a bit stronger on paperless trade Additionally, refers to whenever practicable, Parties to <u>provide</u> electronic versions of TAD ⇒ ***Mentions MLETR***

	- Parties shall endeavor to avoid any unnecessary regulatory burden on electronic transactions - Parties shall endeavor to facilitate input by interested persons in the development of legal frameworks	- Includes detailed provisions on cooperation on interoperable data exchange systems to support the exchange of electronic records and documents - Parties shall cooperate bilaterally and in international fora to promote acceptance of electronic versions of TAD and electronic records used in commercial trading activities between enterprises - In developing initiatives on paperless trading, the Parties shall endeavor to take into account the methods agreed by international organisations		
ASEAN Agreement on Electronic Commerce (2019)	Article 12: Domestic Regulatory Framework - Member States shall maintain or adopt as soon as practicable, laws and regulations governing electronic transactions, taking into account applicable international conventions or model laws relating to e-commerce.	Article 7.1: Paperless Trading - Member States shall expand the use of electronic versions of TADs and facilitate the exchange of electronic documents through the use of ICT, consistent with the ASEAN Agreement on Customs and other international agreements on paperless trading to which Member States are parties. - [*provisions on e-signatures, e-authentication]*		Overall: Relatively weak. Different formulation of requirement to have an electronic transaction framework with relatively weaker impact (enabling this to be done “as soon as practicable”), “taking into account applicable international conventions or model laws” References to paperless trade but less strong than other agreements ⇒ ***No mention of MLETR***
Pacific Alliance Additional Protocol (2014)		Article 13.7: Paperless Trade - Parties shall seek to make available in electronic form all documents related to the administration of trade - Parties shall seek to accept documents in electronic form related to administration of trade, as a legal equivalent to the paper version, pursuant to its laws	None	Does not include electronic transactions framework On paperless trade, similar to CPTPP ⇒ ***No mention of MLETR***
United Kingdom-Singapore DEA (2022)	Article 8.60: Domestic Electronic Transactions Framework and Electronic Contracts - Parties shall maintain a legal framework governing electronic transactions consistent	- Parties commit to making TAD available in electronic form, and to accept completed electronic versions of TAD as the legal equivalent, subject to domestic and	Article 8.60 Parties shall endeavor to establish a legal framework governing	Overall: Similar to DEPA Additionally, except where domestic law precludes it,

	with the principles of UNCITRAL MLEC or UNCECIC - Parties shall endeavor to avoid any unnecessary burden on electronic transactions - Parties shall endeavor to facilitate input by interested persons in the development of legal frameworks - Parties shall endeavor to establish a legal framework governing electronic transferable records consistent with MLETR - Except as otherwise provided for in domestic law, Parties shall not deny the legal effect, legal validity or enforceability of an electronic contract, solely due to its electronic nature (*paraphrased*)	international legal requirements and the effectiveness of the trade administration process - Parties shall cooperate where appropriate bilaterally and internationally on paperless trading - In developing paperless trading initatives, Parties shall endeavour to take into account the methods agreed by international organisations	electronic transferable records consistent with MLETR	Parties to not deny the legal validity of an electronic contract just because it is electric ⇒ ***Mentions MLETR***
United Kingdom-Australia FTA (2023)	Article 14.4: Domestic Electronic Transactions Framework - Parties shall maintain a legal framework governing electronic transactions consistent with the principles of UNCITRAL MLEC or UNCECIC - Parties shall endeavor to avoid any unnecessary burden on electronic transactions - Parties shall endeavor to facilitate input by interested persons in the development of legal frameworks - In developing mechanisms to facilitate the use of electronic transferable records, the Parties shall endeavor to take into account, as appropriate, relevant model legislative texts such as MLETR	Article 14.8: Paperless Trading - Parties shall endeavour to make TAD available in electronic form - Parties shall endeavour to accept TADs submitted electronically as the legal equivalent - Parties shall cooperate bilaterally and in international fora to promote acceptance of electronic TAD and other matters related to paperless trading - "In developing initiatives concerning the use of paperless trading, the Parties shall endeavour to take into account the principles and guidelines of relevant international bodies"	Article 14.4.3 Parties shall endeavor to take into account, as appropriate, relevant model legislative texts such as MLETR	Overall: Similar to Singapore-Australia DEA, but somewhat weaker ⇒ ***Mentions MLETR***
United Kingdom– New Zealand FTA (2023)	Article 15.6: Domestic Electronic Transactions Framework - Parties shall maintain a legal framework governing electronic transactions consistent with the principles of UNCITRAL MLEC or UNCECIC - Parties shall endeavor to avoid any unnecessary burden on electronic transactions	Article 15.10: Paperless trading - Commits Parties to making trade administration documents available in electronic form - Parties shall endeavor to accept trade administration documents submitted electronically as the legal equivalent of the paper version - Parties to cooperate bilaterally and in international fora on paperless trade, including "enhancing the standardization	Article 15.6.3 Parties shall take into account MLETR	Overall: Similar to DEPA, but with some nuances on MLETR Requires the Parties to "take into account" MLETR (when developing mechanisms to facilitate the use of ETRs) – by comparison, DEPA requires the Parties to "endeavor to adopt MLETR".

	- Parties shall endeavor to facilitate input by interested persons in the development of legal frameworks - In developing mechanisms to facilitate the use of electronic transferable records, the Parties shall take into account the MLETR	and acceptance of electronic trade administration documents" - Commits Parties to take into account the principles and guidelines agreed by relevant international bodies Article 4.6: Data and Documentation (Customs) - Parties shall (inter alia) make electronic systems available to customs users, allow customs declarations to be submitted in electronic format, and cooperate on the development of interoperable electronic systems	⇒ ***Mentions MLETR***
Agreement on E-commerce negotiated under the WTO JSI on E-Commerce (Stabilised text published July 2024)	Article 4: Electronic Transaction Framework - Parties shall endeavour to adopt or maintain a legal framework governing electronic transactions consistent with UNCITRAL MLEC - Parties shall endeavour to avoid any undue regulatory burden on electronic transactions - Parties shall endeavour to facilitate input by interested persons in the development of its legal framework for electronic transactions. - Parties shall endeavour to adopt or maintain a legal framework that takes into account MLETR	Article 8: Paperless Trading - Parties are encouraged to eliminate paper forms and documents, as appropriate, and transition towards using "data-based formats" - Parties shall make publicly available in electronic format any TADs issued or controlled by its customs authority or other government agencies, subject to international legal requirements. Parties shall endeavour to make instructions for electronic submission of such forms available on the internet. - Parties shall accept in electronic format as the legal equivalent of the paper version, TADs issued or controlled by its customs authority or other government agencies, and as appropriate, supporting documentation required by its customs authority or other government agencies, , subject to domestic and international legal requirements, or effectiveness. - Parties shall endeavour to cooperate, as appropriate, in international fora to promote the use of electronic TADs - "Recognising that the use of an international standard for utilization of electronic forms and documents requirement for importation, exportation or transit of goods can facilitate	Overall: Similar to CPTPP Commitments related to MLETR are somewhat weaker (e.g. only "endeavour to adopt or maintain" a legal framework that takes into account MLETR") ⇒ ***Mentions MLETR***

		trade, each Party shall endeavour to take into account, as appropriate, standards of, or methods agreed by, relevant international organizations"	
UN Framework Agreement on Facilitation of Cross-Border Paperless Trade in Asia and the Pacific (CPTA) (2021) **Ratifications to date by: China, the Philippines, Kora and Russia**[207]	Article 6: National policy framework, enabling domestic legal environment and paperless trade committee - Parties shall endeavour to establish a domestic policy framework for paperless trade - Parties shall endeavour to create an enabling domestic legislation on paperless trade…taking into consideration international standards and best practices, if applicable - Parties may establish a domestic committee…the committee will promote a legally enabling domestic environment for exchange of trade-related data and documents in electronic form, as well as facilitate cross-border interoperability Article 8: Cross-border mutual recognition of trade-related data and documents in electronic form - Parties shall provide for mutual recognition of trade-related data and documents in electronic form – on the basis of a "substantially equivalent level of reliability" (to be mutually agreed) - Parties may enter into arrangements to operationalize cross-border mutual recognition of electronic TAD and trade-related data Article 9: International standards for exchange of trade-related data and documents in electronic form - Parties shall endeavour to apply international standards and guidelines for interoperability - Parties shall endeavour to be involved in the development of international standards	Article 7: Facilitation of cross-border paperless trade and development of single-window systems - Parties shall endeavour to facilitate cross-border paperless trade by enabling exchange of trade-related data and documents in electronic form - *Parties are encouraged to develop single window systems*	Overall: Detailed, and in a somewhat different formulation to other agreements. Overall somewhat weaker in effect (only best-endeavours for a ETF, only best-endeavours for electronic TADs) However, also mentions "trade-related ***data*** and documents" Does not mention MLETR but does mention "Other international legal instruments concluded by the UN". ⇒ ***No mention of MLETR***

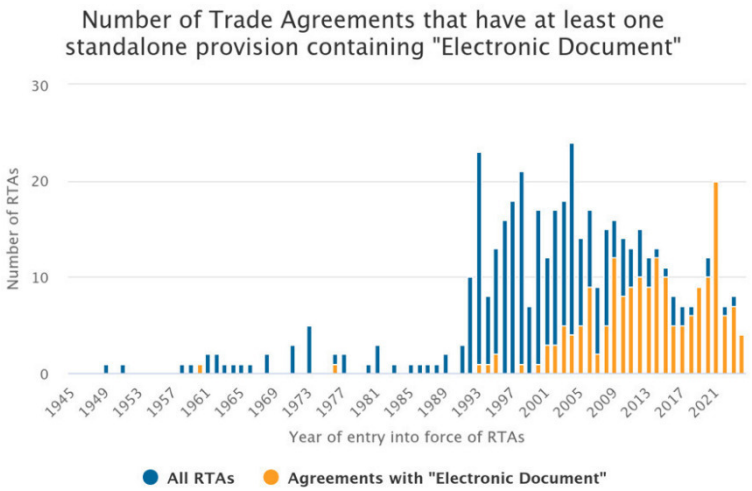
[207] See https://treaties.un.org

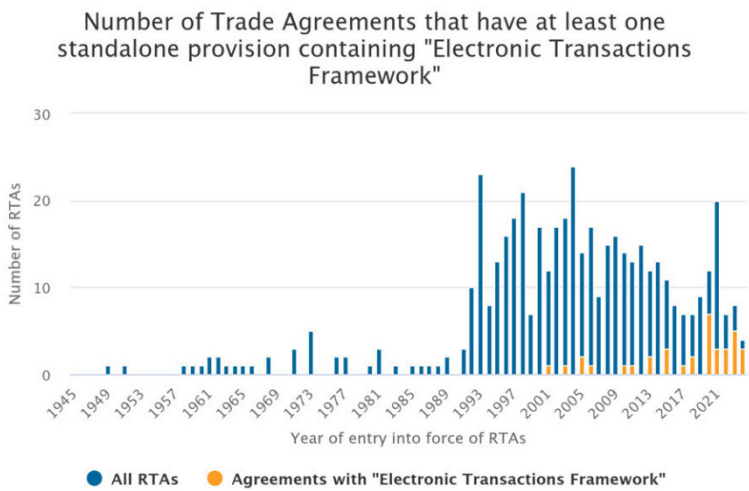
and best practices relating to paperless trade

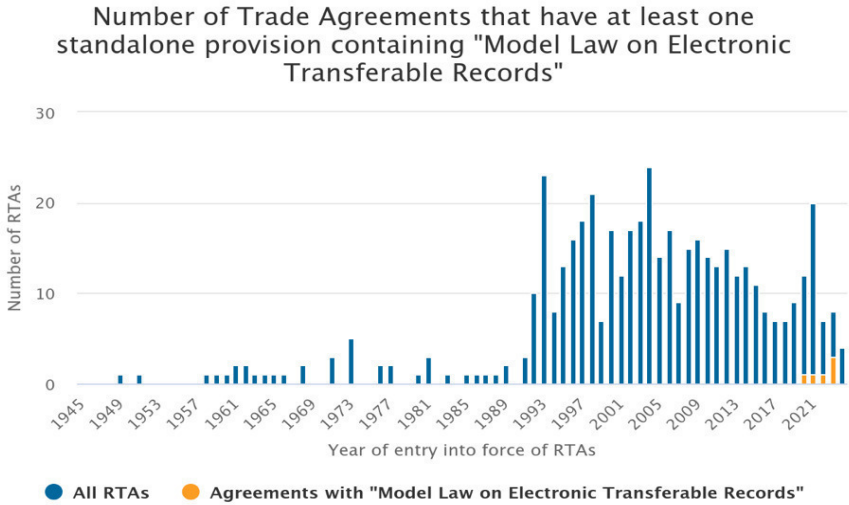
Article 10: Relation to other legal instruments enabling cross-border paperless trade

- Parties may, where appropriate, adopt relevant international legal instruments concluded by the UN and others
- Parties shall endeavour to ensure that the cross-border exchange of data/documents in electronic form is consistent with international law, regulations and practices

Chart 1: Global trade agreements with provisions on electronic documents, electronic transactions frameworks and MLETR







Source: Legal TINA (UNESCAP), accessed 18 October 2024. Chart includes all RTAs in the Legal TINA database, including those involving economies outside the APEC region.

Annex 4. Workstreams and support in international fora

Forum	Work/support offered
ICC and DSI	The ICC has developed the Digital Standards Initiative (DSI), in partnership with the Asian Development Bank and Singapore, to promote the digitization (and digitalization) of trade, including through the global adoption of digital standards and to promote and facilitate the worldwide adoption of MLETR or equivalent. The ICC offers guidelines on the practical implementation of MLETR principles in trade finance. It also provides training and certification programs on digital trade and MLETR. It has recently issued a technical tool to assess the reliability of digital services or networks, to facilitate the transfer of electronic transferable records between supply-chain parties.[208] The DSI (involving the ICC, ADB and Singapore) has established the Industry Advisory Board (IAB) and the **Legal Reform Advisory Board (LRAB)** to help harmonize legislative frameworks. Partners in the LRAB include the ASEAN Economic Community, UNCITRAL, the International Trade and Forfaiting Association, the UN Economic and Social Commission for Asia and the Pacific, the Commonwealth and the European Bank for Reconstruction and Development. The DSI has also prepared a *Practical Guide to Legal Reform to Enable Electronic Transferable Records and Optimise Cross-Border Trade.* The DSI monitors progress on policy reform worldwide, both MLETR-based or MLETR-compliant legislation. It publishes information about progress on a tracker on its website.
ADB	The ADB supports MLETR adoption through awareness-raising and technical assistance and capacity building for member economies as part of its Trade and Supply Chain Finance Program (TSCFP), including APEC economies such as China, the Philippines and Thailand. This assistance includes grants to facilitate adoption of or alignment with MLETR. The ADB also works in close collaboration with the ICC, Digital Standards Initiative and UNCITRAL on MLETR issues, as noted above. In addition, the ADB conducts research and prepares reports on the economic benefits of MLETR adoption to inform policymakers.[209]
UN ESCAP	Conducts regional studies on the readiness of Asia-Pacific economies for paperless trade, including MLETR adoption Conducts an annual survey on digital trade facilitation . Offers capacity-building workshops and technical assistance programs, including legal and readiness checklists for paperless trade.[210] Facilitates knowledge-sharing through its Framework Agreement on Facilitation of Cross-Border Paperless Trade in Asia and the Pacific
ABAC and partners	Established the Digital Trade Connect Network to give visibility to trade digitalization and provide a forum to share experiences and approaches Undertook a pilot program on e-Bills of Lading.

[208] See https://iccwbo.org and https://www.dsi.iccwbo.org/our-work. On LRAB, see www.adb.org/news/adb-promotes-digitalized-trade-through-regional-outreach-initiatives-and-technical-0.
[209] See www.adb.org. See also 'Driving Digitalization of Global Trade: UNICTRAL Model Law on Electronic Transferable Records', ADB Brief No. 280, December 2023, https://www.adb.org/publications/driving-digitalization-global-trade
[210] See https://readiness.digitalizetrade.org