# FUNCTIONAL EQUIVALENCE TO A PIECE OF PAPER: A COMMENT ON THE UNCITRAL MODEL LAW ON ELECTRONIC TRANSFERABLE RECORDS

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## *I BACKGROUND*

In recent years, the development of electronic commerce in international trade is rapid. Still, using the electronic format of the documents in international trade such as a bill of exchange and a bill of lading has encountered particular difficulties. Developing a legal framework for recognising the electronic form of a "transferable document or instrument"[1] and removing the legal barriers for using electronic documents in international trade became essential. Therefore, the United Nations Commission on International Trade Law (UNCITRAL) mandated its Working Group IV (Electronic Commerce) to undertake work on electronic transferable records (ETRs) in 2011.[2] In July 2017, "The UNCITRAL Model Law on Electronic Transferable Records" (MLETR) was adopted.[3] The

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1 The fundamental distinction between an instrument and a document of title is that an instrument represents money, while a document of title represents goods. See UNICITRAL, UN doc A/CN.9/WG. IV/WP.119, para 8.

2 At its forty-second session, in 2009, UNCITRAL requested the Secretariat to prepare a study on electronic transferable records in the light of proposals received at that session (UN doc A/CN.9/681 and Add.1, and A/CN.9/682). At its forty-third session, in 2010, the Commission requested the Secretariat to convene a colloquium on relevant topics. At its forty-fourth session, in 2011, the Commission mandated the Working Group to undertake work in the field of electronic transferable records. For the origin of the notion "electronic transferable record" see Zvonimir Safranko "The Notion of Electronic Transferable Records" (2016) 3 InterEuLawEast: J Int'I & EurL Econ & Market Integrations 1.

3 The full texts can be seen at the website of UNCITRAL.

MLETR aims at eliminating legal barriers to the use of an electronic form of transferable document or instrument. MLETR defines them as:[4]

> 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.

Most notable transferable documents include bills of exchange, promissory notes, checks, bills of lading, and warehouse receipts but do not include securities such as shares and bonds and other investment instruments. ETRs are electronic substitutes for transferable documents or instruments.

UNCITRAL has prepared some texts in the area of electronic commerce, for example the UNCITRAL Model Law on Electronic Commerce (1996), the UNCITRAL Model Law on Electronic Signatures (2001), the United Nations Convention on the Use of Electronic Communications in International Contracts (2005).[5] These texts confirm the validity of the electronic signature and the evidence effect of electronic communication. The MLETR is the latest effort of the UNCITRAL to establish a uniform law of electronic commerce.

Like the former UNCITRAL works in electronic commerce, the MLETR follows "functional equivalence" and "technology neutrality" principles.[6] The functional equivalence principle was firstly adopted in the UNCITRAL Model Law on Electronic Commerce and is a method to analyse the purpose and function of the traditional requirement, and identify how to implement these functions by electronic technology.[7] In this respect:[8]

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4 See art 2 of the MLETR.

5 The full texts can be seen at the website of the UNCITRAL.

6 "The Working Group engaged in a general discussion about its work and reaffirmed that its work should be guided by the principles of functional equivalence and technology neutrality, and should not deal with matters governed by the underlying substantive law. It was noted that its work should generally be in line with existing UNCITRAL texts, take into account the coexistence of electronic and paper-based business practices, and facilitate conversion between those media." See UNCITRAL, UN doc A/CN.9/768, para 14.

7 UNCITRAL Model Law on Electronic Business, Guiding Line, para 16.

8 UNCITRAL, UN doc A/CN.9/WG. IV/WP.115, para 18.

> A key challenge to be faced in designing a legal regime to accommodate electronic transferable records is to define a functionally equivalent mechanism to address the requirement of uniqueness or singularity of those records.

Because a paper-based document as a physical object is naturally unique, it naturally guarantees the uniqueness of the rights "attached" to the document and the reliability of the transfer of rights with the document. The electronic record is composed of electronic information. The characteristics of electronic information are that it can be easily copied without leaving traces, and it cannot be physically possessed:[9]

> An electronic record generally can be copied in a way that creates a duplicate record identical to the first and indistinguishable from it. Absent special measures or widespread application of technologies today not in common use, there is little or no certainty that any electronic record is unique.

This fact makes the transfer of rights through electronic records unreliable. Making the unreliable reliable is the most challenging part of the technical design of various "electronic transferable records". It is also the most concerning problem in the legislation of electronic transferable records.

The solution to this problem will promote the wide use of electronic transferable records in international trade and profoundly impact the development and reform of traditional laws on transferable documents or instruments in the electronic era. Considering the importance of the transferable documents and instruments in any economy,[10] the potential influence of the MLETR on legal theory and business practice should gain significance.

## *II DELIBERATION BETWEEN TWO LEGISLATIVE APPROACHES*

### *A Two Prevalent Legislative Approaches*

In business, currently, there are two major systems available for the management of electronic transferable records. One is based on the use of electronic registries and is usually called the "registry system". The other is

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9 UNCITRAL, UN doc A/CN.9/WG. IV/WP.115, para 14.

10 Explanatory Note to the UNCITRAL Model Law on Electronic Transferable Records, para 19.

based on electronic tokens, incorporated in the electronic transferable record, and is generally called the "token system".

Corresponding to the business models, two prevalent legislative approaches have been adopted to set forth the functional equivalent rule for the ETRs. One approach is based on "uniqueness", and the other on "control".[11]

Under the "uniqueness" approach, the law requires that an ETR be unique, just as its paper-based counterpart and the transfer of ETR can be realised by surrendering the unique ETR itself.

Under the "control" approach, the existence of a unique ETR is not indispensable. It is required by law to prove the existence of control that can exclude other claims. Such control can be demonstrated by showing ETRs with uniqueness and integrity, or otherwise, by an independent register.

The UNCITRAL Model Law on Electronic Commerce has taken the "uniqueness approach". Article 17 of this Model Law provides that, where it is required to convey the rights under transport documents by using data messages, "that requirement is met… provided that a reliable method is used to render such data message or messages unique".[12] The United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea (Rotterdam Rules) also provides for ETRs in their concrete form.[13]

The "control approach" has been taken in the Uniform Commercial Code (UCC) of the United States. Article 7 of UCC provides that:[14]

> A person has control of an electronic document of title if a system employed for evidencing the transfer of interests in the electronic document reliably establishes that person as the person to which the electronic document was issued or transferred.

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11 UNCITRAL, UN doc A/CN.9/834, para 86.

12 UNCITRAL Model Law on Electronic Commerce, art 17, paras 3 and 4.

13 Rotterdam Rules, article on definitions, and arts 8 and 9.

14 UCC, s 7-106(a).

The existence of a single authoritative document, which is unique, identifiable, and unalterable unless otherwise provided clearly, is deemed as one of the ways rather than the only way or the required way to prove control.

### *B Negotiation on the MLETR*

There were seven drafts of the MLETR before it was adopted.[15] In the first draft WP122, "uniqueness" and "control" were used as two key concepts. A reliable method is required to be used to render an ETR unique. "Unique" was defined as "cannot be reproduced", or an authoritative copy can be identified if the ETR can be reproduced.[16] Uniqueness aims at entitling only one holder of the ETR to the performance of the obligation.[17] "Control" over an ETR is used as the functional equivalent of possession. The person in control of the ETR is considered as a substitute for the holder of a transferable document or instrument. A person has control of an electronic transferable record if a reliable method is used to establish that person as the person to which the electronic transferable record was issued or transferred.[18]

In the course of negotiation, it was pointed out that although "unique" ETR can mimic a unique paper-based document or instrument, there were two problems with this approach. Firstly, it may pose technical challenges. It was argued that it might be technically possible to create a truly unique electronic record. It was even suggested that technologies possibly relevant for achieving technical uniqueness might include digital object identifiers (DOI) and digital rights management (DRM). However, it is very difficult, if not impossible, to transfer that unique electronic record from one person to another online under today's technological conditions. Even if there is such

15 UNCITRAL, UN doc A/CN.9/WG. IV/WP.122, 128, 130, 132, 135, 137, 139.

16 See UNCITRAL, UN doc A/CN.9/WG. IV/WP.122, "Draft art 13. Uniqueness of an electronic transferable record".

17 UNCITRAL, UN doc A/CN.9/761, paras 33-37 and A/CN.9/WG. IV/WP.118, paras 39-50.

18 See UNCITRAL, UN doc A/CN.9/WG. IV/WP.122, "Draft art 17. Control". According to WP122, para 26, draft art 17 was prepared based on s 7-106 (Control of Electronic Document of Title) of the Uniform Commercial Code (UCC) of the United States of America with minor changes.

technology, it is not widely available.[19] So, before the drafting of the MLETR:[20]

> Most existing electronic transferable record laws, however, have been written on the assumption that the problem of guaranteeing the uniqueness of a record cannot be solved at the level of the design of the record itself, or in any event, that the concept of a truly unique electronic record is not a reality, and that a different approach is required.

Secondly, it is said that under the registry system, the register records the entitlements of the ETR for the party who has these rights; there is no reason to require a unique and singular record for these rights, and the requirement is not technologically neutral.[21]

A view was put forward that uniqueness should not be perceived as a quality on its own, and emphasis should instead be on the function that uniqueness achieves. The function of uniqueness is to prevent multiple claims by stopping the circulation of multiple documents or instruments relating to the same performance:[22]

> In this respect, it is important to note that the function of uniqueness or singularity is to provide adequate assurance that only one creditor may claim the entitlement to the performance of the obligation embodied in the document. It is done by eliminating the possibility that multiple enforceable documents embodying the same entitlement could circulate.[23]

It was argued that resorting to the notion of "control" would make it possible not to refer to the notion of "uniqueness", which posed technical challenges.[24]

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19 Normally, under a current "token system", an ETR is deposited in a center. The center holds the ETR as the representative of the holder. If the holder wants to transfer the ETR, he will inform the center and the center will change from representative of the prior holder to the subsequent holder.

20 UNCITRAL, UN doc A/CN.9/WG. IV/WP.115, para 38.

21 UNCITRAL, UN doc A/CN.9/WG. IV/WP. 119, para 31.

22 UNCITRAL, UN doc A/CN.9/WG. IV/WP.128, para 43.

23 UNCITRAL, UN doc A/CN.9/WG. IV/WP. 115, para 18.

24 UNCITRAL, UN doc A/CN.9/804, para 38.

Based on the understanding that uniqueness should not be an end in itself but rather a means to avoid multiple claims based on multiple documents, in WP130, the concept of "uniqueness" was deleted completely.[25] In this draft, "electronic transferable record" was defined as:

> [An electronic record] that entitles the person in control to claim the performance of the obligation [indicated] in the record and that is capable of transferring the right to performance of the obligation [indicated] in the record through the transfer of that record.

While "control" was defined as:

> The [de facto power to deal with or dispose of that electronic transferable record] [power to deal with or dispose of the electronic transferable record factually] [control in fact of the electronic transferable record].[26]

However, although it is argued that the concept of "control" is enough to exclude multiple claims, no agreement can be achieved on how to describe the object of control. If the object of control is "ETR", then only one ETR can exist. If there is more than one ETR, control of one of the ETRs cannot guarantee the singularity of the person's right in control. It had been suggested that the object of control is the "authoritative copy" of ETR. But what makes a copy "authoritative", and how can the other people know this? Besides "authoritative", many other words had been suggested, such as "operative", "definite", but all these words have the same problem. It had also been suggested that the concept of "control" is just an abstract concept used to find "the person in control". But in the context of ETR legislation, it is correct and meaningless to stipulate "using a method to determine the only person in control and that person in control is entitled to the performance". Because the purpose of the whole system of transferable documents or instruments is to determine which method is proper to identify the person entitled to the performance, the law must describe the external features of that person. Eschewing any specifics on how "control" could be achieved makes the requirement of "control" meaningless.

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25 UNCITRAL, UN doc A/CN.9/804, paras 71 and 74.

26 UNCITRAL, UN doc A/CN.9/WG. IV/WP.130, draft art 3.

While the supporters of the "uniqueness" approach cannot explain "how to be unique", the supporters of the "control" approach cannot explain "to control what". This made the negotiation of the MLETR fall into a deadlock.

## *C The Focus of Dispute*

### *1 A method as part of function*

Under the "uniqueness" approach, the uniqueness of the ETR is required. Moreover, reliability is crucial to identify the only person entitled to performance. Under the "control" approach, it requires identifying the only person entitled to performance but is silent on the question of by which method. So, the true difference between the two approaches is that the "uniqueness" approach not only asks for the prevention of multiple claims but specifies the method to prevent multiple claims. In contrast, the "control" approach asks for the prevention of multiple claims but has no specification on the use of which method to prevent.

It is argued that the function of "uniqueness" is to prevent multiple claims, and if there is a method to prevent the multiple claims, uniqueness is not required. But there is a precondition for this argument to be true: there is no difference between the methods to prevent multiple claims.

It is oversimplified to generalise the function of "uniqueness" as prevention of multiple claims. "Uniqueness" indeed has the function to prevent multiple claims. There are other methods to prevent multiple claims. However, not all the methods have the same effect. Presenting a unique paper-based document to prove and transfer the title is a simple but authoritative way to achieve such prevention. A piece of paper is unique and not replicable by its own physical nature. Therefore, the possession of a piece of paper by a person is the ultimate evidence that he is the only person in possession of that paper, which does not need any other supporting evidence and cannot be overturned by other evidence. As a fact, it can be claimed against anybody, and who has the right is visible from appearance. Not all the different methods that are used to prevent multiple claims have the same characteristics as uniqueness. A method can be used to prevent multiple claims only in a closed circle or to a certain degree. For example, some people may agree with each other that they will not challenge the reliability of a specific method to prevent multiple claims, and so make that method "reliable" among themselves, but this agreement will not make that method "reliable" to other people and will not prevent multiple claims absolutely.

## 2 *The emphasis of the method in the traditional law*

The traditional law of transferable documents or instruments insists on the possession of the paper-based document itself. Only the holder, in due course, can claim the right "incorporated" in the document or instrument, and the identity of the holder can be proved only by the possession of the document or instrument. Other methods cannot prove it. There are detailed provisions on the formal requirement of a document or instrument. For example, the way to fill in the transferable instrument, and even the ink that can be used may be regulated by law.[27] Forgery of the paper-based transferable document or instrument may constitute a crime. The whole system of transferable documents relies on the reliability of the document's uniqueness, and the major task of the law is to protect the reliability of the document.[28] That is why an English Judge said that a bill of lading is a document with dignity.

Traditional law emphasises the formal requirement of the transferable document or instrument for good reasons. Legally, a "transferable document" is a title recognition system to recognise the true holder of the title and exclude the other claims.[29] A bill of exchange is a document of title to money, and a bill of lading is a document of title to goods. If a right corresponds to more than one document, these documents enter the market, respectively, and at the end of the transaction, the holders of the documents will have to fight with each other for performance. This situation will undoubtedly destroy an individual's willingness to accept transfers of transferable documents or instruments. Besides, this may also bring financial risks. In a recent case in China, 17 warehouse receipts were issued for one batch of cargo, and these warehouse receipts were used as securities to borrow money from different banks, and the money borrowed was put into the stock market and vanished there. This fraud caused a heavy loss to the

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27 For example, according to art 8 of Negotiable Instruments Law of PRC, the amount of a negotiable instrument shall be written in both Chinese characters and in numerals and the two shall tally with each other, otherwise the negotiable instruments shall be invalid.

28 M Alba "Transferability in the electronic Space at the Crossroads: Is It Really about the Document?" (2013) Creighton International and Comparative Law Journal 5(1).

29 Discrimination between "transferability" and "negotiability" are intentionally avoided in the MLETR to avoid possible conflict with the domestic substantive law. But typical transferable documents or instruments referred to in the MLETR are mostly negotiable in most domestic laws.

banks involved.[30] For the purpose of protecting the good-faith third party, free flow of documents and financial stability, the "one to one" relationship between the right and the document or instrument must be ensured absolutely.

### *3 Regulation on method creates reliability*

There are different title recognition systems in traditional law, such as the title registration systems for interests in real property or the certificate of title system for motor vehicles.[31] All these methods can be used to recognise the holder of the title and exclude the other claims, but are done in different ways. All the systems have their way to ensure the "one to one" relationship between the title recognised and the title that can be realised. For transferable documents or instruments, the reliability of the document or instrument itself is the central element. For the registry system, the authority of the register is the central element.[32] To make a registry system effective, there must be detailed provisions on the conditions to set up a register, the supervision of the register, and the rules to deal with a mistake in registration. Otherwise, the title recognition of the registry will not be as reliable as the possession-based title recognition system of the transferable document or instrument. It is possible to change from a possession-based title recognition system to a registry system. However to do so, regulations must be made to set up the authority of register to get the same effect as the possession-based title recognition system.

The possibility to set forth rules to supervise the registers was considered in the negotiation of the MLETR but was abandoned subsequently. Provisions on "third-party service providers" were included in the previous drafts of the MLETR. It has been suggested that the provisions of this part should be supplemented and improved. For example, the "third-party service provider" can be divided into two types: the third-party service provider providing technical support for the generation and for the transmission of

30 Qingdao warehouse receipt case.

31 Janes Steven Rogers "Negotiability as a System of Title Recognition" 48 Ohio St LJ 197.

32 For example, art 10 of the Property Law of China provides that "the state applies a uniform registration system over real properties." Article 10 of this law provides that "until it is registered in accordance with law, the creation, alteration, alienation or termination of the real right of a real property shall come into effect; unless it is otherwise prescribed by any law, it shall have no effect if it is not registered in accordance with law".

electronic information. The third-party service provider provides proof for the "transfer" of electronic transferable records. The rights and obligations of these two kinds of service providers should be distinguished, and different standards of conduct should be set. However, this proposal was not adopted because these provisions were considered to be regulatory in nature. Finally, for the same reason, the "third-party service provider" provision was completely removed from the MLETR.

Since the registration system is considered to be the only successful ETR system used in practice, it has been given more consideration in the negotiation of the MLETR. Still, it is denied as the only method that needs to be regulated. While the Working Group generally recognised the usefulness of electronic registries, it was suggested that caution should be taken in exploring such an approach. First, it was noted that existing registries were created to address specific needs. For example, the registries established under the Cape Town Convention served the purpose of dealing with highly mobile equipment of significant value. Second, it was suggested that the cost of establishing and operating such registries needed to be carefully considered. Third, a concern was raised that adopting the registry approach should not compromise the principle of technological neutrality.[33] After discussion, the Working Group agreed that, while existing registries operating at national and international levels needed to be taken into account, the registry approach was not to be considered as the only approach available to achieve functional equivalence of electronic transferable records.

The "control" approach was said to be more in line with the situation of a registration system. Still, it lacks supervision on the register, which is the critical part of a registration-based title recognition system. Without the assurance of the "reliability" of the registry system, the regulation of the registration system is elevated. The supervision of the registration system is the reason why the third party can trust the registry. The requirement of "control" is ambiguous and cannot replace the uniqueness requirement for the token system or supervision of the registration requirement for the registry system. It just cannot provide a basis for reliability.

33 UNCITRAL, UN doc A/CN.9/737, para 39.

### *D Balance between "Functional Equivalence" and "Technology Neutrality"*

The real difference between the "uniqueness" approach and the "control" approach is to understand the principles of "technology neutrality" and "functional equivalence" and how to balance the two if there is a conflict. The principle of "functional equivalence" does not require the definition of an electronic equivalence to the paper-based document. In this sense, the "control" approach is right. However, the legal requirement may be different under the "uniqueness" approach and the "control" approach, and the "uniqueness" approach reflects more accurately the functions of a paper-based document or instrument. In this sense, the "uniqueness" approach is right. The "uniqueness approach" was criticised as unattainable and not technology-neutral, while the "control approach" was criticised as unclear and not functional equivalent. The deliberation between the two legislative approaches constituted the mainline of the negotiation of the MLETR.

## *III COMPROMISE OF THE MLETR*

### *A Overview of the MLETR*

The MLETR consists of 4 chapters and 19 articles.

Chapter 1 is "General Provisions", including seven articles (arts 1-7). In this chapter, the scope of application, definitions, interpretation, party autonomy and privity of contract, information requirements, additional information in ETRs, and legal recognition of an ETR are stipulated, respectively.

Chapter 2 is "Provisions on Functional Equivalence", including four articles (arts 8-11). In this chapter, functional equivalence rules are provided for writing, signature, transferable document or instrument and possession. Functional equivalence rules for writing and signature are inspired by the corresponding provisions of UNCITRAL Model Law on Electronic Commerce.[34]

Chapter 3 is "Use of Electronic Transferable Records", including seven articles (arts 12-18). In this chapter, rules are set for general reliability

34 See Explanatory Note, paras 73 and 76.

standards; the indication of time and place in ETRs; place of business, endorsement, amendment, replacement of a transferable document or instrument with an ETR and replacement of an ETR with a transferable document or instrument.

Chapter 4 is "Cross-border Recognition of Electronic Transferable Records", and it has only one article. In this article, non-discrimination of foreign electronic transferable records is stipulated.

### *B "Singularity Approach" of the MLETR*

Article 10 is undoubtedly the key article of the MLETR because it sets forth the requirements that an ETR must meet to get the same legal status as its paper-based counterpart. Article 10 has two paragraphs. Paragraph 1 stipulates as follows:

> 1. Where the law requires a transferable document or instrument, that requirement is met by an electronic record if:
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> (a) the electronic record contains the information that would be required to be contained in a transferable document or instrument; and
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> (b) a reliable method is used
>
> (i) to identify that electronic record as the electronic transferable record;
>
> (ii) to render that electronic record capable of being subject to control from its creation until it ceases to have any effect or validity; and
>
> (iii) to retain the integrity of that electronic record.

According to the explanatory note of the Secretariat, art 10(1)(b)(i) implements the "singularity" approach.[35] Under this approach, a reliable method is required to identify a concrete ETR. This ETR does not need to be unique but must be the only one, and it can entitle the person in control to the performance of obligations embodied in this ETR. No agreement could be reached on how to express the requirement that there shall be only one ETR. In the end, in this article, a qualifier equal to "the only one" is used in Chinese

35 See Explanatory Note, para 94.

and Russian versions,[36] but "the ETR" is used in other official language versions since there is no consensus on which qualifier can be used to express the meaning "the only one" without causing confusion with the word "unique" in these languages. However, it is pointed out in the Explanatory Note that the combination of the article "the" and singular noun in the Arabic, English, French and Spanish language versions suffices to point out that the singularity approach and all six language versions are intended to convey the same notion. It is interesting to see that experts from all over the world cannot find a proper word to express a meaning in the six official languages of the UNCITRAL. However, whether it is the word "only one" in the Chinese and Russian versions or "definite article plus singular noun" in other official language versions, it is sufficient to exclude the possibility of the existence of more than one ETR.

In addition to being "the only one", an ETR should also be capable of being controlled from the time of its creation until it ceases to have any effect or validity, and it should retain its integrity. Paragraph 2 of art 10 sets forth a provision on the assessment of the notion of integrity. It indicates that an ETR retains integrity when any set of information related to authorised changes (as opposed to changes of a purely technical nature) remains complete and unaltered from the time of the creation of the ETR until it ceases to have any effect or validity. Paragraph 2 is inspired by art 8, para 3 of the UNCITRAL Model Law on Electronic Commerce.

Article 11 provides a functional equivalence rule for the possession of a transferable document or instrument. Not following the general naming rule of other articles of the Model Law, this article is named "control" instead of "possession". This is to emphasise the importance of the concept of "control" and the necessity to interpret this notion in light of the international character of the Model Law. According to this article, where the law requires or permits the possession of a transferable document or instrument, the requirement is met with respect to an ETR if a reliable method is used:

(a) to establish exclusive control of that electronic transferable record by a person; and

(b) to identify that person as the person in control. There is no definition of "control" in the MLETR.

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36 In the Chinese version the qualifier used is "单一".

Because "control" is the functional equivalent of the notion of "possession", and there are different definitions of "possession" in different jurisdictions.[37]

The "singularity" approach is a compromise between the "uniqueness" approach and the "control" approach. The compromise was reached after hard negotiation. In fact, even after the final draft of the Model Law, that is, WP 139, was submitted to states for comments, the debate on "uniqueness" and "control" did not stop. Paragraph 67 of the note by the Secretariat of WP139, which described draft art 10, read: "one of the functions of adopting the concepts of 'singularity' and 'control' in the model law is to prevent unauthorised reproduction of electronic transferable records by the system". Germany proposed deleting the words "and control" in the paragraph and replacing it with: "the concept of 'singularity' in the Model Law, one of the functions of which is to prevent unauthorised duplication of electronic transferable records by the system". Germany proposed that art 10 is the core provision to ensure the "singularity" of electronic transferable records. The singularity of the request is the result of the singularity (and authenticity) of the record reflecting the performance obligation.

Control (functionally equivalent to possession) is somewhat different and does not necessarily relate to these concepts. The control must be distinguished from singularity. In any case, consideration must be given to the fact that "singularity" allows for the identification of a particular electronic record that is electronically transferable and entitles the controller to require performance.[38] Contrary to the German view, the United States of America proposed:[39]

> Paragraph 67 of the explanatory note states that one of the functions of "singularity" and "control" is to prevent unauthorised reproduction of electronic transferable records. In this regard, it is important to recognise that while unauthorised reproduction should be prevented, there may still be multiple versions of the data that make up an electronic transferable record. It is "control" that prevents multiple performance requests.

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37 "Control" was defined as "a de facto power" in WP122, but this definition was abandoned in later negotiations. See UNCITRAL, UN doc A/CN.9/WG.IV/WP.122, draft art 1.

38 UNCITRAL, UN doc A/CN.9/921. Opinion of Germany.

39 UNCITRAL, UN doc A/CN.9/921. Opinion of the United States of America.

Unfortunately, there has been confusion between the single nature of the document or record and the single nature of the request. What the Model Law seeks to achieve is the latter. Because the system may keep copies of the data, there may not be a single record. However, concerns raised by this possibility should be addressed by "control", since the concept of control in the draft model law deals specifically with the single nature of requests, which makes it unnecessary to identify a single record to prevent multiple requests. By definition, "control limits the parties who can request electronic transferable records, making it unnecessary to design a system that provides a single record".[40]

However, in the end, neither of the two amendments was adopted, and the draft model law was submitted to the General Assembly as it was before for discussion and final adoption.

### *C Mandatory Nature of the Requirement*

Article 10 and art 11 set forth the "functional equivalent" rules for "transferable document or instrument" and "possession", but do not stipulate clearly the nature of these rules. Since both these articles ask for "a reliable method" used to identify the ETR and to prove the control, and art 12 contains a general reliability standard, it is suggested that the element of party autonomy should be included in art 12. A list of circumstances that may assist in determining reliability is contained in art 12.[41] In the negotiation of this article, it was once suggested to add "agreement of parties" to the list. But in the end, this suggestion was rejected. It is explained in the Explanatory Note that art 12 does not contain an explicit reference to the relevance of an agreement of the parties when assessing reliability and that omission is due to the desire to provide an objective reliability standard and therefore not to make it dependent on party autonomy.[42]

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40 Ibid.

41 See art 12(1)(a). The List includes the operational rules, the assurance of data integrity, the ability to prevent unauthorised access to and use of the system, the security of hardware and software, the regularity and extent of audit by an independent body, the existence of a declaration by a supervisory body, an accreditation body or a voluntary scheme regarding the reliability of the method, any applicable industry standard, etc. This list is illustrative and not exhaustive.

42 See Explanatory Notes, para 138.

Subparagraph (b) of art 12 provides a "safety clause". It refers to the fulfilment of the function in the specific case under dispute and does not aim at predicting future reliability based on the past performance of the method. In practice, the fact that the method used has achieved the function pursued with its use will prevent any discussion on the assessment of its reliability according to subpara (a). Article 12 aims to increase legal certainty by indicating elements that may be relevant in assessing reliability. The assessment of the reliability of each relevant method should be carried out separately in light of the function specifically pursued by the use of that method.

Since art 12 does not leave room for party autonomy to decide the standard of reliability, the supporters of party autonomy turned their eyes to art 4. Article 4 of the MLETR, which is inspired by art 4 of the Model Law on Electronic Commerce, deals with the mandatory nature of the whole law. In drafting this article, two completely opposite views had been put forward on how much space this law should leave for party autonomy. One view is that this law should be basically mandatory, and only a few provisions are and can be amended by agreement of the parties. Another view is that this law should be basically discretionary, and only a few articles are mandatory and cannot be modified by agreement of the parties. In the first draft of the MLETR, it was stipulated that "the provisions of this law may be derogated from or the effect of the agreement may be changed."[43] This provision was inspired by art 4 of the UNCITRAL Model Law on Electronic Commerce and art 3 of the Electronic Communications Convention. It was also pointed out at the remarks of this article that the draft provision may not be proper for ETRs since the use of ETRs would generally entail the involvement of third parties.[44]

In WP137, this provision was divided into two paragraphs. Paragraph 1 states: "the parties may derogate from or change the provisions of this law by agreement, except for article […], unless the agreement is invalid or invalid according to the applicable law." Paragraph 2 states: "no person who is not a party to such an agreement shall be affected by the agreement."[45] Paragraph 2

43 UNCITRAL, UN doc A/CN.9/WG.IV/WP. 122, draft art 5.

44 UNCITRAL, UN doc A/CN.9/WG.IV/WP. 122, remarks 10.

45 UNCITRAL, UN doc A/CN.9/WG.IV/WP. 137, draft art 4.

is intended to show that any derogation or change should not affect third parties, in particular, that the principle of numerous clausus cannot be circumvented for this purpose. There is no objection to this paragraph, but para 1 provoked a lot of controversies. In the MLETR, an opposite expression was adopted. Paragraph 1 of art 4 of the MLETR states: "the parties may derogate from or change the following provisions of this law by agreement: [...]]" It is up to each state, in accordance with its domestic law, to decide which articles should be included after the square brackets in para 1. The structure of the sentence implies that most of the articles of the MLETR shall be mandatory since the discretionary articles shall be listed in the square brackets as an exception. It was once suggested that it be pointed out in the Explanatory Note that "the model law provides for a wide range of party autonomy within the limits of mandatory law and shall not affect the rights and obligations of third parties."[46] However, the reference to "a wide range of" party autonomy was considered misleading and deleted after consultation.

In the Explanatory Note of the MLETR, it is pointed out that this article takes into account two points of view: the autonomy of the parties' will must be within the scope of compulsory law and shall not affect the rights and obligations of third parties. It is explained that UNCITRAL texts on electronic commerce contain some limits to party autonomy in order to avoid conflicts with rules of mandatory application, such as those on public policy. The MLETR recognises party autonomy within the limits of mandatory law and without affecting the rights and obligations of third parties. Some jurisdictions, especially those belonging to the civil law system, recognise the legal principle of the real right of negotiable documents or instruments. The model law does not focus on providing means to circumvent the legal principle of real right. At the same time, the model law does not in any way limit the parties' ability to change substantive law.[47]

It is not clearly stipulated in the MLETR which provision is mandatory, and it is for the enacting jurisdictions to identify them. However, it is clear that it is not for the parties but for the enacting jurisdictions to decide. The form of expression of art 4 gives a clear implication that most articles,

46 UNCITRAL, UN doc A/CN.9/WG.IV/WP. 139.

47 Explanatory Note, para 51.

especially those that may affect the interests of third parties, should be mandatory in nature.

## *IV ACHIEVEMENTS AND LIMITATION OF THE MLETR*

### *A Strict but Attainable Standard*

The "singularity" approach adopted by the MLETR is a new and better approach compared to the two prevalent approaches. Under this new approach, a strict and attainable functional equivalence rule has been set forth for transferable documents or instruments, and it may balance the requirements of "functional equivalence" and "technology neutrality" better.

Unlike the "control" approach, the "singularity" approach asks for the existence of a countable concrete object. Under this approach, the existence of "the ETR" is not one of the ways to prove the existence of "control" but is the only way; "control" is not an abstract concept but is a *de facto* power over "the ETR". When the ETR is a countable concrete object, "single" is both an absolute and an objective description. Whether an electronic record is the only one that can be so identified is a fact. It is impossible to have "relatively single", "single within a certain range", or "agreed single". In this way, the "singularity" of an ETR can provide a solid basis for the reliability that the right "codified" in this ETR is single, just like the "uniqueness" of a paper-based transferable document or instrument can. There are differences, of course. For example, normally whether a piece of paper is unique or not is visible to the naked eye, and can be judged by ordinary people based on their daily life experience, but whether an electronic record is single or not may be more complicated and need to be judged based on complex technical knowledge. Even with these differences, the requirement of a "single" ETR is still specific and clear and can ensure the "one to one" relationship between the ETR and the right incorporated in it.

Unlike the "uniqueness" approach, the "singularity" approach does not put emphasis on the physical existence of an ETR. "Single" is a mathematical notion; it requires that one and only one electronic record can be identified as the ETR at a certain point in time. While it may be impossible to transfer a physically unique ETR online, it is technically feasible to recognise one electronic record as the only one with certain special characteristics. The "singularity approach" is technology-neutral. It focuses on the result but not on the process. It may therefore accommodate the use of all technologies and of all models, such as tokens, registries and distributed ledgers. For token

systems, there is a unique token, and the unique token is naturally the single one. For registry systems, if it can be proved that the register can reliably identify an electronic record as the ETR, it can also meet the requirement of singularity. Normally, transfer control in a registry system only changes the listed identity of the person said to be in control of the ETR. In order to meet the requirement of the MLETR, the register will need to identify not only the person in control but also the ETR subjected to the control of that person. This is an additional requirement, but it is not impossible to meet. For systems using blockchain technique, a blockchain ETR can be created, and it is possible to single out the earliest transfer of a blockchain ETR with the help of some ledger technology, and a digital signature chain can be created. All these steps can ensure the singularity of the blockchain ETR. In an electronic age, the obsession with physical objects may make transferable documents or instruments a "dinosaur" in commercial activities. As long as it can achieve the same reliability and convenience of paper documents to prove the right, there is no substantial difference in which technology mode is adopted. In this sense, the "singularity" approach of the MLETR opens the door to the future. Every system can have its own way to identify the ETR. Although the specific methods or models remain to be completed in the future, the direction of the effort has been pointed out. It is the best trust mechanism that can be created at present.

Unlike "unique", "single" as a mathematical notion may not be obvious at first glance. The MLETR does not point out the method to make an ETR "single"; any method is acceptable as long as it is a "reliable method". And whether a method is reliable should be judged according to art 12. So, the relationship between arts 10 and 12 requires special attention. One way to interpret the relationship is that art 12 of the MLETR sets out the conditions that must be met to make an ETR "single" or "controllable"; if a method meets the conditions set out in art 12, it can obtain the status of an ETR even if an electronic record is not single in fact, or cannot be exclusively "controlled". However, this interpretation is not correct. Article 12 prescribes that the question of whether a method is "reliable" or not, needs to be judged according to the "function" it wants to realise. The function of a piece of paper is as an absolute guarantee of the singularity of the right incorporated into this piece of paper. If one method cannot guarantee the singularity of the right, it is not reliable. Therefore, it is impossible to have a "no single" but "reliable" situation, and there is no so-called "in fact unreliable, but legally

reliable". When a method meets the "reliable" conditions listed in the law, and there is a problem in the actual operation of this method, thus becoming unreliable, then the method is still unreliable in law. If an ETR is actually the only one, then the method is naturally reliable; if an ETR is not unique, then the method is naturally unreliable.

"A reliable method" does not change the absoluteness of "single" and "exclusive", but clearly demonstrates the burden of proof of "singularity" or "exclusive". If a party wants to claim the legal status of an electronic record as an "electronic transferable record", the party should first prove that the "method" used to make the electronic record "single" and "controllable" meets the conditions listed in art 12. The burden of proof then shifts to the party that denies the status of the ETR. The party must prove that it does not meet one or more requirements of art 12 or directly prove that the ETR is not single or cannot be controlled exclusively in order to deny the legal status of the electronic record. Since the conditions for judging whether reliable includes many factors with unclear weights, and what is the "function" to be completed and what is the "reliability" required by the function, subjective judgement is required, so the court has certain discretion. Though art 12 aims at providing guidance on the assessment of the reliability of the electronic transferable records management system in case of dispute ("ex post" reliability assessment), its content will necessarily also influence the design of the system ("ex ante" reliability assessment) since system designers pursue offering the provision of reliable systems.

The "singularity" approach sticks to the principles but is also flexible, and it is a breakthrough in legislative technology.

## *B Importance to the Industry*

### *1 Support of law is needed by the industry*

A strict and attainable "functional equivalence" rule for paper-based documents or instruments is just what the industry needs and will facilitate the use of ETRs in business. Not only can new models be created, the existing business models can also be improved under the guidance of the MLETR.

There is a widespread concern that a strict requirement may hamper the use of ETRs in business because it may challenge the legality of the ETRs

already in use. However, this worry is groundless.[48] Currently, most if not all ETRs in use are operated in "closed systems". An "ETR in closed system" is transferable only in a closed circle of parties to an underlying contract. Whether a method is reliable or not to exclude multiple claims in these "closed systems" is decided by the contracting parties themselves. A "closed system" is established by agreement and works on the agreement. The relevant agreement is governed by contract law. Whether an "ETR in closed system" is recognised as an ETR or not will not affect its legality. In fact, there is no complaint that the current law affects the working of "closed systems", although ETRs in these systems do not meet the legal requirement of traditional law on a paper form of transferable document or instrument.[49] The real headache of "ETRs in closed circle" is that they are not widely accepted in business. For example, the first experiment of "electronic bill of lading in closed circle" began as early as the 1980s, but although the electronic bill of lading has many advantages over the paper-based bill of lading,[50] the prospect of the former replacing the latter is still far away.

What really affects the popularisation of "ETRs in closed systems" is not the law but the lack of function. "ETRs in closed systems" are not real ETRs in the sense that the scope within which they can transfer is limited. An ETR equivalent to a transferable document or instrument should be transferable in an open system, that is, freely transferable. The scope of transferability decides the value of the ETRs. Current international trade modes such as symbolic delivery and documentary letter of credit rely on the free circulation of bills of exchange and bills of lading. The paper-based bill of lading has

48 UNCITRAL, UN doc A/CN.9/WG IV/WP128. It was added that, while party autonomy could suffice to establish reliability standards in closed systems, there still was a need for the draft provisions to set out reliability standards applicable to open systems. On the other hand, it was stated that the presence of a general reliability standard could hamper use of electronic transferable records as legal consequences of failure to meet those standards were not clear. It was further indicated that caution should be exercised so as not to make the draft provisions untenable in practice.

49 Just to the contrary, most of the existing ETR systems always assure their users that there is no legal barrier to their working. In 1997-1999, study on the difficulties, effects and evolvement of Bolero was carried out. Eighteen significant or for some reason representative jurisdictions were selected. The study showed that there is no legal barrier to the working of BOLERO bill of lading in all these jurisdictions.

50 According to an investigation, paper bill of lading processing cost is 3 times as much as electronic bill of lading processing.

long been recognised as a freely transferable document of title[51] and is used extensively in maritime trade.

It is not uncommon that a batch of cargo has been resold on sea many times through the transfer of a bill of lading before the cargo arrives at the destination. It is also a common practice to pledge the cargo in transit to banks through the transfer of a bill of lading. The buyers and the banks are not necessarily in a contractual relationship with the shipper of the goods before the goods departed from the departing port. It is the bill of lading's function as a transferable document of title that gives the buyers and bankers confidence to pay for it and makes it such a useful document. While most property titles are transferable, only the transfer via transferable documents or instruments can achieve convenience, speed and stability.[52] The key element of the transferable documents or instruments system is not the transfer of rights but the way to transfer rights.[53] If a contract must be signed before a right can be transferred, and the transfer can only happen in a closed circle, this will frustrate the original intention of the transferable document or instrument.

### *2 The standard cannot be lowered by law*

"ETRs in closed systems" cannot replace the paper-based transferable document or instrument because of the lack of ability to transfer freely. Might the law however lower the standard to recognise "ETRs in closed systems" as true ETRs? Because the singularity of claim in "ETR in closed system" is guaranteed by the contract, it may not meet the true singularity standard of

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51 While the transfer of the bill of lading serves as a symbolic transfer of the possession of the goods, it does not necessarily transfer the property in the goods, because such property passes to the buyer as stipulated in the contract of sale. UN Conference on Trade and Development, 31 July 2001, *Electronic Commerce and International Transport Services* 32 UN doc TD/B/COM.3/EM.12/2.

52 Today, any simple monetary debt is freely assignable - indeed, it is often not possible even by explicit contractual provisions to make a simple monetary debt non-assignable. Restatement (second) of Contracts s 322 (1979); UCC s 2-210(2) ("A right arising out of the assignor's due performance of his entire obligation can be assigned despite agreement otherwise."); UCC s 9-318(4) ("A term in any contract between an account debtor and an assignor is ineffective if it prohibits assignment of an account . . . or requires the account debtor's consent to such.") See J S Rogers "Negotiability as a System of Title Recognition" (1987) 48 Ohio St LJ 197.

53 RC Clark "Abstract Rights versus Paper Rights under Article 9 of the Uniform Commercial Code" (1975) 84 Yale LJ 445.

law. A strict assurance of "singularity of claim" is the basic requirement of ETR law.

Firstly, this is the requirement of the "functional equivalence" rule. Basically, what legislation guided by the principle of functional equivalence does is to give the ETR the same legal status as a paper-based transferable document on the condition that their functions are the same. By their very nature, only electronic transferable records in an "open system" are truly functionally equivalent to paper-based transferable documents. All paper-based transferable documents are transferable in an open system.

Secondly, this is the requirement of the fundamental legal theory of transferable documents or instruments. The authoritativeness deriving from the uniqueness of a paper-based document or instrument is critical to realise the value of the paper-based transferable document or instrument, because such authoritativeness creates universal confidence in the value of the paper-based transferable document or instrument. People believe that a title can be "locked" in a piece of paper and can be transferred with the surrender of the piece of paper and pay for the piece of paper based on this belief. It is in this sense that a document is transferable. In order to make the document transferable, there must be a guarantee that the document is unique. Because it is "traded as a token representing a specific value", people pay for the ETRs in order to get money or cargo, not in order to win a suit. To lower the standard will do harm to the interests of the buyers of ETRs and the financial order of the society. And it will also have an adverse effect on the practice of paper-based transferable documents since the ETR, and the paper-based transferable document can be transformed the one into the other.

Thirdly, this is the requirement of fairness. To lower the standard of an ETR will discourage the attempt of the business to find a way to meet the legal requirement. Besides, those who can meet the standard will not have the support of the law as their authority will not be confirmed by law. An electronic record that does not meet the requirement of ETR legislation just means that it is not an ETR in the legal sense, but it does not mean that it is illegal. An "ETR transferable in a closed circle" does not have the value of a freely transferable document and cannot take the place of the latter. It shall not be granted the legal status of a "transferable document", but it can go on to operate on the basis of a contractual arrangement.

In the paper environment, "transferability" is realised through "singularity of claim" guaranteed by the "strict formalism" requirement. In the electronic environment, because "paper" does not exist, and "strict formalism" is no longer meaningful, the law must set additional conditions to complete the task of ensuring "singularity of claim". From "unique" to "control" and then to "single plus control", the most important thing is not the change of wording, but the different attitudes towards the strictness of the standard of "functional equivalence". "Uniqueness" is a strict standard for "functional equivalence", while "control" is a loose standard. As a compromise, "single plus control" lies in the middle. It is flexible, but it is also enough to establish a strict and clear "functional equivalence" requirement.

### *C Limitations of the MLETR*

As a result of compromise, the MLETR inevitably uses some vague expressions, leaving room for different interpretations. The most important of these vague expressions is art 10(1)(b)(i). Only two official language versions adopt a specific word to express the requirement of "the only one" in this article. The other four official language versions eschew the use of a specific word but use "definite article plus singular noun" to express the same meaning. It is a pity that no specific word has been found to express the same meaning in the six official language versions. Without understanding the negotiation process of this article, it is easily misunderstood. Moreover, in the process of adopting the model law as domestic law, there are great variables in how countries will express this. Another article worth attention is art 4. This article leaves the assessment of the mandatory nature of provisions to the enacting jurisdiction in order to accommodate differences in legal systems. Although it is suggested that enacting jurisdictions should carefully consider the possibility of allowing derogation from the fundamental principles underlying the Model Law and, in particular, from functional equivalence rules, and the consequences thereof, the MLETR does not make it clear which article of this model law is relevant to the fundamental principles. This uncertainty may seriously damage the unification of laws pursued by the MLETR.

In addition, the MLETR takes the form of a model law rather than a convention. The model law advocated is not binding. This may also weaken its effectiveness in unifying national legislation. Variance in the enactment of the Model Law may significantly disrupt uniformity. In order to achieve the

expected results of the MLETR, it is important to carry out follow-up publicity, research and implementation.

## *V CONCLUSIONS*

The "singularity" approach is the most important achievement of the MLETR. This new approach provides a strict but attainable functional equivalence rule to a paper-based document or instrument and solves the problem of "what to believe" in an electronic era. The negotiation of the MLETR reaffirmed that "reliability" must be supported by an authority. A paper-based transferable document or instrument is physically unique by its nature and can be used as conclusive evidence to prove the singularity of the right "codified" in it. The reliability of the singularity of the right is the basis of transferability of the document or instrument, and transferability is the basis of the economic value of the transferable document or instrument. Uniqueness is a technical challenge for ETRs. The MLETR changes the physical nature to mathematical rules and so creates a new technical route to meet this requirement. A mathematical rule can be absolute and objective, just as the physical nature. In this way, the "singularity approach" follows the rules of "functional equivalence" and "technological neutral" better than the former approaches.

The change from "uniqueness" to "singularity" may look simple, but it is a compromise reached after hard negotiation and is a breakthrough in ETR legislation. The technology and business practice of ETR are still at a preliminary stage. It is extremely difficult at this stage to set a clear set of legal requirements for ETRs, which can clear the legal barriers to the use of ETRs and at the same time protect the legal order of the transferable document or instrument. Caution must be taken to avoid the prevention of the development of new technology and business models. However, the legal requirement on the degree of reliability cannot be relaxed. The MLETR has established a proper standard of functional equivalence and has reached a compromise among different technical routes, different business models and different national interests. It is absolutely important progress in e-commerce legislation and will have a positive impact on international trade.

The MLETR is just one of the efforts to promote the use of ETRs. Many other efforts have been made. For example, there is an effort to create an

industry standard for ETRs.[54] At the same time, the COVID-19 crisis has made the demand for electronic formating of paper-based documents or instruments more urgent.[55] Bahrain has already adopted the MLETR and is the first country to do so. Whether and how other countries will adopt the MLETR remains to be seen, but some countries have already started to investigate the possibility of adopting the MLETR.[56] The success of the MLETR depends on the attitudes of the countries. Considering the importance of ETRs and the progress the MLETR has made, it is suggested that this Model Law deserves to be welcomed and valued.

54 For example, DCSA proposes to set up an industry standard for eBL in container shipping. "If we start on standardising eBL now, we have reason to believe a 50 per cent adoption rate is feasible by 2030." See "DCSA takes on eBL standardisation, calls for collaboration".

55 Peru, for example, has declared to reject paper-based bill of lading because of the outbreak of COVID-19.

56 The amendment of China Maritime Code is now under discussion, and one suggestion is to add rules for electronic bill of lading according to the MLETR. Another country which has expressed strong interest in the MLETR is Singapore.