International Economic Law Clinic

TRADE FINANCE DIGITALIZATION:

scaling the adoption and implementation of enabling frameworks

30 June 2023, Geneva

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To: World Economic Forum
91-93 route de la Capite,
CH-1223 Cologny/Geneva
Switzerland

TradeLab

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AAEC	ASEAN Agreement on Electronic Commerce
AANZFTA	The Agreement Establishing the ASEAN-Australia-New Zealand Free Trade Area.
ADGM	Abu Dhabi Global Market
ADGM ETR 2021	Electronic Transactions Regulations 2021
Bahrain	Kingdom of Bahrain
Bahrain ETR Law	Electronic Transferable Records Law of Bahrain (LAW No. 55 of 2018)
Bill	Electronic Trade Documents Bill of UK
CEPA	UAE-India Comprehensive Economic Partnership Agreement
CPTA	Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific
CPTPP	Comprehensive and Progressive Agreement on the Trans-Pacific Partnership
CUECIC	United Nations Convention on the Use of Electronic Communications in International Contracts
DEA	Digital Economy Agreement
DEPA	Digital Economy Partnership Agreement
ECT law	The Law on Electronic Communications and Transactions
ETR	Electronic Transferable Records
Hamburg Rules	United Nations Convention on the Carriage of Goods by Sea
ICC	International Chamber of Commerce
MLEC	UNCITRAL Model of Law on Electronic Commerce
MLES	UNCITRAL Model Law on Electronic Signatures

MLETR	UNCITRAL Model of Law on Electronic Transferable Records
MSMEs	Micro, small and medium-sized enterprises
The Project	UNIDROIT Digital Assets and Private Law Project
RCEP	Regional Comprehensive Economic Partnership Agreement
Rotterdam Rules	United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea
UN	United Nations
UNCITRAL	The United Nations Commission on International Trade Law
UNIDROIT	The International Institute for the Unification of Private Law
UK	United Kingdom
URDTT	Uniform Rules for Digital Trade Transactions
WTO	World Trade Organization

Executive Summary

Legal Instruments Under the UN Framework

- *The UN conventions do not offer the possibility of a wide implementation of digital trade finance. However, they provide relevant articles that legislators could adopt in national jurisdictions.*
- *The UNCITRAL model laws represent a better alternative: a holistic legal framework that guarantees judicial consistency.* In order to ensure *certainty and predictability*, it is recommended that states adopt holistic frameworks like the UNCITRAL model laws. While states can choose certain relevant articles from conventions to transplant in their national legislation, the reliance on the model law provides an entire framework.
- A large number of states already have adopted UNCITRAL model laws. Most significant is the Model Law on Electronic Communication ("**MLEC**") which has been adopted by 164 jurisdictions. A best practice going forward beyond the MLEC would have these countries selectively adopting upgrades from recent model laws. This approach could be named "MLEC Plus" and allow for an easier adoption as the legislators would be familiar with the existing model laws
- The UNIDRIOT Digital Assets is such an MLEC Plus project providing an expansion on the UNCITRAL model laws by allowing access to secondary markets and a wide range of financial tools. This addresses a significant limitation of the MLETR which is limited to documents that only have a paper equivalent. Such documents could be used as collateral. Further, the new UNIDRIOT project considers documents existing solely in an electronic environment and does not impose restrictions on their use in financial products.

Regional and bilateral/trilateral Legal Instruments

- In the last decade, more and more states recognized the importance of electronic transferable records. Notably, Singapore updated the traditional domestic regulatory framework clause by explicitly referring to the MLETR in bilateral/trilateral digital trade or partnership agreements. Followed by other

trade hubs, such as Australia and the UK, this legal innovation may have network effects over the globe.

- This report analyses five major regional legal instruments and ten bilateral/trilateral legal instruments related to digital trade and electronic commerce. Key clauses in regional and bilateral/trilateral legal instruments that could support the development of electronic transferable records are 1) domestic regulatory framework clauses, 2) paperless trading clauses and 3) clauses that provide practical solutions for electronic transferable records. According to the comparative analysis, the report proposes three recommendations about these three key clauses for future treaty negotiators.
- Recommendation on domestic regulatory framework clauses: regional and bilateral/trilateral agreements shall explicitly refer to the MLETR. If negotiating states cannot accept a clause directly pointing to the MLETR, a semi-open clause[1] could be a suboptimal option by retaining the possibility for the future introduction of the MLETR into the treaty.
- Recommendation on paperless trading clauses: expand the scope of paperless trading clauses in regional agreements: use "trade-related documents" instead of "trade administration documents" to cover commercial trade documents, including electronic transferable records.
- Recommendation on practical solutions: proactively propose practical solutions to popularize electronic transferable records and include relevant solutions in regional and bilateral/trilateral agreements.

Legal Instruments Under the WTO Framework

- The best practice for WTO negotiators would be to reference explicitly the MLETR in the WTO negotiating text. This would ensure that the WTO is taking off where the MLEC and MLETR left off. Accepting these prior UN-model law as a starting point for WTO negotiations is crucial in promoting the equitable treatment of electronic information and facilitating electronic transactions. The

[1] Generally, a semi-open clause is a domestic regulatory framework clause in a treaty which allows member states to consider applicable international legal instruments at their discretion to establish or maintain their domestic regulatory frameworks. See Section III for more details.

widely adopted MLEC and MLETR serve as a solid foundation for developing e-commerce negotiations within the WTO.

Key Findings in Case Studies

- Kingdom of Bahrain: Bahrain has successfully adopted the necessary structures for the successful adoption of a trade finance strategy. Those structures include an inclusive legal structure based on both MLEC and MLETR. Furthermore, they include an expansion in government provision of digital access and services. However, it must be noted that despite this progress, the advanced legal structures were not implemented to their full potential. Although the digitalization envisioned trade finance related document, it was limited in applicated to e-cheques.
- UAE: The Abu Dhabi Global Market (ADGM) is a valuable model for jurisdictions implementing legislation facilitating the digitization of trading documents. ADGM's efforts are exemplified by the pilot project using Singapore's TradeTrust platform on the Ethereum blockchain. This platform demonstrates the UAE's commitment to exploring and adopting newer technologies and platforms for digital trade. However, the existing platform exhibits certain limitations, notably the imposition of high gas fees and the inability to modify processed documents. This factor assumes significant importance, particularly in the context of trade finance-related documents, as it hinders the realization of their full potential. Furthermore, the imperative for broader stakeholder involvement, including small and medium trading partners, banks, credit agencies, and chambers of commerce, underscores the criticality of transforming readiness into proactive implementation. We recommend that ADGM authorities work actively with commercial traders and logistics companies to adopt more comprehensive digital trade practices such as promoting paperless trade by popularizing adoption of digital trade finance documents.
- The UK: The UK published the Electronic Trade Documents Bill (the "**Bill**") in 2021. The Bill is generally consistent with the MLETR, while some clauses were tailored to the law of England and Wales. The primary legal breakthrough of the Bill is the recognition of *possession of intangibles*. Previously, English common law does not recognize the possession of intangibles, but the Bill goes beyond this

tradition. Other common law jurisdictions could take the Bill as a reference to establish their regulatory framework on electronic transferable records.

I. Introduction

Entrepreneurs at the helm of small, medium, and larger exporters in both developed and developing countries face significant obstacles to accessing trade finance.[2] From 80% to 90% of global trade incorporates the use of financial tools.[3] To borrow from the World Trade Organization (WTO) vocabulary: "trade finance is the lifeline" of international trade.[4] Yet, currently there is a trade finance gap of 2 trillion dollars which negatively impacts, in particular, small and mid-sized exporters.[5] A significant contributing factor to this gap is the administrative cost of paper documentation. On average for each shipment, there are 50 sheets of papers that pass through 30 stakeholders.[6] Adopting electronic bill of ladings alone is estimated to save around 6.5 billion dollars in business costs.[7] Furthermore, universal acceptance of electronic bills of lading could lead to an increase of 30-40 billion dollars in international trade volume.[8]

One of the keys that will unlock trade finance is the digitalization of trade finance-relevant documents. Digitalization of critical trade finance documents is expected to help bridge the trade finance gap through a two-step process. First, businesses will no longer waste resources on shipping paper folders of documents around the globe. Second, businesses will be able to use those electronic documents as a security/collateral and improve liquidity. Those documents either represent the title of physical goods or a future stream of income. If small and mid-sized businesses are able to shorten their business cycle with these electronic records, they are more likely to stay competitive with larger competitors. Furthermore, digitalization of trade

[2] "The challenges of trade financing," World Trade Organization, accessed June 30, 2023, https://www.wto.org/english/thewto_e/coher_e/challenges_e.htm#:~:text=of%20Commerce%202008).-,Some%2080%25%20to%2090%25%20of%20world%20trade%20relies%20on%20trade,trade%20finance%20along%20with%20production.
[3] *Ibid.*
[4] "Boosting trade finance in developing countries: What link with the WTO?", World Trade Organization, accessed June 30, 2023, https://www.wto.org/spanish/res_s/reser_s/ersd200704_s.htm.
[5] "Asian Development Bank: $2 Trillion Financing Gap Is Holding Back Trade," PYMNTS, accessed June 30, 2023, https://www.pymnts.com/supply-chain/2023/asian-development-bank-2-trillion-financing-gap-is-holding-back-trade/#:~:text=A%20"huge%20financing%20gap%2C",from%20%241.7%20trillion%20years%20ago.
[6] *Supra note 1.*
[7] *Ibid.*
[8] *Ibid.*

finance-relevant documents will assist small and mid-sized enterprises to reach economies of scale making their business model more profitable.

This report aims to examine the international and national legal instruments allowing for the digitalization of trade finance-relevant documents. These include, but are not limited to *bills of lading*, *letters of credit* and *promissory notes*. This report will act as a best-practices guide to both individual countries as well as private sector actors wishing to engage with digitalization of trade finance-relevant documents. Moreover, the research will highlight the favorable conditions leading to the adoption of those legal instruments and implementation gains as well as continuing challenges. This report will rely on previous ground-breaking work by the World Economic Forum, Asian Development Bank and many other organizations which have produced in recent years a significant amount of research highlighting the importance of using electronic trade finance-relevant documents to reduce the trade finance gap.

Our legal analysis is divided into three levels. First, we will discuss current UN legal instruments and accompanying model laws which may facilitate the digitalization of trade finance. We also map out recent legal developments which allow for the leveraging of those electronic documents in acquiring trade finance. Second, we will discuss relevant regional and bilateral/trilateral legal instruments and the participation of various member states. We also identify certain best practices for future treaty negotiators to follow. Finally, we will examine different ways that individual governments have provided for the digitalization of trade finance-relevant documents. In particular, we identify several best practices adopted by the states that have moved or will move to trade finance digitalization. We will focus on the experiences of three countries to evaluate how they have applied the frameworks in practice or how they intend to do so.

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II. Global Development of Legal Instruments on Digitalization of Trade Finance-relevant Documents

Our assessment of the feasibility of applying best practices of digitalization of trade finance-relevant documents involves two initial steps. First, we briefly summarize the historical development of agreed international instruments that govern the digitalization of both trade finance-relevant documents and trade finance in general. Various model laws and legal instruments were negotiated and drafted by different international parties. While these legal instruments may differ in their specifics, they may be viewed as complementary more than contradictory. We examine the developments of the key elements of those legal instruments as well as their intended application. Second, we will focus on the most recent UNCITRAL Model of Law on Electronic Transferable Records ("**MLETR**") and the UNIDROIT Digital Assets and Private Law Project (the "**Project**"). The MLETR and the Project represent important milestones in the digitalization of trade finance-relevant documents and other digital assets.

Beginning in the 1970s, the UN and its organizations recognized and sought to expand the adoption of digitalization of international trade. In 1978, the United Nations adopted a Convention on the Carriage of Goods by Sea (the "**Hamburg Rules**"). This was the first international legal instrument considering the use of electronic bills of lading. During the 1970s, UNCITRAL adopted model laws for the transfer of electronic funds and the "partial legal vacuum" that governed "computer records".[9] Throughout the 1980s, UNCITRAL commissioned several working groups to fill that gap. It had become "customary" in UNCITRAL texts by the 1990s to reference "electronic data interchange".[10] UNCITRAL sought to create a coherent set of rules that would allow different jurisdictions to treat electronic data in the same manner.

This section has three aims. First, it will explore the rationale behind both UN Conventions and UNCITRAL model laws dealing with electronic data. Second, it will highlight the solutions deployed in these legal instruments addressing obstacles

[9] Yearbook of the United Nations Commission on International Trade Law (Yearbook 19), 1985, 43
[10] Explanatory note by the UNCITRAL secretariat on the United Nations Convention on Independent Guarantees and Stand-by Letters of Credit, 20.

regarding the recognition of electronic data. Third, it will explain how those solutions are envisioned and applied in practice.[11]

UN conventions and UNCITRAL model laws covering digital trade are featured chronologically in the below table.

Form 1 International instruments and frameworks governing trade finance-relevant documents

UN Convention	Ratification	Relevant Articles	Relevant Documents
United Nations Convention on the Carriage of Goods by Sea (1978) (the "**Hamburg Rules**")	35 states	Article 14	Bill of lading
United Nations Convention on Independent Guarantees and Stand-by Letters of Credit (1995)	8 states	Article 7	Letters of Credit and Independent Guarantees
United Nations Convention on the Use of Electronic Communications in International Contracts (2005)	18 states	/	Does not apply to trade finance-relevant documents
United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea (2008) (the "**Rotterdam Rules**")	25 states signed, 5 ratified. (Not enter in force.)	Articles 8,9 and 10	Accounts for cross border maritime carriage documents
UNCITRAL Model Laws	**Adoptions**	**Relevant Articles**	**Relevant Documents**
Model Law on Electronic Commerce (1996)	83 states and 164 jurisdictions	Articles 1, 7, 8, 9, 16 and 17	Many trade finance-relevant documents
Model Law on Electronic Signatures (2001)	38 states and 39 jurisdictions	Articles 6,7,8, 9 and 12	Validation of signatures and recognition of cross-border certificates
Model Law on Electronic Transferable Records (2017)	7 states	Articles 6,7,8,9,10,12,14,16 and 17	Electronic transferable records
Other documents	**Status**	**Relevant Contents**	**Relevant Documents**
UNIDROIT Digital Assets and Private Law Project	Under development	Entire document	Electronic records that have a paper equivalent and that exist solely in an environmental space. All types of investment instruments including securities and bonds.

[11] See case law examples from different jurisdictions in Annex I for more information.

A. UN Conventions

There are three UN conventions covering trade finance-relevant documents. The oldest is the United Nations Convention on Independent Guarantees and Stand-by Letters of Credit (1995). As a result of this Convention, independent guarantees and stand-by letters of credit were accepted if the record is "preserved" and properly "authenticated".[12] In Article 7(2), the authentication procedure is made dependent upon "generally accepted means or by a procedure agreed upon by the guarantor/issuer and the beneficiary."[13] The generally accepted means will differ depending on each legal environment. Not surprisingly, there was a need for further legal instruments to clarify certain ambiguities. Therefore, the model laws attempted to articulate common modes of authentication, control and originality.

The second UN convention was the United Nations Convention on the Use of Electronic Communications in International Contracts (2005). The convention aimed to regulate the acceptance of international contracts in digital form. It was not concerned with establishing the uniqueness or singularity associated with trade finance documents. That exclusion stems from the inability to find legal, technological and business solutions for electronic transferable records.[14] In particular, UNCITRAL was concerned with how to determine exclusive control of the legitimate right-holder over a unique document. Since 1788 in *Lickbarrow v Mason*, a bill of lading was considered an ownership document.[15] In order to avoid conflicts of ownership, it was necessary to develop a system that ensure exclusive control.

However, a significant gap in the UNCITRAL text is Article 2 which excludes trade related documents used in trade finance. The first part of the article excludes contracts used in inter-bank transactions, agreements, settlements related to any financial asset. It also excludes contracts in both regulated and foreign exchanges as well as securities. The second part of Article 2 excludes: "bills of exchange, promissory notes, consignment notes, bills of lading, warehouse receipts or any transferable document or instrument that entitles the bearer or beneficiary to claim the delivery of goods or the payment of a sum of money".

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[12] Article 7(2), United Nations Convention on Independent Guarantees and Stand-by Letters of Credit.
[13] *Ibid*.
[14] MLETR, 17.
[15] James F. Brady Jr., "When One of Two Innocent Parties Must Suffer by the Act of a Third", 9 ST. *LOUIS L.REV*. 130 (1924).

These gaps in coverage were addressed further in 2005 in the third UN Convention is known as Rotterdam Rules. The Rotterdam rules were intended to succeed the 1978 Hamburg rules and sought to regulate documentation related to the maritime shipment of goods. This Convention addresses the issue of exclusive control, but failed to provide a framework for national courts to follow. The Rotterdam Rules covers electronic transferable records in Chapter 3, Articles 8, 9 and 10. Article 8 attests that the issuance, exclusive control and transfer of electronic records has "the same effect as the issuance, possession, or transfer of a transport document." In that case, the documents include, but are not limited to, bills of lading, invoices, certificates of origin and arrival notice. Any of those documents can be turned into an electronic record that could be transferred or used as a collateral.

However, the Rotterdam Rules have two shortcomings. First, while it is signed by 20 states, only five have ratified it in the 18 years since its negotiation. Second, unlike the model laws, the Rotterdam Rules do not allow for harmonized legal systems that would award digital transferable records the same treatment in different jurisdictions. Thus, it provides courts with suggested procedures to determine when a communication had taken place or a transferable record transfer. Recognition of the timing of transfer/communication is important because it determines when obligations or duties cease to exist. However, it does not provide for duties and responsibilities of service providers. Engaging with the duties and responsibilities of service providers allows for an element of security and certainty in a digitalized framework.

B. UNCITRAL Model Laws

The pre-1996 UNCITRAL model laws were drafted in response to the lack of uniformity awarded digital documents in distinct judicial systems. The purpose of the model law was to establish judicial consistency between the different legal systems governing digitised documents in trade. They represent an important step in recognizing the validity and eventual wide-spread adoption of digitized documents. That process does not invalidate the value of model laws preceding the latest model law on electronic transferable records. Older model laws have been adopted by a considerable number of states. These states could easily update existing laws with newer legal innovations. For example, the Model Law on Electronic Communication from 1996 has a wider scope of application than any of its predecessors. It recognized the validity of "any kind of

information" as long as it could be attributed and retained its integrity.[16] This model law is not only the most adopted one out of all the relevant international instruments, but also referred to as a condition in some regional agreements as highlighted in the second section of this report. A review of case law on how different jurisdictions applied the model laws can be found in Annex I.

The Model Laws were a product of a process of engineering. The earliest model law (MLEC) did not address the duties and responsibilities of third parties in trade transactions: service providers. While this was remedied in later model laws, the process of refining the law is far from over. For example, the latest model law was limited in its recognition of several financial tools that would enable a wider engagement with trade finance.

1. Model Law on Electronic Communication (1996)

The MLEC was adopted by the UN in 1996. It consists of two principal sections. The first part concerns electronic commerce in general and the second part deals with specific areas, such as the carriage of goods and transport documents. In Article 1, the MLEC provides a flexible threshold that encompasses all types of electronic information. In specific, the MLEC "applies to *any kind of information* in the form of a data message used in the context of commercial activities [emphasis added]".[17]

Chapter II of the MLEC applies to documents specifically used in the transport of goods. Its scope is envisioned to apply to the following and more: letters of credit, promissory notes, bills of lading, contracts and invoices. States that have adopted the MLEC in their domestic legislation would accept "any kind of information" communicated over electronic means on the condition it satisfies certain conditions. In certain cases, this encompassed the securities of which the paper documents no longer exist and SMS messages.[18]

The acceptance of "any kind of information" depends on satisfying several security-related aspects. The first aspect related to the issue of identifying transaction parties. In cases regarding paper-based document, identification may depend on signatures in the written form. In order to solve that problem, Article 7 is envisioned to

[16] Article 1, MLEC.
[17] Article 1, MLEC.
[18] Banco Caja Social S.A. v. Gloria Aleida Herrera Arango and Carlos Andrés Ochoa Londoño 8 July 2020 in Clout report CN.9/SER.C/ABSTRACTS/128.

accommodate the lack of signature issue. The signature condition is met if "a method is used to identify that person and to indicate that person's approval of the information contained in the data message" or if "that method is as reliable as was appropriate for the purpose for which the data message was generated or communicated".

Figure 1 Countries that have adopted the MLEC

Source: Authors

2. Model Law on Electronic Signatures (2001)

The second adopted model law that could facilitate trade finance is the Model Law on Electronic Signatures ("**MLES**") which was negotiated in 2001. It has been adopted in 38 states and 39 jurisdictions. While it does not directly mention any trade finance-relevant document, it acts as a support pillar for other relevant model law. To this end it recognizes the work of service providers and introduces their duties and obligations.[19] For example, it is the duty of the signatory to exercise "reasonable care" to avoid unauthorised use. If unauthorised use took place, it is the responsibility of the signatory to use either the services provided by the signature provider or any other efforts to notify parties affected by the signature.

The MLES also introduced the principle of technological neutrality. Technological neutrality guarantees that service providers will be treated the same despite the technological differences they may have. Articles 9 and 10 govern the model

[19] Article 8 and 9, MLES.

laws' treatment of service providers. An analysis of those articles is in Annex I. Another important addition in this model was the introduction of the Article 12 recognizing foreign certificates. That addition will facilitate cross-border trade in jurisdictions that previously had limited the application of model laws to only domestic transactions.

3. Model Law on Electronic Transferable Records (2017)

The most significant development advancing the cause of digitization of trade documentation is the 2017 UNCITRAL Convention on the Model Law on Electronic Transferable Records. This latest UNCITRAL convention cover concerning electronic trade documents. MLETR, aims to address service providers, cross-border trade as well as the element of exclusive control. It allows for the use of those documents as collateral to acquire finance through instruments such as factoring and forfeiting. However, it does not include the trading of those documents in derivatives or money markets (as well as any financial products). The MLETR has been adopted by 7 states.

The MLETR allows for electronic documents/information to receive the same treatment as written documents if they meet the following conditions (Article 8). Those conditions deal with the chain of custody of any specific digitalized document. In specific, whether the paper is unique and singular or whether it has not been altered during its lifetime. Article 10 makes direct mention of legal terms such as “singularity” and “uniqueness” of the documents in order to guarantee the security of the transactions against duplications of documents and fraud. In order for a document to be accepted in digital form, it must be unique. Any technological innovation would have to guarantee that only certain individuals have access to the document and would trade actions including duplication.

The general reliability standard in Article 12 adds two criteria that could be used to reaffirm integrity and security of electronic records. Firstly, through the existence of an external independent auditor who would be able to conduct regular and extensive examination of the security systems in place. Second, it envisions the existence of a regulatory body that would either provide accreditation to service providers or provide specific rules concerning reliability of security systems.

Article 14 deals with legal issues that may arise if the storage and service provider responsible for the electronic records is in a different geographic location. It is particularly interesting if and when the place of business might be impacted by cross-

border trade. It specifies that if a party uses electronic transferable records in a different location; that "does not create a presumption that its place of business is located in that country".

In Articles 17 and 18 of the MLETR, an electronic transferable record is interchangeable with its paper version. The change must be conducted using a reliable method. Furthermore, in either case it should be inserted in each document that change has occurred, and the date of change has to be recorded. Article 19 covers the recognition of the electronic transferable records in cross-border trade. A record issued in a different jurisdiction may not be denied legal validity in another jurisdiction on the basis of its issuance or its medium (paper-based or electronic).

The MLETR follows the principle of technological neutrally, allowing for the acceptance of every technological development that meets certain security requirements. It does not discriminate between service providers using central registrar, blockchain or another distributed ledger technology (DLT). However, it has to be noted that the MLETR does not apply in jurisdictions that do not allow for the transfer of certain instruments such as letters of credit.[20] In addition, the MLETR does not apply to electronic transferable documents existing solely in an electronic environment.[21]

Moreover, other exclusions from the MLETR apply to documents that are governed by the following conventions: the Convention Providing a Uniform Law for Bills of Exchange and Promissory Notes (Geneva, 1930) and of the Convention Providing a Uniform Law for Cheques (Geneva, 1931) (together, the "**Geneva Conventions**"). If states wish to utilise the electronic transferable records while being parties to the Geneva Conventions, they would be able to recognize electronic transferable records existing only in an electronic environment. Those records would neither fall under the Geneva Convention nor the UNCITRAL model law.[22]

C. Analysis and Summary

The UN conventions do not offer the possibility of a direct and wide implementation of digital trade finance. However, they provide relevant articles that

[20] MLETR, 25.
[21] *Ibid.*
[22] *Ibid.*

legislators could adopt in national jurisdictions that could facilitate the use of digital trade documents writ large.

The most recent international convention dealing with digital trade finance-relevant documents is the 2005 Rotterdam Rules, which unfortunately have not yet been sufficiently adopted by nations to bring it into force. Previous conventions reference trade finance-relevant documents, but they were drafted in the 20th century. In conclusion, in their totality, the UN conventions do not provide the basis for a system that guarantees predictability and certainty necessary for international trade.

The UNCITRAL model laws represent a better alternative: a holistic legal framework that guarantees predictability and certainty. In 1985, UNCITRAL sent out a questionnaire to different states in order to gauge the most important issues to be covered in legal reforms.[23] The initial concern of UNCITRAL and states about computerised records was the *admissibility* of those records in the courtroom.[24] As a result, the operational rationale of all the following UNCITRAL model laws has been on *harmonizing the method of different domestic jurisdictions dealing with computer records*. The issue in harmonizing different legal regimes also concerned the method they use to deal with electronic signatures and paper-based documents as a security guarantee against fraud. As a result, all UNCITRAL's model laws helpfully focus on attribution, originality and exclusive control of the electronic data.

UNCITRAL's research indicated that several jurisdictions have different thresholds when it comes to admitting electronic records as admissible.[25] This legal diversity naturally led to increased uncertainty and unpredictability in international trade. Consequently, UNCITRAL undertook additional efforts to produce a coherent legal approach that would be used in different contexts.[26]

Since then the UNCITRAL maintained a coherent set of common articles that exist in all of the model laws. This allows for interoperability between older and newer model laws. Furthermore, it guarantees focus on what really matters for states and investors: judicial consistency in cross border transactions.

[23] UN Secretary-General, Legal Value of Computer Records: report of the Secretary-General, A/CN.9/265, 3-21, (Feb. 21), 1985, https://digitallibrary.un.org/record/79132?ln=en.
[24] *Ibid.*
[25] *Ibid.*
[26] See Annex I for a detailed analysis of the development of the model laws with relevant articles highlighted.

Closing the 2 trillion-dollar trade finance gap is not an easy task. Enterprises would require access to a large pool of financial markets and tools. While the MLETR does provide an ability to leverage electronic trade finance-relevant documents, it does not address other financial tools. States wishing to engage with both primary and secondary markets could borrow from the newly developed principles by UNIDROIT.

The UN instruments setting out model laws are primarily concerned with creating a functional equivalent to existing paper-based documents. The exception to this is the MLEC whereby documents can be recognized if they exist solely in an electronic environment. While the MLEC does employ functional equivalency, it is not restricted to documents that only have a paper equivalent (if the security condition is satisfied).

In contrast, the 2017 MLETR considered electronic records that existed only in an electronic environment to be out of its scope. Furthermore, it did not provide for the use of electronic records when it concerned investment bonds, securities or other financial products. What it had enabled in reference to trade finance is the use of an electronic transferable record as a collateral to acquire finance. If the digitalization of trade is widespread, merely using the electronic documents would enable access to a considerable amount of trade finance globally across different markets. *In sum, there continues to be gaps in the disciplines that preclude the full operation of all electronic transferable records.*

Recent development by UNIDROIT attempts to maximise the effect of digitising trade related documents. The next subsection will review their project building upon the existing UN instruments reviewed.

Given the continuing gaps in digitization of trade finance documentation from the UN conventions, below are several parameters negotiators and national legislators could rely on when they decide to implement national laws similar to the model law:

- fulfilment of judicial consistency to ensure certainty and predictability
- facilitating closing the trade finance gap of 2 trillion dollars.
- safety and reliability to ensure security and guard against fraud.
- non-discrimination between service providers.
- using selective articles that would allow for better capacity building than introducing a new legal regime.

In order to ensure *certainty and predictability*, it is recommended that states adopt holistic frameworks like the UNCITRAL model laws. While states can choose certain relevant articles from conventions to transplant, the reliance on the model law provides an entire framework. That framework addresses the liability of service providers and addresses specific conditions that are necessary for the recognition of international electronic communication and papers. For example, this is important in the cases courts determine when the transfer of an electronic record or information had occurred. It would be helpful to firms to have a harmonized procedure that would clarify when is the start and finish of their duties, privileges and obligations. A holistic harmonized framework would enable firms to cut down on legal costs associated with understanding every legal system they intend to interact with. It would also lower the cases of adjudication.

The UNCITRAL principle of technological neutrality is forward looking and allows for the recognition and emergence of different technologies. The adoption of technological neutrality allows for innovation and non-discrimination between private service providers. As a result, it is recommended that countries adopt a similar approach.

Finally, there are already a large number of states that have adopted UNCITRAL model laws. The MLEC is adopted by 164 jurisdictions. It would be beneficial to conduct a process of legal engineering whereby countries can selectively choose upgrades from following model laws and enacting them. This approach could be named as "MLEC Plus" and allow for an easier adoption as the legislator would be familiar with the existing model laws. This would not go against the harmonized legal system recommendation because UNCITRAL model laws follow the same rationale and share standard procedures. This MLEC Plus approach can be observed in Bahrain, which will be discussed in the Section IV.

D. Future Outlook: UNIDROIT Digital Assets and Private Law Project

There continue to be ongoing UN negotiations to address the continuing gaps precluding a wide-spread digitization of trade documents. Beginning in 2015 UNIDROIT negotiators are examining the possibility of creating model laws to address legal solutions leading to the recognition and adoption of "digital assets". The negotiation for the final document has been concluded during the writing of this report

in May 2023. The final document surpasses the previous UN instruments in addressing electronic records that do not have a paper-based equivalence. Furthermore, the MLETR did not consider the use of securities and investment tools.

This subsection will briefly introduce the recent developments adopted by the working group in 2023. First, it will highlight the rationale behind the Project. Second, it will analyse how the project's principles are envisioned to be applied.

The UNIDROIT "Digital Assets and Private Law" working group borrowed certain principles from the UN instruments. Firstly, they adopted a technology neutral approach. While the principles often use illustrations that emphasise the use of blockchain, this is only used for providing clear examples. The proposed principles do not favour any specific technology or business model.

Second, the newly developed principles are both "jurisdiction" and "organizational" neutral. It does not favour a specific legal system or culture. In that sense, the common understanding of "control" in common law or "possession" in civil law differs from what is adopted in this model. Furthermore, its organizational neutrality allows for the adoption of certain principles or its adoption as a whole. Some states would be able to amend existing laws according to the principles that would fit into their specific legal structures. Finally, it must be noted that the principles deal specifically with private law relation of acquisition and disposition. It does not address regulatory concerns such as who is licensed to buy a digital asset or how they may hold those assets.

An electronic record is defined in principle 2 as any electronic record that is stored in a digital medium and is capable of being retrieved. Furthermore, an electronic record is a digital asset only if it satisfies the condition of "control" defined in principle 6. The definition of an electronic record was designed to be broad enough to include all electronic mediums such as DVDs or hard drives. The new principles claims that the definition is consistent with the MLETR, however, that it might be more consistent with the definition in MLEC. This is because the MLETR was not envisioned to deal with electronic records existing solely in an electronic environment. The MLEC provides that broad recognition.

Principle 2 also differentiates between "control" and "propriety rules". In the case of transfer in digital assets, one might transfer the rights to use of that assets to

another party while maintaining control. For example, a token is created as a security for a commodity. The owner of the commodity might transfer their rights for the profit of that commodity while retaining control of it. In that case, the token transferred is a set of ownership rights that enable an investor to acquire interests. This arrangement differs from the use of the commodity itself as a collateral.

Certain digital assets are often linked to other assets. This may include the use of stable coin, whereby the coins are pegged to a certain currency or other specific assets. Principle 4 recognizes that connection, in relation to stable coins, but also to securities. Furthermore, it recognizes that the other asset or both assets might be either tangible or intangible. Any transfer of ownership must include both assets. In some cases, a digital asset may be created based on another digital asset. The redemption of the secondary asset would lead to forgoing of the primary asset. In this case the primary would only be a "wrapped" asset to quote the principles of the law. In another example where a token would represent physical gold. The transfer does not require the physical transfer of the gold, but merely the legal rights to hold it.

If successful, this new negotiation could act as an accelerator of the World Economic Forum and the World Trade Organization vision of a "trade odyssey".[27] In short, it would enable the existence of secondary markets whereby the rights of ownership to commodities could be traded at digital exchanges. This would inject a greater amount of liquidity in international trade further bridging the 2 trillion-dollar gap in finance.[28]

To conclude, this new development would allow trade finance to access multiple finance markets globally. It would also allow for that access to extend to secondary markets whereby the rights to interest payment can be traded. These new developments differ from the MLETR in scope and in definitions.

[27] World Trade Organization and World Economic Forum, *The promise of TradeTech: Policy approaches to harness trade digitalization*, April 2022, https://www3.weforum.org/docs/WEF_The_promise_of_TradeTech_Policy_approaches_to_harness_trade_digitalization_2022.pdf.
[28] *Ibid*.

III. Regional and bilateral/trilateral Legal Instruments on Digitalization of Trade Finance-relevant Documents

In this section, we will map out the rapidly developing regional and bilateral/trilateral agreements that are world-class models facilitating the digitalization of trade finance-relevant documents. These agreements began a decade ago and are built on the UN conventions and UNCITRAL model laws mentioned in the previous sections. By comparing and analyzing these treaties, we distil several key cutting-edge elements and propose recommendations for negotiators of future regional and bilateral/trilateral agreements.

A. Regional Legal Instruments

1. Introduction

There are five major regional agreements that contain clauses related to electronic commerce and paperless trading, as follows:

Form 2 Major Regional Agreements

Year[29]	Regional Legal Instruments
Jan 2010	The Agreement Establishing the ASEAN-Australia-New Zealand Free Trade Area (AANZFTA)[30]
Dec 2018	Comprehensive and Progressive Agreement on the Trans-Pacific Partnership (CPTPP)
Jan 2021	Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific (CPTA)
Dec 2021	ASEAN Agreement on Electronic Commerce (AAEC)
Jan 2022	Regional Comprehensive Economic Partnership (RCEP) Agreement

[29] The year when the agreement entered into force for the first group of states.
[30] On November 13, 2022, ASEAN, Australia and New Zealand announced the substantial conclusion of negotiations to upgrading the AANZFTA. More details see https://www.mfat.govt.nz/en/trade/free-trade-agreements/free-trade-agreements-in-force/asean-australia-new-zealand-free-trade-agreement-aanzfta/upgrading-aanzfta/.

The following form illustrates ratification status of each regional agreements by country:

Form 3 Ratification Status of Major Regional Agreements

Member States	AANZFTA[31]	CPTA[32]	CPTPP[33]	AAEC[34]	RCEP[35]
Armenia		2017 (Signed)			
Australia (1)	2010 (EIF)		2018 (EIF)		2022 (EIF)
Azerbaijan		2018 (Accessed)			
Bangladesh		2020 (Ratified)			
Brunei Darussalam (1)(2)	2010 (EIF)		2018 (Signed)	2020 (Ratified)	2022 (EIF)
Cambodia (2)	2011 (EIF)	2017 (Signed)		2020 (Ratified)	2022 (EIF)
Canada (1)			2018 (EIF)		
Chile (1)			2023 (EIF)		
China (1)		2020 (Approved)			2022 (EIF)
Japan (1)			2018 (EIF)		2022 (EIF)
Indonesia (1)(2)	2012 (EIF)			2021 (Ratified)	2023 (EIF)
Iran		2020 (Ratified)			
Laos (2)	2011 (EIF)			2020 (Accepted)	2022 (EIF)

[31] "Background to the ASEAN–Australia–New Zealand Free Trade Agreement," Australian Government, Department of Foreign Affairs and Trade, accessed June 30, 2023, https://www.dfat.gov.au/trade/agreements/in-force/aanzfta/background-to-the-asean-australia-new-zealand-free-trade-area.

[32] "Chapter X International Trade And Development," United Nations Treaty Collection, accessed June 30, 2023, https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=X-20&chapter=10&clang=_en.

[33] "Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)," Australian Government, Department of Foreign Affairs and Trade, accessed June 30, 2023, https://www.dfat.gov.au/trade/agreements/in-force/cptpp/comprehensive-and-progressive-agreement-for-trans-pacific-partnership

[34] "Instruments of Ratification," ASEAN Legal Instruments, accessed June 30, 2023, https://agreement.asean.org/agreement/detail/368.html.

[35] "Regional Comprehensive Economic Partnership ("RCEP") Agreement," Ministry of Trade and Industry Singapore, accessed June 30, 2023, https://www.mti.gov.sg/Trade/Free-Trade-Agreements/RCEP; "Regional Comprehensive Economic Partnership Agreement (RCEP)," Australian Government, Department of Foreign Affairs and Trade, accessed June 30, 2023, https://www.dfat.gov.au/trade/agreements/in-force/rcep

Malaysia [1][2]	2010 (EIF)		2022 (EIF)	2020 (Ratified)	2022 (EIF)
Mexico [1]			2018 (EIF)		
Mongolia		2022 (Accessed)			
Myanmar [2]	2010 (EIF)			2019 (Ratified)	2022 (EIF)
New Zealand [1]	2010 (EIF)		2018 (EIF)		2022 (EIF)
Peru [1]			2021 (EIF)		
Philippines [1][2]	2010 (EIF)	2019 (Accessed)		2021 (Ratified)	2023 (EIF)
Republic of Korea [1]		2022 (Accessed)			2022 (EIF)
Singapore [1][2]	2010 (EIF)		2018 (EIF)	2019 (Ratified)	2022 (EIF)
Tajikistan		2022 (Accessed)			
Thailand [1][2]	2010 (EIF)			2019 (Ratified)	2022 (EIF)
Timor-Leste		2022 (Accessed)			
Turkmenistan		2022 (Accessed)			
Tuvalu		2022 (Accessed)			
Vietnam [1][2]	2010 (EIF)		2019 (EIF)	2019 (Approved)	2022 (EIF)

(1) EIF = enter into force
(2) Member states of the Asia-Pacific Economic Cooperation (APEC).
(3) Member states of the Association of Southeast Asian Nations (ASEAN).

A total of 28 states have signed the five major regional agreements, mainly in Asia, America and Oceania. ASEAN countries, in particular, are very active in participating in these regional agreements. By contrast, many major trade hubs like the US and the EU countries have not yet joined any. This leaves great space for future agreements covering the digitalization of trade finance. The figure below illustrates the level of participation of member states in major regional agreements by geographical location.

Figure 2 Level of Participation of Major Regional Agreements

Source: Authors

2. Key Clauses Facilitating Digitalization of Trade Finance-relevant Documents

1) Clauses regarding Domestic Regulatory Frameworks

All five regional agreements include a general clause encouraging the adoption of domestic regulatory frameworks governing electronic transactions or paperless trade.[36] Such regulatory frameworks are the legal basis for adoption of domestic legislation digitalizing trade finance-relevant documents. The wordings of domestic electronic regulatory framework clause in each regional agreement are to some extent different and can be categorized into three models:[37]

a) Closed model

Regional agreements that use the closed model, like the AANZFTA and CPTPP, require[38] member states to establish domestic regulatory frameworks *only* according to *specific* legal instruments. This means that the scope of legal instruments that member states shall consider for establishing domestic regulatory frameworks is strictly limited, namely "closed". In fact, the MLEC and CUECIC are the only two legal instruments explicitly mentioned in these agreements, while any other potentially relevant legal instruments, whether existing or future ones, are not covered.

Example: Article 4 (Domestic Regulatory Frameworks), AANZFTA

Each Party shall maintain, or adopt as soon as practicable, domestic laws and regulations governing electronic transactions taking into account the UNCITRAL Model Law on Electronic Commerce 1996.

b) Semi-open model

The clauses under the semi-open model tend to take more legal instruments into consideration – not only the MLEC or CUECIC, but also other applicable international conventions and/or model laws relating to electronic commerce.[39] The AAEC and

[36] Chapter 10, Article 4 (Domestic Regulatory Frameworks), AANZFTA; Article 6 (National policy framework, enabling domestic legal environment and paperless trade committee), CPTA; Article 14.5 (Domestic Electronic Transactions Framework), CPTPP; Article 12 (Domestic Regulatory Framework), AAEC; and Article 12.10 (Domestic Regulatory Framework), RCEP.
[37] See Annex III for detailed analysis of each regional agreement.
[38] Both of the AANZFTA and CPTPP stipulate that each member state "shall" maintain a domestic legal framework governing electronic transactions.
[39] The similar expression can be found in Article 12 (Domestic Regulatory Framework) of the AAEC and Article 12.10 (Domestic Regulatory Framework) of the RCEP.

RCEP fall into this category, and we regard the domestic regulatory framework clause of RCEP as a best practice.[40] As highlighted below, the clause includes 1) a minimum standard for domestic regulatory frameworks (*i.e.*, MLEC or CUECIC) and 2) states' margin of discretion to incorporate other international legal instruments in domestic law beyond the minimum standards. Thus, the MLETR might be an applicable model law and taken into consideration by member states under this clause.

Example: Article 12.10 (Domestic Regulatory Framework), RCEP

1. Each Party shall adopt or maintain a legal framework governing electronic transactions, taking into account the *UNCITRAL Model Law on Electronic Commerce 1996*, the *United Nations Convention on the Use of Electronic Communications in International Contracts* done at New York on 23 November 2005 **[the minimum standard]**, or other applicable international conventions and model laws relating to electronic commerce **[states' margin of discretion]**.

c) Open model

By contrast, the CPTA does not refer to any legal instruments. The member states are only *encouraged* to have domestic regulatory frameworks. In this model, a state can take the most updated legal instruments into its domestic regulation or take none at all (though unlikely). After all, the CPTA is merely a *framework agreement* on paperless trade.

Example: Article 6 (National policy framework, enabling domestic legal environment and paperless trade committee), CPTA

1. The Parties shall endeavour to establish a national policy framework for paperless trade, which may define targets and implementation strategies and allocate resources, and a legislative framework.

d) Conclusion

In conclusion, we believe that the semi-open model (*i.e.*, the model taken by the RCEP) is the most favorable model for clauses regarding domestic regulatory frameworks in regional agreements. Closed-model clauses can hardly accommodate the latest developments of digital trade and will gradually lose their vitality, while open-

[40] See Annex III for detailed analysis of the AAEC.

model clauses have insufficient effects on member states. As other relevant legal instruments like MLETR emerge, semi-open clauses can be more vibrant and up-to-date. This model allows the states to incorporate the MLEC, CUECIC and other applicable international legal instruments, like the MLETR, into their domestic regulatory frameworks comprehensively. For future regional agreements, negotiators shall consider using semi-open clauses regarding domestic regulatory framework to facilitate trade finance digitalization.

2) Clauses regarding Paperless Trading

Almost all regional agreements (except for the CPTA) include a "Paperless Trading" clause.[41] Generally, these clauses require countries to *endeavor* to accept electronically submitted trade administration documents as the legal equivalent of their paper versions.

Theoretically, using electronic transferable records in trade finance shall be considered a component of paperless trading. However, in practice, the paperless trading clauses in regional agreements only apply to *trade administration documents*. *Trade administration documents* are generally defined as forms *issued or controlled by a state* which must be completed by or for an importer or exporter in relation to the import or export of goods.[42] As most trade finance-relevant documents are not issued or controlled by a state, they are not qualified as trade administration documents and hence not captured by paperless trading clauses.

The narrow definition in the paperless trading clauses precludes comprehensive usage and regulations of electronic trade documents in international trade. Such restrictive clauses are anathema to commercial reality. We thus believe that the scope of the paperless trading clauses must eventually be expanded to include trade finance-relevant documents. In this sense, the CPTA provides other countries with a best practice to follow.

As a regional agreement specifically aimed at facilitating cross-border paperless trade, the CPTA rejects the use of "trade administration documents" and instead adopts

[41] Chapter 10, Article 8 (Paperless Trading), AANZFTA; Article 14.9 (Paperless Trading), CPTPP; Article 7(1) (Paperless Trading), AAEC; and Article 12.5 (Paperless Trading), RCEP.
[42] Chapter 10, Article 2(e), AANZFTA; Article 14.1, CPTPP; Article 1(k), AAEC ; and Article 1.2(dd), RCEP.

a new definition of "trade-related documents". This latter phrase is significantly broader and more encompassing. As defined, it covers both commercial and regulatory documents required in commercial transactions.[43] Importantly, electronic transferable records are encompassed within the meaning of commercial documents required in transactions and hence would be covered by the CPTA. This is one of many examples in which electronic transferable records fall within the broad definition of "trade-related documents". This board definition adopted by CPTA negotiators is likely is an excellent best practice to be followed in future regional agreements.

3. Recommendations

The two key clauses above – "domestic regulatory frameworks" and "paperless trading" – could provide a foundation for states to accept electronic transferable records. Through these two clauses, member states are encouraged to incorporate legal instruments related to electronic transferable records into their domestic regulatory frameworks, and enhance the usage of electronic transferable records via paperless trade initiatives. Based on our analysis above, we offer two recommendations for negotiators of future regional agreements to consider.

First, international agreements should incorporate semi-open clauses that could capture the latest legal instruments like the MLETR. It is notable that even the latest regional agreement does not explicitly refer to the MLETR. This fact suggests that, when negotiating these regional agreements, electronic transferable records have not received widespread attention from negotiating states. As more and more states, especially major trade hubs like Singapore and the UK, adopt the MLETR in their domestic law, future regional agreements may take MLETR as an indispensable best practice component. This could lead to agreements that explicitly require the states to have a regulatory framework supporting the use of electronic transferable records.

Second, the scope of paperless trading clauses can be expanded from "trade administration documents" to the more all-encompassing "trade-related documents". In that case, electronic transferable records can be automatically covered by the paperless trading clauses. States would commit to cooperating and enlarging the acceptance of electronic transferable records as they did previously for trade administration

[43] Article 3(e), CPTA.

documents. The definition expansion of paperless trading clauses will meet the practical needs of paperless trade in a general sense.

B. Bilateral/Trilateral Legal Instruments

Compared with regional legal instruments, the far more dynamic development of digitization can be found in bilateral/trilateral legal instruments. As discussed below, digitally advanced states like Singapore and Australia can influence the bilateral agreements they entered into and highlight the obligations to adopt MLETR therein. Encouragingly, these states are currently forming a network of digital economy agreements. It is hoped that their example can encourage other states to use electronic transferable records and further facilitate the digitalization of trade finance-relevant documents.

The following form identifies the recent bilateral and trilateral legal instruments regarding digital trade or electronic commerce. Most of the instruments are legally binding, while the two Digital Trade Principles signed by the EU are not.

Form 4 Major Bilateral/Trilateral Legal Instruments

Year[44]	"Singapore pattern" Legal Instruments
2020 Dec	Singapore-Australia Digital Economy Agreement
2021 Jul	Digital Economy Partnership Agreement
2021 Dec	Australia-United Kingdom Free Trade Agreement
2022 Jun	Singapore-United Kingdom Digital Economy Agreement
2022 Nov	EU-Korea Digital Trade Principles *(non-binding)*
2023 Jan	Singapore-Korea Digital Partnership Agreement
2023 Jan	EU-Singapore Digital Trade Principles *(non-binding)*
	Other Legal Instruments
2020 Jan	United States-Japan Digital Trade Agreement
2020 Jul	United States-Mexico-Canada Agreement (USMCA)
2022 May	UAE-India Comprehensive Economic Partnership Agreement

1. "Singapore pattern"

Over the past three years, there has been a virtual revolution, started by Singapore, to facilitate the digitalization of trade finance-relevant documents in

[44] The year when the agreement entered into force or the principle was concluded.

bilateral/trilateral treaties. From 2020 to 2023, Singapore signed four digital economy/partnership agreements ("**DEA**" or "**DPA**") with different countries. All of them explicitly encourage the adoption of the MLETR under the clause of "Domestic Electronic Transactions Framework".[45]

The Digital Economy Partnership Agreement (DEPA) between Singapore, Chile and New Zealand is the first DEA concluded by Singapore.[46] Therefore, it is the first international trade agreement which incorporates the MLETR by reference.[47] This is probably due to Singapore's adoption of the MLETR in its domestic law, the Electronic Transactions (Amendment) Act 2021. The DEPA is also the first agreement that "establishes new approaches and collaborations in digital trade issues, promotes interoperability between different regimes and addresses the new issues brought about by digitalization."[48] Since Singapore created the clause explicitly referring to the MLETR in international agreements, we name this the "Singapore pattern". Recently, there are more countries that applied to join the DEPA, like China,[49] Canada[50] and

[45] It's interesting that there are slight differences in the wording referring to the MLETR among the four Singapore DEAs. The Singapore-Australia DEA only requires both parties to "endeavour to take *into account, as appropriate,* relevant model legislative texts developed and adopted by international bodies, such as the UNCITRAL Model Law on Electronic Transferable Records (2017). [emphasis added]." While the other three agreements took a step further. The DEPA and the Singapore-Korea DPA require the states to "endeavour to *adopt* [emphasis added]" the MLETR; and the Singapore-UK DEA requires the states to "endeavour to establish a legal framework …*consistent with* [emphasis added]" the MLETR. "Adopt" and "consistent with" are both stronger than "take into account, as appropriate". To sum up, there is a tendency that the contracting states of later agreements will carry heavier treaty obligations to establish domestic regulatory frameworks based on the MLETR.
As for the wording difference between "adopt" and "consistent with", it may be due to the fact that the UK, as a traditional common law country, preferred not to "adopt" the MLETR in its entirety. The UK Electronic Trade Documents Bill, which is consistent with the MLETR while tailored to English law, can be seen as evidence.

[46] Although the Singapore-Australia Digital Economy Agreement is the first DEA entering into force, the DEPA was the first DEA signed by Singapore. Therefore, Singapore regards the DEPA as its first DEA. For more details see "Digital Economy Partnership Agreement (DEPA)," Ministry of Trade and Industry Singapore, accessed June 30, 2023, https://www.mti.gov.sg/Trade/Digital-Economy-Agreements/The-Digital-Economy-Partnership-Agreement.

[47] Article 2.3(2), DEPA.

[48] *Ibid.*

[49] "Digital Economy Partnership Agreement Joint Committee commences Accession Working Group for China," Ministry of Trade and Industry Singapore, accessed June 30, 2023, https://www.mti.gov.sg/Newsroom/Press-Releases/2022/08/Digital-Economy-Partnership-Agreement-Joint-Committee-commences-Accession-Working-Group-for-China.

[50] "Digital Economy Partnership Agreement Joint Committee commences Accession Work Group for Canada," Ministry of Trade and Industry Singapore, accessed June 30, 2023, https://www.mti.gov.sg/Newsroom/Press-Releases/2022/08/Digital-Economy-Partnership-Agreement-Joint-Committee-commences-Accession-Working-Group-for-Canada.

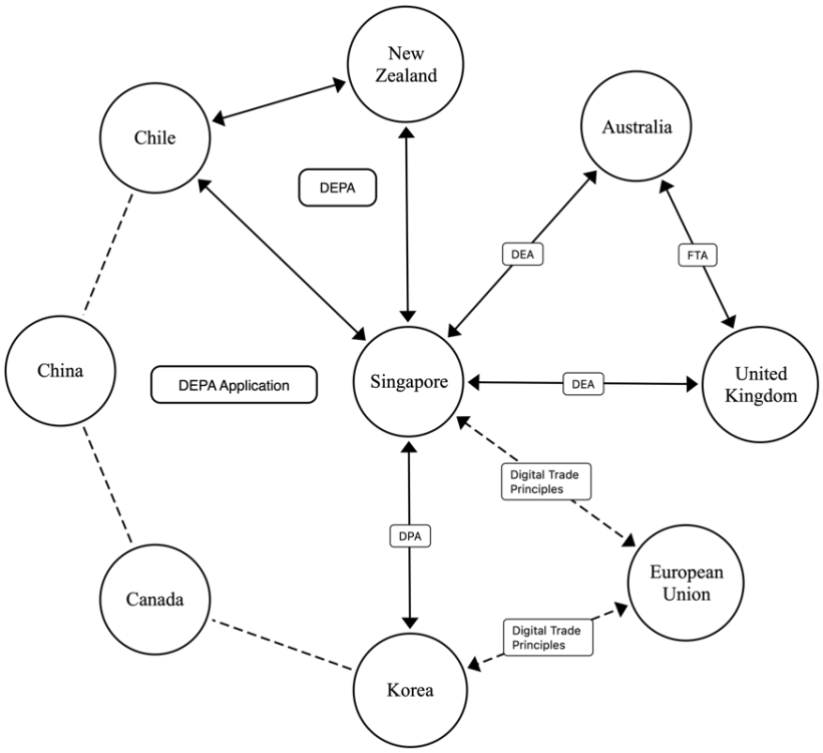
Korea.[51] If these countries join the DEPA, they shall all "endeavour to adopt" the MLETR.

The Singapore pattern is also followed by other international instruments. For example, Article 14.4 of the Australia-United Kingdom Free Trade Agreement is almost the same as Article 8 of the Singapore-Australia DEA. Also, two Digital Trade Principles signed by the EU with Korea and Singapore, respectively, also directly mentioned the MLETR. In signing onto these principles, the EU realized the importance of legal frameworks enabling "the use of electronic transferable records across borders", and that such legal frameworks "should be consistent with the MLETR".[52]

Thanks to the Singapore pattern in these bilateral/trilateral agreements, the influence of the MLETR has spread to major trading countries like Australia and the UK and may reach other big economies like China and Canada. States joining or planning to join the digital economic agreements may gradually adopt the MLETR in their domestic regulatory frameworks. In time, they could form an interoperative global regulatory network of electronic transferable records consistent with the MLETR, as shown in Figure 3. This synergistic effect may encourage more countries to recognize the MLETR and accept electronic transferable records in the near future.

[51] "Korea initiates process to join Digital Economic Partnership Agreement (DEPA)," Ministry of Trade, Industry and Energy, accessed June 30, 2023, http://english.motie.go.kr/en/pc/pressreleases/bbs/bbsView.do?bbs_cd_n=2&bbs_seq_n=870.
[52] Section 2, Article 7, European Union-Republic of Korea Digital Partnership Digital Trade Principles; Section 1, Article 1.6(3), EU-Singapore Digital Partnership Digital Trade Principles.

Figure 3 Bilateral/Trilateral Legal Instruments Network



Source: Authors

The Singapore pattern may also spread to Commonwealth nations. Under the Commonwealth Connectivity Agenda Action Plan, a quantitative analysis covering 54 countries was released in 2022. It illustrates the positive impact of legal reform to enable the use of electronic transferable records on Commonwealth trade and regarding Singapore as "an excellent test case, indeed template".[53] At the Commonwealth Trade Ministers Meeting in June 2023, ministers agreed to establish a Legal Reform and Digitalisation Working Group to assist Commonwealth members in transitioning to paperless trade.[54] More countries may take action and join the global ETR regulatory network in the near future.

2. Data Exchange System – TradeTrust

In the Singapore-Australia DEA, DEPA and Singapore-Korea DPA, there are similar clauses on developing data exchange systems to support the exchange of

[53] The Commonwealth, *Quantitative Analysis of the Move to Paperless Trade* (London: Commonwealth Secretariat, 2022), 2.
[54] "2023 Commonwealth Trade Ministers Meeting Paves the Way for an Inclusive and Sustainable Digital Transition," The Commonwealth, accessed June 30, 2023, https://thecommonwealth.org/news/commonwealth-trade-ministers-meeting-concludes-focus-fostering-inclusive-green.

"electronic records used in commercial trading activities".[55] Based on these clauses, Singapore established TradeTrust, a blockchain-based digital utility with globally accepted standards to develop data exchange systems. TradeTrust aims to form globally accepted standards for endorsing, exchanging and verifying digital documents, including electronic transferable records.[56]

TradeTrust is developed to meet the requirements of MLETR[57] and hence could provide a practical world-wide solution to digitalization of trade-finance relevant documents. Currently, TradeTrust has several pilots in different countries, including one contracting state (Australia) and non-contracting states (UAE (Abu Dhabi Global Market), China and the Netherlands).[58] If more major trade hubs accept TradeTrust, it could become an indispensable platform for the digitalization of trade finance-relevant documents. Of course, TradeTrust has to compete with other commercial alternatives provided by private companies, such as Bolero and essDocs.

To sum up, it is a best practice for states to proactively include generic technical clauses in bilateral/trilateral agreements like Singapore. The international agreements should focus on countries adopting not only regulatory frameworks based on the MLETR, but also practical frameworks for the circulation of electronic transferable records. This could enable and enhance the usage of electronic transferable records in practice, and further fill the gap in trade finance.

3. Other Bilateral/trilateral Agreements

Other bilateral or trilateral agreements dealing with digital trade or electronic commerce diverge from the "Singapore pattern". Recent examples include the United States-Japan Digital Trade Agreement (2020), United States-Mexico-Canada Agreement (USMCA, 2020) and UAE-India Comprehensive Economic Partnership Agreement (2022). In these agreements, the clauses regarding domestic regulatory frameworks are similar to those in the regional agreements, *i.e.*, requiring or encouraging contracting parties to maintain legal frameworks governing electronic transactions consistent with the principles of the MLEC. None of the bilateral/trilateral

[55] Article 12, Singapore-Australia DEA; Article 2.2, DEPA; and Article 14.12, Singapore-Korea DPA.
[56] "Digital Economy Agreements," Ministry of Trade and Industry Singapore, accessed June 30, 2023, https://www.mti.gov.sg/Trade/Digital-Economy-Agreements; "General FAQs," TradeTrust, accessed June 30, 2023, https://www.tradetrust.io/faq/general-faq.
[57] "General FAQs," TradeTrust, accessed June 30, 2023, https://www.tradetrust.io/faq/general-faq.
[58] "News," TradeTrust, accessed June 30, 2023, https://v2.tradetrust.io/news.

agreements mentions the MLETR or data exchange systems. Compared to the "Singapore pattern" agreements, these more traditional bilateral/trilateral agreements lack innovation. As a result, their contributions to the development of electronic transferable records remain relatively limited.

In conclusion, among the bilateral or trilateral agreements related to digital trade, those following the "Singapore pattern" have developed a distinctive inclusive character. Their impacts have been to greatly facilitate the incorporation of the MLETR into domestic regulatory framework clauses and developed data exchange systems. These new types of agreements are conducive to the further promotion of the MLETR and the acceptance of electronic transferable records. "Singapore pattern" is worthy of reference by other countries.

C. Recommendations

Although certain aforementioned clauses have laid a foundation for the digitalization of trade finance-relevant documents, most international legal instruments have not yet taken the MLETR into consideration. This means that many countries have not kept pace with technological advancements. Therefore, we propose three recommendations to negotiators of future regional and bilateral/trilateral agreements for digitalization of trade finance-relevant documents.

Recommendation on domestic regulatory framework clauses. Domestic regulatory framework clauses can be found commonly in regional and bilateral/trilateral agreements. We propose a two-tier recommendation for future negotiators. First, regional and bilateral/trilateral agreements shall explicitly refer to the MLETR following the Singapore pattern. Consequentially, member states will be obliged to establish and maintain domestic regulatory frameworks consistent with the MLETR. If negotiating countries are reluctant to accept a clause directly pointing to the MLETR, then a useful alternative is using a semi-open treaty language. A domestic regulatory framework clause under the semi-open model would leave open the possibility for future introduction of the MLETR into the treaty.

Overall, this recommendation aims to expand the adoption of the MLETR into the domestic legislation of many more countries. This expanding regulatory framework will increasingly be recognized by different jurisdictions as a best practice. It will allow

global trade to move seamlessly across borders, which will promote trade finance. It will also help close the trade finance gap, particularly for developing country traders.

Recommendation on paperless trading clauses. Our second recommendation is to expand the scope of paperless trading clauses in regional and bilateral/trilateral legal instruments. It would be better to use "trade-related documents" instead of "trade administration documents" to cover more trade documents, including electronic transferable records. Adopting this recommendation would expand the function of traditional paperless trading clauses and put countries in compliance with relevant treaty language mandating such adoption. Significantly, contracting states will not need to consider regulating electronic transferable records in isolation. Digitalization of trade finance-relevant documents will operate under a broader framework of paperless trade like the CPTA.

Recommendation on practical solutions. We encourage states to proactively propose practical solutions to popularize electronic transferable records, and to include relevant clauses in regional and bilateral/trilateral agreements. For example, TradeTrust is one of the practical solutions provided by the Singapore Government to facilitate the transformation, endorsement and verification of electronic transferable records. It falls into the range of "data exchange systems" in digital economy/partnership agreements concluded by Singapore. Practical solutions for electronic transferable records could ensure that electronic transferable records not only receive legal recognition in various jurisdictions, but also can be utilized effectively across borders. Therefore, the digitalization of trade finance-relevant documents could be further achieved globally.

IV. WTO Negotiations on E-Commerce: Facilitating the Use of Electronic Financial Documentation

Negotiations regarding digitization of trading documents has also commenced in the World Trade Organization in the context of the broader negotiations regarding e-commerce.[59]

The e-commerce Joint Statement Initiative (JSI) negotiations in the WTO involve members sharing their proposals on e-commerce rules. These proposals are accessible to all WTO members for review and consideration. In the consolidated negotiating text among the WTO members (the "**negotiating document**")[60] there are six key sections including: A) enabling electronic commerce; B) openness and e-commerce; C) trust and e-commerce; D) cross-cutting issues; E) telecommunications; and F) market access.[61] Digitization of trading documents would fall within section A.

Section (A)[62] discusses "Enabling Electronic Commerce", It is further divided into part A.1 (Facilitating electronic transactions)[63] and part A.2 on digital trade facilitation and logistics. Subsection A.2.1 covers paperless trade where it is specified that efforts should be made to provide trade administration documents in electronic format and accept electronically submitted trade administration documents as legally equivalent to their paper counterparts.[64] For instance, under *1ter*[65] (A.2.1) both the

[59] In December 2017, 71 WTO members agreed to explore e-commerce negotiations. As of 2023, 89 members, accounting for over 90% of global trade, are participating in these discussions. "E-Commerce Negotiators Advance Work, Discuss Development and Data Issues," WTO, accessed June 30, 2023, https://www.wto.org/english/news_e/news23_e/jsec_30mar23_e.htm.
[60] WTO, "WTO Electronic Commerce Negotiations: Updated Consolidated Negotiating Text – September 2021 Revision," September 8, 2021, INF/ECOM/62/Rev.2. (Restricted Access).
[61] Yasmin Ismail, "E-Commerce Joint Statement Initiative Negotiations Among World Trade Organization Members," *International Institute for Sustainable Development*, April 2021, 10.
[62] WTO, "WTO Electronic Commerce Negotiations: Updated Consolidated Negotiating Text – September 2021 Revision," September 8, 2021, INF/ECOM/62/Rev.2. (Restricted Access).
[63] References UNCITRAL Model Law on Electronic Commerce 1996.
[64] Mira Burri, 'A WTO Agreement on Electronic Commerce: An Enquiry into its Substance and Viability', Trade Law 4.0 Working Paper No 1/2021 (forthcoming *Georgetown Journal of International Law* 53 (2022))
[65] **Alt 1:** With a view to creating a paperless border environment for trade of goods, each Party/Member shall work towards the elimination of its paper forms for import, export, and transit. Such efforts shall include, as appropriate, the transition from the use of digitized images and forms to the use of electronically processable formats, which are considered electronically processable formats for purposes of the below.]
[**Alt 2:** Parties/Members recognise the importance of eliminating unnecessary paper-based forms and documents required for import, export and transit of goods in promoting the creation of a paperless border environment and building on opportunities provided by electronic commerce. To this end,

alternative statements suggested by the member states from developing countries encourage transition to electronically processable or data-based formats in respect of forms and documents related to trade and commerce.

Furthermore, under the negotiating document, member states will seek to agree to a paperless border environment. If successful, this would promote transition to trading documents that support data-based formats or can be processed electronically.[66] Point 3 [67] explicitly provides that member states shall endeavour to process electronically supporting documentation like bills of lading. Further, governments would be required to accept that electronic trading documents would function as a legal equivalent of the paper version of those documents. Lastly, the document also urges member states to cooperate in international fora to use electronic forms. They would seek recognition of international standards agreed by international organizations especially e-Phyto, eCITES,[68] IATA e-AWB,[69] etc.

However, within the WTO, there exists a divergence of opinions regarding the need to enforce regulations for paperless trading in e-commerce talks. While several developed member states favour implementing these rules, certain members contend that UNCITRAL has already addressed these concerns through the MLETR. Consequently, proponents argue that the MLETR offers a valuable framework for electronic transferable documents, and adopting these model laws ensures compatibility and promotes cross-border electronic trade.[70] Nevertheless, it is essential to note that the influence of the MLETR on other national legislations remains limited, given that only seven member states have officially adopted it. However, recent developments indicate growing support for the inclusion of MLETR in the negotiating document. The United Kingdom, as evidenced by their joint statements (WT/GC/W/870) [71], and

Parties/Members are encouraged to facilitate, as appropriate, the transition toward using forms and documents in data-based formats that can be processed electronically without human intervention.]

[66] WTO. "WTO Electronic Commerce Negotiations: Updated Consolidated Negotiating Text – September 2021 Revision." September 8, 2021. INF/ECOM/62/Rev.2. (Restricted Access). Section A.2, point 1.

[67] WTO. "WTO Electronic Commerce Negotiations: Updated Consolidated Negotiating Text – September 2021 Revision." September 8, 2021. INF/ECOM/62/Rev.2. (Restricted Access). Section A.2, point 3.

[68] Electronic CITES permit (eCITES), for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

[69] International Air Transport Association (IATA). Electronic Air Waybill (e-AWB)

[70] Yasmin Ismail, "E-Commerce Joint Statement Initiative Negotiations Among World Trade Organization Members," *International Institute for Sustainable Development*, April 2021, 10.

[71] "Work Programme on Electronic Commerce Trade Digitalisation: Making Legislative and Regulatory Frameworks Inclusive, Transparent, and Efficient: Communication from the United

Singapore have both expressed their endorsement of the MLETR[72] as its importance in enabling electronic transferable records cannot be overlooked.

The digitalization of trade in the context of the WTO as in the UN and bilateral and regional negotiations ultimately requires implementation of a legislative and regulatory frameworks that are inclusive, transparent, efficient, and globally compatible. As discussed above in Chapter II of the report (Part A.2.3) the MLETR embodies these global best practices and aims to establish a uniform international standard, aligning with the objectives outlined in paragraphs 5[73] and 6[74] (A.2.1) of the WTO negotiating document. The negotiating document references the Model Law on Electronic Commerce 1996 (A.1.1 (Para 1))[75], urging member states to maintain a consistent legal framework. However, it is concerning that it fails to mention or include a reference to the MLETR in the section specifically addressing paperless trade.

Therefore, a best practice for WTO negotiators would be to explicitly reference the MLETR in the negotiating text. This would serve two crucial purposes: First, it guarantees compatibility and avoids potential conflicts between future e-commerce rules negotiated by the WTO and member states that have already adopted or are adopting the MLETR. This is especially pertinent considering that the United Kingdom is currently enacting legislation aligned with the MLETR, as highlighted in our case study section. Moreover, other G7 nations[76] have extended their support to the MLETR and are actively developing legislation based on its principles.

Second, incorporating the provisions of the MLETR into the negotiating documents would eliminate the need for the WTO to negotiate specific provisions

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Kingdom," March 24, 2023, https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?language=E&CatalogueIdList=293041&CurrentCatalogueIdIndex=0&FullTextHash=1&HasEnglishRecord=True&HasFrenchRecord=True&HasSpanishRecord=True#.

[72] ICC, *International Chamber of Commerce Digital Standards Initiative: Overview of Global Standards Ecosystem*, November 2021, http://mddb.apec.org/Documents/2021/DESG/SYM/21_desg_sym_002.pdf.

[73] "[Parties/Members] shall endeavour to cooperate, where appropriate, in international fora to promote the use of electronic forms and documents required for import, export and transit."

[74] "Recognizing that use of an international standard for utilization of electronic forms and documents required for import, export and transit can facilitate trade, [Parties/Members] shall endeavour to take into account [,as appropriate,] standards of, and/or methods agreed by relevant international organizations."

[75] *"Each [Party/Member] shall maintain a legal framework governing electronic transactions consistent with the principles of the UNCITRAL Model Law on Electronic Commerce 1996 [taking into account, as appropriate, other relevant international standards.]"*

[76] ICC, *United Kingdom | Creating A Modern Digital Trade Ecosystem*, accessed June 30, 2023, https://www.dsi.iccwbo.org/_files/ugd/0b6be5_9a983b7c954d49389dd25a54033bcf78.pdf?index=true.

already covered by the MLETR. This would concern particularly paragraphs 2[77], 3[78], and 4[79] (A.2.1) of the WTO negotiating document. Since the MLETR offers a comprehensive framework that promotes neutrality and interoperability among transferable electronic records, its application of consistent principles facilitates using various electronic documents, including bills of lading, bills of exchange, cheques, promissory notes, and warehouse receipts. Therefore, by leveraging the provisions of the MLETR, the negotiation process can be streamlined, allowing for a more efficient and effective establishment of rules governing electronic trade.

Thus, the WTO is not negotiating on a clean slate. Rather, the best practices would be for the WTO to take off where the MLEC and MLETR left off. Accepting these prior UN-model law negotiations are crucial in promoting the equitable treatment of electronic information and facilitating electronic transactions. The widely adopted MLEC and MLETR With their substantial acceptance and potential for global adoption serve as a solid foundation for developing e-commerce negotiations within the WTO.[80]

Finally, there appears to be a number of key countries negotiating WTO digitization provisions of e-commerce who have also adopted UN conventions and model laws for electronic documents/records[81]. The trend in Form 2 shows a strong correlation between WTO member states participating in the JSI on e-commerce and their engagement with UN conventions and model laws for electronic documents/records. Therefore, it is reasonable to infer that negotiating member states have a proactive stance towards the support for electronic transactions. This relationship is crucial given the potential impact of successful WTO e-commerce negotiations and the need for harmonization within existing frameworks. The recognition of MLETR establishes universal standards for transferable electronic

[77] "Each [Party/Member] shall [endeavour to], make any form issued or controlled by customs for import, export, or transit of goods through its territory available to the public in an [electronic format]."
[78] "Each [Party/Member] shall [endeavour to] accept for processing electronically any form issued or controlled by customs and supporting documentation (such as invoices bills of lading packing lists, and money transfers) required by customs for import, export or transit of goods through its territory as the legal equivalent of the paper version of those documents."
[79] "[If a [Party/Member] accepts any form or supporting document under paragraphs (3) and (3*bis*) for processing electronically it shall not require submission of the paper version of the form or supporting document required for import, export, or transit of goods.]"
[80] *What Is at Stake for Developing Countries in Trade Negotiations on E-Commerce? The Case of the Joint Statement Initiative*, UNCTAD/DITC/TNCD/2020/5 (United Nations, 2021).
[81] Refer to Annex VI to see the overlapping among member states.

records, and it is reasonable to expect that countries already adopting UN-model treaties will demand similar or improved provisions in the WTO, rather than moving backwards.

Form 5 Co-relation between the WTO members participant to JSI on E-commerce and UN conventions or Model Law dealing with electronic documents/records.

Legal Instruments	Ratification	e-commerce JSI participants
MLEC (1996)	83 states	33 JSI participants
MLES (2001)	38 States	15 JSI participants
United Nations Convention on the Use of Electronic Communications in International Contracts (2005)	18 Sates	14 JSI participants
MLETR (2017)	7 States	4 JSI participants

V. Case Studies: How Legislation regarding Trade Finance-relevant Documents is Implemented in Practice

In this section, we will focus on three countries that have adopted or will adopt the MLETR. We will examine the conditions or incentives had led countries to adopt the MLETR in domestic legislation dealing with the digitalization of trade finance-relevant documents. Furthermore, we will point out the best practices in domestic legislation, explain the advantages and disadvantages of their legal framework and implementation practice, and provide policy recommendations for improvement.

A. Kingdom of Bahrain

1. Introduction

The Kingdom of Bahrain was the first state to adopt the MLETR in 2018. A decade prior, Bahrain had undertaken several successful steps towards establishing a digital economy. Reflecting on the digital divide, Bahrain is amongst the top countries to have access to the internet with almost 99% of its population covered.[82] Furthermore, it has implemented, since 2007, a series of government strategies with the aim of "reengineering" business process practices as well as delivery of government services.[83] Between 2007 and 2010, around 200 electronic services were introduced.[84] More importantly, Bahrain achieved remarkable results in spreading awareness and engagement with those services. Awareness amongst individuals was at 25% in 2007 and reached 77% towards 2010.[85] In businesses the awareness was at 96% and in all government sectors 100%.[86] This indicates that the shift to an electronic environment has been carried out efficiently in practice.

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[82] World Bank Data
[83] "Government of Bahrain's Digital Journey," Kingdom of Bahrain's National Portal, accessed June 30, 2023, https://www.bahrain.bh/wps/portal/!ut/p/a1/pZLLbsIwEEV_JSyyDJ7E5EF3KaK0iEcFpSXeICcYJyixQ2Kg_H0NqFIrlUJV78Y6d3zvjBFBc0QE3WWcqkwKmh9r4i0ex-DZTuD0AzzDEI69zqTdBbsHrgairwBg3D0C_rP_2na8AG7TgzPs2E8trR8OAcLgfjJ4eegA9PA1_RsiiCRClSpFEeNyV8pK0XzBhAk5FctMcKOknNUmxDStaCZqY5nxTDOGplklCiaUsZbbSrDDsVmZZEsUuSwAF9u-5QbMtVoe9a14Bdhqe57vOtRLwI4_zV844dXwUybOAa6M8AT8NqMzcNlHpI36F53oDtM_Ju_fsNdsvdmQUG9HCsXeFZr_fz36WZ7L-PQxo1DEOOCIVGzFKlY1t5W-TpUq6zsTTNjv900uJc9ZM5GFCT9JUllrX99JVBazWRHgg9XvrkYji8RuvhuEjcYHtsAH6g!!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/.
[84] *Ibid.*
[85] *Ibid.*
[86] *Ibid.*

After the success of its initial strategy, the government followed up with several strategies from 2011-2014, 2015-2018 and more recently in 2022. By 2020, the government had expanded the electronic services it had offered to 504 that could be accessed through application, a web portal and electronic kiosks. More recently the two initiatives of "Cloud First" and "Digital First Principle" encouraged transformation and "helped organisations of all sizes transition into the cloud".[87] A result of that transformation was the establishment of Amazon Web Services hyperscale data centres in Bahrain.

Bahrain's digitalization was not only enabled through capacity and infrastructure building, but also through the adoption of domestic regulations that provided certainty and predictability to that transformation. Consistent with its adoption of the MLETR, Bahrain enacted a more comprehensive law dealing with electronic transferable records in all commercial and civil matters. Both laws were complemented by government regulation on the accreditation of service providers. To date there have been only two accredited service providers.

The Bahrain Electronic Transferable Records Law (the "**Bahrain ETR Law**") followed closely the MLETR with one particular difference, that is, it categorizes the covered trade documents. In specific, the definition of electronic records in the Bahrain ETR Law categorizes trade documents, all of which are relevant to trade finance, into two categories. The first category comprises instruments on physical goods, like bill of lading, warehouse receipt and letters of credit. While the second category dealing with instruments indicating a stream of income, like cheques, bills of exchange and promissory notes. In short, both categories cover the entire trade process. All those documents as envisioned by the MLETR could be used as a collateral to secure trade finance.

The Law on Electronic Communications and Transactions ("**ECT law**") expands upon electronic transferable records in three significant areas. First, an electronic record is identified as information "generated, communicated, received or stored by electronic means". In that sense, there is no distinction between several types of documents or instruments as in the Bahrain ETR Law. Second, the scope of the law

[87] *Ibid.*

applies to "all transactions and dispositions of all types."[88] Finally, the MLETR and the Bahrain ETR Law were constrained by the existence of a functional equivalence - there had to be a paper equivalent for electronic transferable record, and records solely existing in a digital environment do not fall under that scope. In the ECT law, this requirement is negated by Article 10 whereby an electronic document can be considered "original" if conditions of integrity, reliability and control are observed.

Bahrain's ECT law is in part similar to the MLEC Plus approach that was highlighted as a best practice. It had utilised selectively several articles from the model laws to be incorporated in the ECT law. This has led to the recognition of a wide array of documents and transactions covered by the law. Countries can elect to adopt a law specifically for trade finance-relevant documents or a general law to cover a wide range of documents, which would provide a shorter path to the "trade odyssey" scenario.[89]

Both laws operationalized Articles 12 and 10 in both the MLETR and MLES, the clauses envisioned the existence of accreditation agencies/procedures. The latest Bahrain laws built on that by establishing regulations to cover accreditation of domestic and external service providers. It has to be noted that accreditation is not mandatory, but it adds a degree of reliability and assurance to the electronic records.[90]

2. Implementation

The current implementation of the Bahrain ETR Law and ECT Law has been limited to the e-cheque.[91] Nor has Bahrain yet adopted legislation regarding trade finance-relevant documents as mandated by the MLETR. Furthermore, the Bahraini MLETR adoption has not yet been supplemented by regulations governing the accreditation of service providers. It is encouraging, however, that the Central Bank of Bahrain is actively encouraging the banking sector to accept digitized trade finance documents.[92]

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[88] Article 2, Bahrain ETR Law.
[89] World Trade Organization and World Economic Forum, *The promise of TradeTech: Policy approaches to harness trade digitalization*, April 2022, https://www3.weforum.org/docs/WEF_The_promise_of_TradeTech_Policy_approaches_to_harness_trade_digitalization_2022.pdf.
[90] Resolution No. (4) of 2021 Promulgating the Regulation on the Requirements and Standards for the Accreditation of Trust Services
[91] Officials of the Central Bank of Bahrain, in discussion with the authors, May 2023.
[92] *Ibid*.

B. United Arab Emirates

1. Introduction

A country at the forefront of digitization of trading documents today is the Abu Dhabi. In 2021, the Abu Dhabi Global Market (ADGM) implemented the Electronic Transactions Regulations 2021 (**"ADGM ETR 2021"**). This includes the adoption of the UNCITRAL model laws, including the MLETR, facilitating international business and promoting paperless trade. The ADGM ETR 2021 comprehensively adopts the MLETR as part of its legal framework governing electronic transferable records. This includes additional supporting provisions on electronic signature, electronic communication, and electronic contracts. Overall, the adoption of the MLETR by the ADGM provides businesses with a standardized legal framework for the use of electronic transferable records.

These new regulations set out requirements for electronic signatures, data messages, and other aspects of electronic transferable records. Furthermore, the presence of its own court system allows the courts to apply the ADGM ETR 2021 (Part 5) and other ADGM regulations when resolving disputes.[93] This helps to bring uniformity in the recognition and enforcement of electronic transferable records and addresses jurisdictional and dispute challenges that are often cited as primary concerns with cross-border trade.

The adoption of the MLETR by the ADGM in its legal framework governing electronic transferable records is an important step towards promoting paperless trade and facilitating cross-border transactions. The ADGM used the MLETR as a starting point. Importantly, it has gone further by making certain modifications to the content of the model law. A comparative analysis between the MLETR and ADGM ETR 2021 reveals that ADGM ETR 2021 includes more detailed definitions and interpretations, resulting in a broader coverage and greater clarity compared to the MLETR. This indicates that the ADGM has taken a more cautious approach to ensure that the regulations are effective and comprehensible.[94]

[93] "ADGM enacts Electronic Transactions Framework," ADGM, accessed June 30, 2023, https://www.adgm.com/media/announcements/adgm-enacts-electronic-transactions-framework.
[94] See Annex IV for more information.

For instance, the ADGM ETR 2021, defines the term *"electronic"* as," relates *to technology having, electrical, digital, magnetic, wireless, optical, electromagnetic or similar capabilities."*[95] This definitional clause, encompassed within the general provisions, pertains to the interpretation of specific terms and expressions. It emphasizes the importance of understanding terms like electronic records and electronic transferable records in relation to one another within the broader context of the regulations. This clause underscores the principle of technology neutrality, accommodating a diverse array of technological advancements that can be utilized for the purpose of electronic records, including the realm of electronic transferable records.

Most chapters of ADMG ETR 2021 follow the MLETR. For instance, Article 5 and 7 of MLETR on information requirements and legal recognition of an electronic transferable record are similar to section 31 and 1 of ADGM ETR 2021. Therefore, it can be deduced that the additions in the definition have been added to cover broader technological aspects. For example, the definition of "[i]nformation systems, automated messages and the term 'electronic' itself to cover new and emerging technologies.

Both the MLETR and the ADGM ETR 2021 provide legal recognition to electronic records. In this context the language of the provisions of MLETR has been inserted "*as it is"* in the ADGM ETR 2021, with minor modifications in order to refer to other equivalent provisions. For example, the endorsement provision for electronic transferable records under ADGM ETR 2021[96] directs one to Part 4 of the same, which provides for comprehensive details relating to legal recognition, validity, identity, reliability of electronic signatures.[97] This highlights the comprehensive, robust and interconnective aspect of the whole regulation.

A comprehensive analysis comparing the provisions of ADGM ETR 2021 and MLETR has been presented in Annex IV. The analysis specifically focuses on the areas of place of business, electronic signatures, and a comparison between ADGM and DIFC. In addition, the assessment highlights the innovative aspects of both frameworks.

[95] Section 28, Electronic Transactions Regulations 2021.
[96] Section 20, Electronic Transactions Regulations 2021.
[97] Section 12-15, Electronic Transactions Regulations 2021.

2. Implementation

1) Courts

The ADGM and DIFC are offshore financial free zones in the UAE with their own civil and commercial laws. They have the authority to use civil tools, such as search and injunctive orders, similar to common law jurisdictions, which can be enforced outside the free zones. The UAE has a legal system consisting of the Civil Code in the Onshore jurisdiction and English Common Law in DIFC and ADGM. The ADGM Courts have established regulations and rules that uphold the application of English common law in the ADGM. Their recent adoption of blockchain technology allows for instant verification of commercial judgments, enhancing efficiency and security. This initiative fosters increased trade and commerce, delivering cost savings and certainty for cross-border transactions.[98]

2) Pilot Project

In a significant collaboration, IMDA, MAS, and ADGM's FSRA, along with commercial partners DBS Bank, Emirates NBD, and Standard Chartered, have successfully completed the world's first cross-border digital trade financing pilot.[99] The pilot utilized IMDA's TradeTrust framework and the UNCITRAL MLETR. This enabled the secure transfer of electronic records and harmonizing legal recognition across jurisdictions. This initiative enhances cross-border trade finance by reducing fraud risks, lowering costs, and improving efficiency. In addition, adopting MLETR as statute law provides increased legal confidence, paving the way for seamless digital transactions.[100] Partner banks gained valuable insights into the benefits of digital trade

[98] Fast Company. "ADGM Courts Implemented Blockchain Technology. How Is It Transforming the Legal System?" Fast Company Middle East | The future of tech, business and innovation., February 13, 2023. https://fastcompanyme.com/fastco-work/adgm-courts-implemented-blockchain-technology-how-is-it-transforming-the-legal-system/.

[99] UN ESCAP. "World's First Digital Trade Financing Pilot between MLETR Harmonised Jurisdictions, i.e. between Singapore and Abu Dhabi Global Market." digitalizetrade.org, accessed June 30, 2023. https://www.digitalizetrade.org/projects/worlds-first-digital-trade-financing-pilot-between-mletr-harmonised-jurisdictions-ie.

[100] ADGM FSRA. "World's First Digital Trade Financing Pilot between MLETR-Harmonised Jurisdictions." ADGM, Abu Dhabi's International Financial Centre, April 19, 2023. https://www.adgm.com/media/announcements/worlds-first-digital-trade-financing-pilot-between-mletr-harmonised-jurisdictions.

finance, such as reducing operational costs associated with fraud detection and document verification.[101]

The Middle East TradeTech Adoption group highlights the willingness of particular jurisdictions to adopt advanced technologies like distributed ledger technology (DLT), including the MLETR. Policymakers are able to facilitate the use of new digital options, recognizing the potential advantages and positive impact MLETR can bring to the digital trade landscape.[102]

It is imperative to effectively translate the state of preparedness into tangible actions by soliciting wider support and active involvement from all relevant stakeholders, encompassing financial institutions, regulatory bodies, and trade organizations. By doing so, a comprehensive operational framework can be established, thereby enabling a greater volume of tangible trade transactions as opposed to the predominantly virtual transactions conducted during the initial testing phase. It is apparent that the full implementation of applicable laws and regulations in practical terms is presently distant, but this concerted effort will contribute towards bridging that gap.

C. United Kingdom

1. Introduction

The UK is a significant trade hub in the world, and an estimated 80% of trade documents are governed by English law.[103] For many years, trade participants had to deal with massive, cumbersome paper trade documents rather than electronic ones. In order to promote trade efficiency, transparency and security, the UK is trying to adopt the MLETR in its domestic legislation. The Law Commission started to prepare the Electronic Trade Documents Bill (the "**Bill**") in 2020.[104] As of June 30, 2023, the Bill

[101] Peiying Chua Heikes and Anil Shergill, "World's First Digital Trade Financing Pilot," *Linklaters* (blog), November 25, 2021, https://www.linklaters.com/en/knowledge/publications/alerts-newsletters-and-guides/2021/november/25/worlds-first-digital-trade-financing-pilot.
[102] André Casterman, "5 Industry Priorities for Digital Negotiable Instruments," *Trade Finance Global* (blog), May 17, 2023, https://www.tradefinanceglobal.com/posts/5-industry-priorities-for-digital-negotiable-instruments/.
[103] "Electronic Trade Documents – The Queen's Speech To The State Opening Of The UK Parliament", The International Trade and Forfaiting Association, accessed June 30, 2023, https://itfa.org/electronic-trade-documents-the-queens-speech-to-the-state-opening-of-the-uk-parliament/.
[104] Law Commission, *Electronic trade documents: Report and Bill* (Law Com No 405), March 2022, 4.

is being reviewed by the House of Commons. According to the law commissioner, Professor Sarah Green, the Bill is optimistically estimated to enter into force by Autumn 2023.[105]

Considering the common law tradition of its legal system, the practice of the UK differs from Bahrain and the UAE. The UK does not intend to adopt an entirely new regulation in line with the MLETR. The Bill, which has a relatively different layout from the MLETR but does not substantially deviate from it. The Bill, once adopted, could serve as the basis for other common law countries to adopt the MLETR in their domestic legal systems in the future.

The Law Commission drafted the Bill based on three general principles: 1) adopting the least interventionist approach, 2) technological neutrality and 3) international compatibility.[106] First, the least interventionist approach means that the Bill does not intend to interfere with previous legislation on trade documents. It aims to grant electronic trade documents the equivalent legal status to paper trade documents, so that trade-relevant regulations can apply to all forms of trade documents, whether paper or electronic.[107] Trade participants can choose or change the form of trade finance-relevant documents at their discretion.[108]

In terms of technological neutrality, the Bill does not presuppose that electronic documents must use a particular technology.[109] Industry can choose different technologies, such as central registry systems or distributed ledger technology (DLT), as long as the generated electronic documents can meet the requirements of the Bill.[110] This principle will facilitate the industry to carry out flexible commercial arrangements and accelerate technical iterations related to electronic trade documents. In terms of international compatibility, the Law Commission realized that electronic trade documents are always used in a cross-border context and took the MLETR into consideration.[111] All these principles are in line with the MLETR.

[105] Sarah Green (law commissioner), in discussion with the authors, April 2023.
[106] *Ibid,* 25.
[107] *Ibid.*
[108] *Ibid.*
[109] *Ibid,* 34.
[110] *Ibid*.
[111] *Ibid,* 35.

Although the Bill generally aligns with the MLETR, some clauses are tailored to the law of England and Wales.[112] The major legal breakthrough of the Bill is the recognition of *possession of intangibles*. Traditionally, English common law does not recognize the possession of intangibles. The Bill goes beyond this rule by explicitly stipulating that "a person may possess, indorse and part with possession of an electronic trade document".[113] Nevertheless, the Bill did not simply accept the definition of possession under MLETR but took a common law approach of definition.

Under Article 11 of the MLETR, electronic transferable records are possessed by a person if *a reliable method* is used to 1) establish *exclusive control* and 2) identify that person as *the person in control*. On the contrary, the Law Commission does not intend to define "possession" or explicitly explain its relationship with control in the Bill, because they regard possession as a "fact-specific concept" that should be determined by the courts.[114] It means that the UK courts will be responsible for explaining the possession of an electronic trade document in cases, and their significant judgments may determine the future path of electronic trade documents.

The method the Law Commission uses to deal with possession reflects its efforts to reconcile MLETR and common law. This deviation from MLETR is necessary and would encourage other common law countries to take a similar approach to adopt the MLETR. Therefore, this deviation could be rather regarded as an innovation.

As English law governs enormous trade transactions, the Bill, once enacted, could become a game changer in international trade and encourage more trade participants to use electronic transferable records in practice. Moreover, other common law jurisdictions, like Australia and Canada, may take reference from this Bill when formulating their own domestic legislation in the future. In conclusion, the Bill heralds the expansion of a globally interoperative regulatory system of electronic transferable records, which promises to reduce the trade finance gap substantially.

[112] *Ibid*, 36; for detailed analysis, see Annex V.
[113] Section 3(1), The Bill.
[114] Law Commission, *Electronic trade documents: Report and Bill* (Law Com No 405), March 2022, 147.

2. Future Implementation

1) Potential Impact on Trade Industry

The Bill is welcomed by the industry. During the consultation process, the Law Commission did not receive any objections but only suggestions on details.[115] Of course, practical challenges may arise once the Bill is passed. For example, international trade participants may need time to build up confidence in the electronic transferable records and relevant systems, including but not limited to the technic system, regulatory system and case law system.[116]

Currently, private service providers are striving to open the market and educate the users of electronic transferable records. Take Enigio, a solution provider of digital original documents through public distributed ledger (*i.e.*, blockchain), as an example. Enigio and Lloyds Bank launched a new trade digitization partnership in April 2023, following the first digital promissory note and a digital bill of exchange transactions in the UK.[117] Enigio is also approaching other financial institutions for cooperation around the world, including those in the US, France and the Middle East.[118] Although current transactions have to be on a contractual basis, once the Bill is enacted (as well as those similar legislative reforms in other jurisdictions take place), Enigio could comply with it easily.[119]

2) Monitoring and Evaluation

According to the *Impact assessment of the Electronic Trade Documents Bill* issued by the Department for Digital, Culture, Media and Sport, the impact of the Bill will be monitored by tracking key indicators, including:

(a) Value of exports per year;

(b) Number of total exporting businesses;

(c) Number of micro, small and medium exporting businesses;

(d) Number of new exporting businesses since legislation;

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[115] Sarah Green (law commissioner), in discussion with the authors, April 2023.
[116] *Ibid*.
[117] "Lloyds Bank completed UK's first digital promissory note purchase using Enigio's trace:original for digital original documents," Enigio, accessed June 30, 2023, https://enigio.com/post/lloyds-bank-completed-uks-first-digital-promissory-note-purchase-using-enigios-traceoriginal-for-digital-original-documents/.
[118] André Casterman (board member of Enigio), in discussion with the authors, May 2023.
[119] Patrik Zekkar (CEO of Enigio), in discussion with the authors, May 2023.

(e) Value of trade finance provided to UK micro, small and medium businesses;

(f) UK carbon emissions associated with paper and printing processes in international trade per year, using the OECD's database; and

(g) Adoption of electronic trade documents by UK exporting businesses.[120]

As many of these metrics are already recorded by other organizations, the Department plans to gather and compare these metrics with those before the Bill was implemented.[121] Based on the comparison, the Department can assess the impact of the Bill on enhancing the usage of electronic transferable records, increasing the value of UK trade and facilitating trade finance of MSMEs.

[120] Department for Digital, Culture Media and Sport, *Impact assessment of the Electronic Trade Documents Bill*, accessed June 30, 2023, https://www.gov.uk/government/publications/electronic-trade-documents-bill-impact-assessment/impact-assessment-of-the-electronic-trade-documents-bill.
[121] *Ibid*.

VI. Recommendations

To conclude, we provide a summary of the best practices to facilitate the broadest possible adoption of digitalization of trade finance-relevant documents in global, regional and local contexts. We focus, in particular, on cutting-edge forward-looking practices and developments. The Recommendations are applicable to international negotiators of treaties, national legislators drafting legislation and implementors of such legislation.

A. Recommendations for future treaty negotiators

1. Legal Instruments Under the UN Framework

The UNCITRAL model laws present a holistic framework that would allow for judicial consistency among jurisdictions. Furthermore, countries who have adopted earlier Model Laws such as the MLEC could engage in a process to expand its borrowing from the most recent model MLETR.

Countries wishing to expand the pool of trade finance available may wish to incorporate some principles from the recently finalized UNDROIT project on Digital Assets. This would allow trade finance to expand into secondary markets and allow for the incorporation of NFTs and cryptocurrencies into trade finance.

2. Regional and bilateral/trilateral Legal Instruments

After analysing the key clauses of regional and bilateral/trilateral legal instruments in the Section III, we propose three recommendations to future negotiators for digitalization of trade finance-relevant documents.

Recommendation on domestic regulatory framework clauses. Domestic regulatory framework clauses can be found commonly in regional and bilateral/trilateral agreements. According to our previous analysis of this clause, we propose a two-tier recommendation for future negotiators. Firstly, regional and bilateral/trilateral agreements shall explicitly refer to the MLETR following the Singapore pattern. Consequentially, member states will be obliged to establish and maintain domestic regulatory frameworks consistent with the MLETR. Taking a step back, if negotiating countries cannot accept a clause directly pointing to the MLETR,

they should alternatively adopt semi-open treaty language. A domestic regulatory framework clause under the semi-open model can retain the probability for the future introduction of the MLETR into the treaty.

This recommendation aims to bring the MLETR front and center of current member states and be the basis for many additional states to enter into regional and bilateral/trilateral agreements. As more and more states join the global MLETR regulatory network, electronic transferable records will be recognized by different jurisdictions and transferred seamlessly across borders, which will promote trade finance globally.

Recommendation on paperless trading clauses. The second recommendation is to expand the scope of paperless trading clauses in regional agreements. It would be better to use "trade-related documents" instead of "trade administration documents" to cover more trade documents, including electronic transferable records. This recommendation aims to extend the function of traditional paperless trading clauses, thereby corresponding the treaty language with trade realities. In this way, contracting states will not need to consider regulating electronic transferable records in isolation. Digitalization of trade finance-relevant documents will operate under a broader framework of paperless trade like the CPTA.

Recommendation on practical solutions. We encourage states to proactively propose practical solutions to popularize electronic transferable records, and to include relevant clauses in regional and bilateral/trilateral agreements. For example, TradeTrust is one of the practical solutions provided by the Singapore Government to facilitate the transformation, endorsement and verification of electronic transferable records. It falls into the range of "data exchange systems" in digital economy/partnership agreements concluded by Singapore. Practical solutions for electronic transferable records could ensure that electronic transferable records not only receive legal recognition in various jurisdictions, but also can be utilized effectively across borders. Therefore, the digitalization of trade finance-relevant documents could be further achieved globally.

3. Legal Instruments Under the WTO Framework

WTO members negotiating e-commerce should *start* with the MLETR. This will ensure that the negotiating text will become more digitization-friendly than prior

UN model laws. This will lead to high standard and yield commercially meaningful outcomes, this strategic inclusion will guarantee coherence and facilitate the seamless integration of e-commerce rules among nations. Adopting such an advanced starting point will foster a conducive environment for global trade digitalization, ultimately benefiting all stakeholders involved.

Furthermore, the WTO should also incorporate the best practices from bilateral agreements into its negotiating document on e-commerce, not only to enhance its effectiveness but also to incentivize nations in the process of adopting or already having adopted relevant legislation to participate in the negotiations. By adopting the MLETR, the WTO would take the crucial initial step towards establishing uniform rules and standards, ensuring that its negotiations are not lagging existing models that already offer superior provisions for promoting interoperability and facilitating digital trade finance.

B. Recommendations for future domestic legislators

Recommendation for ADGM. The adoption of the MLETR by ADGM in its legal framework governing electronic transferable records is a significant step towards promoting paperless trade and facilitating cross-border transactions. To further enhance the implementation and effectiveness of this framework, it is important for the ADGM to continue collaborating with international partners, financial institutions, and technology providers to address operational costs and limitations associated with blockchain technology. Additionally, active engagement from all stakeholders, including major banks, smaller players, and trade groups, should be encouraged to participate in pilot projects, fostering broader adoption of digital trade finance and ensuring meaningful change in the ecosystem.

Recommendation for common law jurisdictions. We recommend common law jurisdictions refer to the Bill of the UK, which is consistent with the principles of the MLETR. We also encourage other common law jurisdictions to establish their own regulations and case laws on electronic transferable records, in order to complement each other with English law and promote the development of electronic transferable records comprehensively.

Annex I

Detailed Legal Analysis and Case Laws

In 1995, the United Nation Convention on Independent Guarantees and Stand-by Letters of Credit were accepted as trade finance documents if the record is "preserved" and properly "authenticated. In article 7(2) the authentication procedure is dependent upon "generally accepted means or by a procedure agreed upon by the guarantor/issuer and the beneficiary."[122]. The generally accepted means will differ depending on each legal environment." Not surprisingly, because of the existing legal indeterminacy in this text, there was a need for further Model Laws to clarify certain ambiguities. As a result, the following model laws attempted to articulate common modes of authentication, control and originality.

It is worth noting that some of the countries who ratified this 1995 convention might not have ratified or adopted later model laws and conventions. In those cases, domestic legal systems have developed their own means to assess the originality and authenticity of electronic records.

A. Model Law on Electronic Commerce (1996)

1. Electronic Commerce in General

Following up on 1995 convention found UNCITRAL producing its first model law tackling electronic commerce: UNCITRAL Model Law on Electronic Commerce (1996). This model law is the most recognized/enacted of all of UNCITRAL's model laws. It is adopted in 83 states and 164 jurisdictions. The model law is divided into two parts: the first concerns electronic commerce in general. The second deals with specific areas such as the carriage of goods and transport documents. In article 1 the model provides a flexible threshold that encompasses all types of electronic information. In specific, the model law "applies to any kind of information in the form of a data message used in the context of commercial activates".[123] The keywords here would be "any information".

The second chapter applies to documents specifically used in the transport of goods. Its scope is envisioned to apply to the following and more: letters of credit,

[122] Article 7(2), United Nation Convention on Independent Guarantees and Stand-by Letters of Credit.
[123] Article 1, MLEC.

promissory notes, bills of lading, contracts and invoices. States that have adopted the MLEC in their domestic legislation would accept "any information" communicated over electronic means on the condition it satisfies certain conditions. In certain cases, this encompassed the issuance of securities even if the paper form no longer exists as well as SMS messages.[124]

The conditions outlined to accept the communication of "any information" depends on satisfying several security related aspects. The first aspect related to the issue of identifying the parties to the transaction. In the case of paper-based document identification depended on a signature on the written form. In order to solve that requirement; article 7 is envisioned to accommodate the lack of signature issue. The written signature condition is met if "a method is used to identify that person and to indicate that person's approval of the information contained in the data message" or if "that method is as reliable as was appropriate for the purpose for which the data message was generated or communicated".

Case law from different jurisdictions supports the traditional signature alternatives. For example, in a case before the UK courts, it was decided that a letter of guarantee was authenticated despite an argument from the Bank that its name and signature did not appear in the letter of guarantee. The court decided that because the letter of guarantee was sent through the SWIFT system it was properly authenticated and equivalent to a signed document.

In another case *Druet v. Girouard*, the Canadian court rules that email exchanges satisfied the written form. They had also judged that "there was no issue as to the identity of the senders, whether the emails were actually sent, or any allegation of the emails having been altered".[125] The courts in both jurisdictions deployed a test that aimed to identify the sender without reliance on a signature. US courts have recognized that an email would satisfy the existence of the signature if both sender and recipient are identified.[126] In South Africa, during a labor legal dispute, one of the

[124] Banco Caja Social S.A. v. Gloria Aleida Herrera Arango and Carlos Andrés Ochoa Londoño 8 July 2020

[125] Druet v. Girouard, 2012 NBCA 40, https://www.uncitral.org/clout/clout/data/can/clout_case_1197_leg-2966.html.

[126] Robert Naldi, Respondent, v Michael Grunberg, Defendant, and Grunberg 55 LLC, Appellant; Khoury v Tomlinson. In this case there was no signature, but participants were identified from the "from section."

employees resigned over SMS.[127] He later argued that South African Law required a written resignation. The South African court considered the resignation to be valid depending on the Electronic Communications and Transactions Act which is based on the UNCITRAL model law.

The second security aspect relates to article 8 addressing the "originality" of the information. In that case the information must remain "complete and unaltered" except for any changes that arise "in the normal course of communication, storage and display". In a case before the Colombian court[128] a debtor alleged that submitting a copy of promissory note to the court did not satisfy the domestic civil law rules. In specific the Civil Code stated that "whereby a document must be presented in its original form if it is to be treated as a security". The adjudicating judge countered by highlighting that the promissory note was issued by "Central Securities Depository of Colombia". As a result, the copy when compared to its digital counterpart was not altered. In the Colombian case the court dealt the electronic data despite the fact that its paper-based was destroyed after a process of computerization.

Article 9 deals with the problems that had materialized in the 1985 questionnaire, i.e., the admittance of electronic documents in court as evidence. In specific, any information shall not be denied validity on the grounds that it is a data message. Furthermore, it should not be inadmissible on the ground that it is not in original form. Case law from different jurisdictions that adopted the MLEC has supported admissibility.

Article 10 refers to scenarios where the law requires that certain information be retained. That retention has to guarantee the integrity of the message, its accessibility and later use. Furthermore, it must enable the identification of the origin, sender as well as date and time. Wherever the law requires retention of data, it could be done through third parties in line with article 10(3).

Articles 13,14 and 15 deal with the attribution, acknowledgment of receipt and time of dispatch of communication. In article 13, there are three approaches whereby electronic data would be attributed to the "originator" (sender). First, if the originator is identified to have sent the message himself. This could be done if the originator had

[127] South Africa: Labour Court of South Africa (Braamfontein), Sihlali Mafika v. South African Broadcasting Corporation Ltd. 14 January 2010.
[128] Banco Caja Social S.A. v. Gloria Aleida Herrera Arango and Carlos Andrés Ochoa Londoño

used their own email address, phone number or an online profile that belongs to them. Second, if someone had sent the message whilst acting on behalf of the originator. This could be done through a proxy or if said person was under an employment contract to conduct this job for the originator. Finally, attribution can occur if the electronic data has been sent through an automated system that belongs to the originator.

Article 13 also accounts for instances where cybersecurity is compromised. In that case, the message is not attributed to the originator, if they had informed the "addressee" (receiver) within a "reasonable time" for them to act. Furthermore, attribution is not satisfied is they knew or should have known that the communication was not from the originator. In the latter case, legal terms such as "reasonable care" are used as well as reliance on a pre-approved authentication method.

The operating rationale of article 14 concerns the recognition by the addressee that electronic data has been received. Parties to any transaction may agree that receipt of messages be acknowledged for them to have legal effect. In the case that parties to the transaction did not agree on conditional acknowledgment. Then the originator may send notice to the addressee with a reasonable time to acknowledge. In the case in which an acknowledgement was not received during that period, then the originator may send notice to the addressee to treat the electronic information as if it had never been sent; or exercise any legal rights they may have. Article 15 attempts to determine the time in which electronic information is registered in each system. The time of receipt occurs whenever the information leaves the originator system and enters the prescribed information systems chosen by the addressee.

2. Electronic Commerce in Specific Areas

The second part of MLEC deals with trade related documents without derogating the conditions and rules stipulated in the first part. Article 16 provides a long list of documents that could be digitized in the process of trade. The article makes it clear that it includes all documents related to the carriage and transport of good even if they are not mentioned in the list. It covers invoices, bills of lading, giving notice of lost and damaged goods. Furthermore, it allows for documents that deal with any form of transfers of title, obligations and duties. Article 17 highlights that any paper-based document could be replaced by one or more data messages.

Article 17 allows for a return of paper-based documents only if the paper document explicitly terminate the reliance on electronic messages. Articles 16 and 17 taken together allow for the electronic exchange of all trade related documents. That exchange is not limited to logistical means, but also the transfer of obligations, ownership and liabilities.

To conclude, the earliest UNCITRAL model law covering digitalization of trade offers a solid legal foundation for the use of electronic means in trade. It does not favour or adhere to a specific technology. In fact, an email, a cloud-based service or a distributed ledger technology can all provide suitable means for the communication of title and trade related documents. The conditions that need to be satisfied hinge on making sure the documents are properly authenticated, unaltered and could be attributed.

However, the main problems with this model law revolved around three issues that later conventions and model laws attempted to solve. First, was the fact it was often implemented in the context of domestic trade. Second, it did not account for the existence of service provider and third-party certification. Finally, it did not provide clear rules that would account for the duplication of documents and the principle of exclusive control (possession).

B. UNCITRAL Model Law on Electronic Signatures (2001)

The culmination of the UNCITRAL Model Law on Electronic Signatures was a response to the continued reliance of states on the conditions that documents must be "written", "signed" or "original". It was not enough for certain documents or certificates to identify the originator. The model law is adopted by 38 states and 39 jurisdictions. The same rationale of guaranteeing security and harmony along different jurisdictions concerning the admissibility of documents in courts still posed an obstacle towards digitalization. It is no wonder the UNCITRAL Model of Law on Electronic Commerce and specifically its article 7 were often mentioned in this new model. Moreover, market forces and advancements in computer technology met the demands of governments with more authentication and enabling technologies. In that sense service providers were integrated into the equation.

Consequently, the new model law focused on "technological neutrality" which was not mentioned in the earlier model. Technological neutrality entails a non-

discrimination principle that does not favour a specific technology. In that regard article 3 of the model is an equality principle titled “equal treatment of signature technologies”.

Article 6 builds on the use of service providers stating the conditions in which the use of a signature through a service provider would be functionally equivalent to a written signature. The signature used by the provider has to be unique and linked to signatory. Moreover, at of signing the signature generating data was under the control of the signatory. The information the signature authenticates must be unaltered and if altered, any alteration has to be detectable and traceable. Article 6 is only satisfied if competent authority designated by states will determine which electronic signature satisfied the conditions outlined in article 6 (article 7).

Article 8 addresses the obligations and liabilities of the signatory. In specific, it is the duty of the signatory to exercise “reasonable care” to avoid unauthorized use. If unauthorized use took place, it is the responsibility of the signatory to use either the services provided by the signature provider or any other efforts to notify parties affected by the signature. This applies whenever the signatory becomes aware of a compromised signature. In addition, the signatory is also liable if they become aware of circumstances that prove there is “substantial risk that the signature creation data may have been compromised”.

Similarly, articles 9 and 10 provide a list of duties that govern there conduct of an electronic signature service provider. Due to the importance and variety of duties placed on both signatory and service provider, it was deemed necessary to place them in table 2 (along with similar reference in MLETR). Most notably the failure of service to provider to maintain those duties places them at the risk of legal consequences.

One of the main shortcomings associated with the previous law was that its national enactment did not usually extend to cross border transactions. As a result, Article 12 of this model law aimed to give legal validity to transactions authenticated by an e-signature issued from another country. This would allow courts and institutions of the enacting state to offer national treatment to any certificate electronically signed outside their jurisdiction.

C. Rotterdam Rules (2008) [129]

Unlike the UNCITRAL model laws, the Rotterdam Rules is a convention and once it enters into force it would provide provisions that directly affect the digitalization of trade. Currently there are 5 ratifications and 26 signatories. In order for the convention to enter into force; it would require a total of 20 ratifications. However, the Rotterdam Rules also address certain shortcomings of the MLEC. Firstly, they specifically address maritime carriage documents. In that sense they do account for cross border crossings and will not be confined to domestic trade. Secondly, it provides provisions that limit the duplication of electronic information. This is possible through the introduction of a control and possession conditions.

The Rotterdam Rules covers electronic transferable records in chapter 3: articles 8, 9 and 10. Article 8 attests that the issuance, exclusive control and transfer of electronic records has "the same effect as the issuance, possession, or transfer of a transport document." In that case, the article includes but is not limited to, bills of lading, invoices, certificates of origin and arrival notice. Any of those documents can be turned into an electronic transferable record that could be transferred or used as a collateral.

Article 9 places a number of conditions that need to be satisfied in order to allow for the transfer of transport documents. First, the holder or service provider must provide an assurance to the integrity of the electronic record. Second, the holder must be able to demonstrate that is has exclusive control and that it is the intended holder of title.

An Overview of Articles Governing Service Providers and Accreditation

Articles governing the conduct of service providers	
Model Law	**Articles**
Model Law on E-Signatures (2001)	**Article 9 Conduct of the certification service provider** 1. Where a certification service provider provides services to support an electronic signature that may be used for legal effect as a signature, that certification service provider shall: (a) Act in accordance with representations made by it with respect to its policies and practices;

[129] United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea (New York, 2008).

	(b) Exercise reasonable care to ensure the accuracy and completeness of all material representations made by it that are relevant to the certificate throughout its life cycle or that are included in the certificate; (c) Provide reasonably accessible means that enable a relying party to ascertain from the certificate: (i) The identity of the certification service provider; (ii) That the signatory that is identified in the certificate had control of the signature creation data at the time when the certificate was issued; (iii) That signature creation data were valid at or before the time when the certificate was issued; (d) Provide reasonably accessible means that enable a relying party to ascertain, where relevant, from the certificate or otherwise: (i) The method used to identify the signatory; (ii) Any limitation on the purpose or value for which the signature creation data or the certificate may be used; (iii) That the signature creation data are valid and have not been compromised; (iv) Any limitation on the scope or extent of liability stipulated by the certification service provider; Part One: UNCITRAL Model Law on Electronic Signatures 2001 5 (v) Whether means exist for the signatory to give notice pursuant to article 8, paragraph 1 (b), of this Law; (vi) Whether a timely revocation service is offered; (e) Where services under subparagraph (d) (v) are offered, provide a means for a signatory to give notice pursuant to article 8, paragraph 1 (b), of this Law and, where services under subparagraph (d) (vi) are offered, ensure the availability of a timely revocation service; (f) Utilize trustworthy systems, procedures and human resources in performing its services. 2. A certification service provider shall bear the legal consequences of its failure to satisfy the requirements of paragraph 1.
	Article 10 Trustworthiness For the purposes of article 9, paragraph 1 (f), of this Law in determining whether, or to what extent, any systems, procedures and human resources utilized by a certification service provider are trustworthy, regard may be had to the following factors: (a) Financial and human resources, including existence of assets; (b) Quality of hardware and software systems;

	(c) Procedures for processing of certificates and applications for certificates and retention of records; (d) Availability of information to signatories identified in certificates and to potential relying parties; (e) Regularity and extent of audit by an independent body; (f) The existence of a declaration by the State, an accreditation body or the certification service provider regarding compliance with or existence of the foregoing; or (g) Any other relevant factor.
Model Law on Electronic Transferable Records (2017)	**Article 12 General reliability standard** For the purposes of articles 9, 10, 11, 13, 16, 17 and 18, the method referred to shall be: (a) As reliable as appropriate for the fulfilment of the function for which the method is being used, in the light of all relevant circumstances, which may include: UNCITRAL Model Law on Electronic Transferable Records (i) Any operational rules relevant to the assessment of reliability; (ii) (ii) The assurance of data integrity; (iii) The ability to prevent unauthorized access to and use of the system; (iv) The security of hardware and software; (v) The regularity and extent of audit by an independent body; (vi) The existence of a declaration by a supervisory body, an accreditation body or a voluntary scheme regarding the reliability of the method; (vii) Any applicable industry standard; or (b) Proven in fact to have fulfilled the function by itself or together with further evidence.

Annex II

Instruments issued by the ICC

The UCP 500, UCP 600, eUCP, and URDTT are all sets of rules and guidelines that provide direction for trade finance transactions. Over time, these guidelines have evolved to keep up with the changing nature of trade, including the growing use of digital assets and the digitalization of trade finance-related documents.

UCP 500, introduced in 1993, did not specifically address digital assets or the digitalization of trade finance-related documents since they were not widely used then. Instead, it guided banks and other parties involved in international trade transactions. UCP 600, which replaced UCP 500 in 2007, did not introduce significant changes related to digital assets or digitalization. However, it introduced the concept of electronic records and allowed for the electronic presentation of documents in trade finance transactions. In contrast, the eUCP, introduced in 2002, specifically addressed electronic records and provided guidelines for the use of electronic records in trade finance transactions. It allowed for electronic documents such as bills of lading and provided guidelines for their authentication and verification.

The URDTT, the most recent set of rules and guidelines introduced in 2019, is a significant development. It addresses the digitalization of trade finance-related documents and provides direction for using digital assets in trade finance transactions. The URDTT defines *digital assets* as "a digital representation of value that can be traded or transferred electronically."

The URDTT introduces new terminology related to digital assets, such as “smart contracts” and “distributed ledger technology.” Additionally, it guides the use of these technologies in trade finance transactions. It also introduces the concept of "digital negotiable instruments," which are electronic records that can be used as negotiable instruments, such as promissory notes or bills of exchange. The URDTT's introduction of these new concepts and terminology reflects the growing use of digital assets in international trade transactions. It also provides greater clarity and guidance for using these technologies in trade finance while still ensuring that traditional principles of trade finance, such as the need for document authentication and verification, are maintained.

In conclusion, the evolution of the UCP rules and guidelines and the introduction of the eUCP and the URDTT reflect the increasing digitalization of trade finance-related documents and the growing use of digital assets in international trade transactions. These guidelines provide critical direction to stakeholders in international trade transactions and ensure they remain up to date with technological developments.

Annex III

Detailed Analysis regarding Domestic Regulatory Frameworks Clause in Regional Agreements

A. Closed model: AANZFTA & CPTPP

As the AANZFTA was signed at an earlier stage, it requires the states to have domestic regulatory frameworks governing electronic transactions merely "taking into account" the earliest relevant model law, the MLEC.[130] The AANZFTA does not impose any compulsory duty to adopt the MLEC or any other relevant legal instruments in domestic law for the contracting states. The obligations of the states are relatively light.

While the CPTPP has relatively stricter requirements, as it demands that the states' domestic regulatory frameworks be "consistent with the principles of" the MLEC or the CUECIC.[131] Compared to the AANZFTA, CPTPP not only adds the requirements for compliance with CUECIC, but also increases the state obligations by changing the wording from "taking into account" to "consistent with".

B. Semi-open model: AAEC & RCEP

The AAEC has a catchall clause and not specifying any legal instruments that contracting states are obliged to follow. This is a double-edged sword. On the one hand, some advanced states may take the latest model laws or treaties, if applicable, into their domestic regulations at their discretion. The catchall clause allows the agreement to keep pace with the development of international legal instruments. On the other hand, as states have more discretion to determine which legal instruments are "applicable" to their domestic regulatory frameworks, some states may (though unlikely) regard most international legal instruments as "inapplicable". In extreme cases, a state may only harmonize its domestic regulations with international legal instruments at a minimum level. To conclude, this clause increases the adaptability of AAEC to future legal instruments, but also raises the uncertainty about the compliance level of states' domestic regulatory framework.

[130] Article 4, AANZFTA.
[131] Article 14.5, CPTPP.

The RCEP takes a step further. The first half of the domestic regulatory framework clause in the RCEP is similar to those closed-model clauses, requiring the states to take the MLEC and CUECIC into consideration. The second half is a catchall to cover other applicable legal instruments. Compared to the AAEC, the RCEP impose a relatively stricter obligation on the states to consider at least MLEC and CUECIC when adopting domestic regulations. Therefore, the RCEP sets the minimum threshold for a domestic regulatory framework to conform to international law. This could circumvent the aforementioned extreme situations that may occur under the AAEC.

C. Open model: CPTA

The CPTA clause further amplifies the problem with the AAEC clause. On the one hand, its open-model clause grants great discretion to contracting states that want to adopt the latest legal instruments, such as the MLETR, in their domestic regulatory framework. On the other hand, other states are free from following any advanced international legal instruments. The domestic regulatory standards of each state will vary. The adoption of MLETR and the use of electronic transferable records will not be guaranteed. An interoperable regulatory system is hard to be built among different countries.

Annex IV

Country Case Study (UAE-ADGM)

1. Place of Business

One major difference that can be found between MLETR and ADGM ETR 2021 is with respect to the "Place of Business". MLETR, under Article 14 provides a negative definition stating that a location is not a place of business merely on the basis of location of information systems, where they might be accessed or the location of technology and equipment associated with them. ADGM ETR 2021 has included another chapter under its part 3 as "Electronic Communications" which addresses two prime concerns under section 11. First, the time of the dispatch of an electronic communication is when it enters the information system outside the control of the originator and the time of receipt of that electronic communication is when it enters the information system of the addressee. This shows similarity to the general principles concerning the acceptance and completion of communication under the common law system of contracts.

Second, it talks about the place of business with reference to the above discussed electronic communication where either the Originator or the Addressee has its place of business. In case of multiple business, the place which has the closest relationship with respect to the underlying transaction or registered office, and habitual place of residence in case either of them does not have a registered office or usual place of business. However, another addition by UAE-ADGM in this context between MLETR and ETR is that under section 11(4) ETR, the location of information systems can also be considered as the place of business, that may be different from the place where the Electronic Communication is deemed to be despatched or received. Whereas location of information systems is disregarded under provisions of MLETR.

2. Electronic Signature

The ADGM ETR 2021 includes extensive provisions for the legal recognition of electronic signatures, which differ from those of the MLETR. The MLETR requires that an electronic signature be capable of identifying the signatory and created using a reliable method, without providing a specific definition of what constitutes a reliable method. In contrast, the ADGM ETR 2021 specifies that an electronic signature used for electronic transferable records must fulfil the requirements outlined in sections 2

and 13(1) and be reliable and appropriate for the purpose for which the electronic record was generated. Section 14 of the ADGM ETR 2021 further defines what constitutes a reliable method for electronic signatures, including that it should be uniquely linked to the signatory and created using a reliable method that is under the signatory's sole control.[132] While not exhaustive, these provisions in the ADGM ETR 2021 provide clarity on what constitutes a reliable method for electronic signatures and promote the use of secure and widely accepted technologies.

3. ADGM and DIFC

When comparing ADGM ETR 2021 and DIFC's electronic transactions law 2017, it becomes apparent that while both laws are limited in jurisdiction within their respective areas, ADGM ETR 2021's provision for cross-border recognition makes it more inclusive and promotes interoperability. Additionally, the ADGM ETR 2021 specifically adopts the MLETR and includes provisions for the use of electronic transferable records and cross-border recognition,[133] whereas the DIFC law focuses on facilitating electronic transactions by eliminating barriers related to writing and signature requirements for its internal purpose within the DIFC jurisdiction[134] but lacks provisions for electronic transferable form and cross-border equivalence. Another key difference between the two laws is the requirement for an electronic record to be capable of being produced in tangible form. The DIFC law requires this,[135] while the ADGM ETR 2021 does not, so long as the information within the record is accessible for subsequent reference adhering to the language of model law.[136] Overall, the successful implementation of the ADGM ETR 2021 could serve as a model for the entire UAE to adopt comparable regulations, which would promote the use of electronic transferable records and enhance efficiency in cross-border trade.

[132] Section 14, Electronic Transactions Regulations 2021.
[133] Section 30, Electronic Transactions Regulations 2021.
[134] Article 3, DIFC Electronic Transactions Law No.2 2017.
[135] Article 10, DIFC Electronic Transactions Law No.2 2017.
[136] Section 2; 17, Electronic Transactions Regulations 2021.

4. Comprehensive analysis comparing the provisions of ADGM ETR 2021 and MLETR

A. Article 2. Definitions: [MLETR] ▪ **"*Electronic record*"** means *information generated*, communicated, received or stored by electronic means, including, where appropriate, **all information logically associated with or otherwise linked together so as to become part of the record, whether generated contemporaneously or not**; ▪ **"*Electronic transferable record*"** is an electronic record that complies with the requirements of article 10; ▪ **"*Transferable document or instrument*"** means 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. **B. Article 3. Interpretation** 1. This Law is derived from a model law of international origin. *In the interpretation of this Law, regard is to be had to the international origin and to the need to promote uniformity in its application.* 2. *Questions concerning matters governed by this Law which are not expressly settled in it are to be settled in conformity with the general principles on which this Law is based.*	**A. Article 28. Interpretation of certain words and expressions [ADGM ETR 2021]** ▪ "**Electronic Record**" means a *Record created*, generated, sent, communicated, received or retained in electronic form. ▪ **"Electronic Transferable Record"** is an Electronic Record that complies with the requirements of section 17. ▪ "**Transferable Document or Instrument**" means a document or instrument **capable of being created 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. ○ "**Addressee**" means the party who is intended by the Originator to receive an Electronic Communication. ○ "**Electronic Signature**" means an electronic sound, symbol or process attached to or logically associated with an Electronic Record, which may be used to identify the signatory and to indicate the signatory's approval of the Information contained in the Electronic Record. ○ "**Automated Message System**" includes a computer program or an electronic or other automated means used to initiate an action or respond to data messages or performances in whole or in part, without review or intervention by a natural person each time an action is initiated or a response is generated by the system;" ○ **"Court"** means any of the courts established pursuant to Article 13 of the ADGM Founding Law. ○ **"created"** includes generated, sent, communicated, or received. "**Electronic**" relates to technology having electrical, digital, magnetic, wireless, optical, electromagnetic, or similar capabilities. ○ "**Electronic Communication**" means any communication made by means of an Electronic Record.

	○ "**Electronic Record**" means a Record created, generated, sent, communicated, received or retained in electronic form. ○ "**Enactment**" means an "enactment" or "subordinate legislation", within the meaning given to these terms in the Interpretation Regulations 2015. ○ "**Information**" includes data, text, images, sounds, codes, computer programs, software, databases, symbols or processes. ○ "**Information System**" means a system for generating, sending, receiving, storing or otherwise processing Electronic Records. ○ "**Originator**" means the party who sent an Electronic Communication. ○ "**Record**" means Information that is capable of retention in tangible or Electronic form.
Article 9. Signature Where the law requires or permits a signature of a person, that requirement is met by an **electronic transferable record** if a reliable method is used to identify that person and to indicate that person's intention in respect of the information contained in the electronic transferable record.	**Article 12. Legal recognition of Electronic Signatures** Where an Enactment requires the signature of a person, or provides for certain consequences if a document or a Record is not signed, that requirement is satisfied if an **Electronic Signature** is used, unless the Enactment expressly prohibits the use of an Electronic Signature.

Annex V

Country Case Study (the UK): Detailed Analysis on the Bill

1. The Bill and the MLETR: Comparison and Deviation

1) Deviation regarding Definition and Scope

The Bill, Clause 1(1)	MLETR, Article 2
A document is a "paper trade document" for the purposes of this Act if— (a) it is in paper form, and (b) **possession of the document** is required as a matter of law or commercial custom, usage or practice for a person to claim performance of an obligation.	"*Transferable document or instrument*" means 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.

The scope of documents the Bill covers differs from that of the MLETR. The MLETR focused on the documents "providing a title to performance", [137] i.e., documents of title. Whilst the Bill uses the term "trade documents" rather than "entitles" to capture any document to which possession is significant for its functioning, whether or not it is a document of title for all legal purposes.[138] Therefore, the Bill could cover the ship's delivery orders, which are not documents of title at common law.[139] This intention can be seen through the wording nuance between the Bill and the MLETR as above. Thus, the Bill can better meet the needs of trade practice and harmonize the incompatibility between the MLETR and English Law. The discreet scope of the Bill can serve as a model for other common law countries.

2) Gateway Criteria

The Law Commission proposed seven "gateway criteria" for trade documents in the electronic form to qualify as functional equivalencies of paper trade documents.[140] These criteria are reflected in several clauses in the Bill and are also in line with the MLETR. The form below summarizes the regulatory roadmap of the Bill,

[137] UNCITRAL, *UNCITRAL Model Law on Electronic Transferable Records*, Explanatory Note to the UNCITRAL Model Law on Electronic Transferable Records, 27.
[138] Law Commission, *Electronic trade documents: Report and Bill* (Law Com No 405), March 2022, 69.
[139] *Ibid*.
[140] *Ibid*, 98-133.

specifies the seven "gateway criteria" therein and indicates its consistency with the MLETR.

Qualifying electronic document	+	**Reliable system** [(2)]	=	**Electronic trade document**
Definition ◆ Contained information in electronic form equivalent to those in paper trade document [(1)]; ◆ together with any other information with which it is logically associated that is also in electronic form.		***Reliability Standards*** a) Operational rules. b) Protect the document against unauthorized alteration [(3)] c) Prevent unauthorized access to and usage. d) Security of the hardware and software. e) Independent body audit. f) Supervisory or regulatory assessment. g) Voluntary scheme or industry standard.		***Reliable system is used to:*** a) Identify the document [(6)]; b) Protect the document against unauthorized alteration. c) Secure exclusive control [(4)]. d) Identify the exclusive controller [(7)]. e) Divestibility [(5)].
The Bill Clause 1(3) Consistent with MLETR Article 10.1(a)		**The Bill Clause 2(4) Consistent with MLETR Articles 10.2 & 12(a)**		**The Bill Clause 2(1) Consistent with MLETR Article 10.1(b)**

Notes:

(1) First criterion: information contained in an electronic trade document.

(2) Second criterion: reliability of an electronic trade document system. The Bill applied a non-exhaustive list of standards to determine the reliability of electronic trade document systems. The list is similar to the general reliability standard under the MLETR. However, as the MLETR standards are exhaustive, the Bill can offer more flexibility to determine whether an electronic trade document system is reliable or not. The Bill also rejected the "safe harbor" clause in Article 12(b) of the MLETR.[141] Under this "safe harbor" clause, if a system has been proven in fact to have fulfilled the function, the reliability of this system will not be appreciated according to reliability standards.[142] The rejection of this clause which means that the reliability of the system shall always be examined under UK law.

(3) Third criterion: integrity of an electronic trade document.

(4) Fourth criterion: capable of exclusive control. At any one time, it is impossible for more than one person to exercise control of the document; people who act jointly will be treated as one person to exercise control of the document.[143]

(5) Fifth criterion: divestibility. The exclusive control of an electronic trade document can be transferred *de facto* (not necessarily *de jure*).[144]

(6) Sixth criterion: identification of the document. Electronic trade documents shall be distinguished from their copies.[145]

(7) Seventh criterion: identification of the persons who could exercise control of a document

[141] *Ibid*, 110.
[142] *Ibid*.
[143] *Ibid*, 122.
[144] *Ibid*, 125-126.
[145] *Ibid*, 131.

in electronic form.

3) Other Minor Deviations

The Bill has some other insignificant deviations from the MLETR. For example, the MLETR includes two articles about “Writing” and “Signature”. As UK domestic law already provided enough rules addressing these formality requirements, the Law Commission held that it is unnecessary to incorporate these clauses into the Bill.[146]

Generally, the Bill does not deviate too much from the MLETR. It is prudently designed to be compatible with MLETR, British common law and industrial customs.

[146] *Ibid*, 188-193.

ANNEX VI

Overlapping Member States

E-commerce JSI Participants	MLEC (1996)	MLES (2001)	UN Convention on the Use of Electronic Communications in International Contracts (2005)	MLETR (2017)
Albania Argentina Australia Austria Kingdom of Bahrain Belgium Benin Brazil Brunei Darussalam Bulgaria Burkina Faso Cameroon Canada Chile China Colombia Costa Rica Côte d'Ivoire Croatia Cyprus Czech Republic Denmark Ecuador El Salvador Estonia Finland France Georgia Germany Greece Guatemala Honduras Hong Kong, China Hungary Iceland Indonesia Ireland Israel Italy Japan Kazakhstan Kenya Republic of Korea Kuwait, the State of Kyrgyz Republic Lao People's Democratic Republic Latvia Liechtenstein	Australia Bahrain Brunei Darussalam Canada China Colombia Ecuador El Salvador France Guatemala Honduras Hong Kong Ireland Kuwait Lao People's Democratic Republic Malaysia Malta Mauritius Mexico New Zealand Oman Panama Paraguay Philippines Qatar Republic of Korea Saudi Arabia Singapore Slovenia Thailand United Arab Emirates (Abu Dhabi Global Market) United Kingdom of Great Britain United States of America	China Colombia Costa Rica Guatemala Honduras Mexico Nicaragua Oman Paraguay Peru Qatar Saudi Arabia Thailand United Arab Emirates United Kingdom of Great Britain	Bahrain Benin China Colombia Honduras Mongolia Montenegro Panama Paraguay Philippines Republic of Korea Russian Federation Saudi Arabia Singapore	Bahrain Paraguay Singapore United Arab Emirates (Abu Dhabi Global Market)

Lithuania Luxembourg Malaysia Malta Mauritius Mexico Republic of Moldova Mongolia Montenegro Myanmar Netherlands New Zealand Nicaragua Nigeria North Macedonia Norway Oman Panama Paraguay Peru Philippines Poland Portugal Qatar Romania Russian Federation Saudi Arabia Singapore Slovak Republic Slovenia Spain Sweden Switzerland Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu Thailand Türkiye Ukraine United Arab Emirates United Kingdom United States Uruguay				