



# General Assembly

Distr.: Limited  
17 August 2012

Original: English

**United Nations Commission  
on International Trade Law  
Working Group IV (Electronic Commerce)  
Forty-sixth session  
Vienna, 29 October-2 November 2012**

## **Legal issues relating to the use of electronic transferable records**

### **Note by the Secretariat**

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## **I. Introduction**

1. This note provides an overview of key legal issues relating to the creation, use and transfer of electronic transferable records. It does not aim at addressing substantive legal issues that would apply regardless of the medium used.

## **II. Scope of work**

2. As to the scope of work, the Working Group, at its forty-fifth session, agreed that a broad approach should be taken, taking into consideration all possible types of electronic transferable records, while leaving open the possibility to differentiate the treatment of those records, when so desirable.<sup>1</sup> However, at the forty-fifth session of the Commission (25 June-6 July 2012, New York), the desirability of identifying and focusing on specific types of or specific issues related to electronic transferable records was mentioned.<sup>2</sup>

3. Taking note of the decision and suggestion mentioned above, the Working Group may wish to discuss the scope of work at a later stage when it has been able to identify the relevant issues and has had the opportunity to address them. The Working Group may also wish to consider the actual needs of the relevant industries.

### **A. Electronic transferable records**

4. The term “electronic transferable record” generally refers to the electronic equivalent of both a transferable instrument and a document of title. The term electronic transferable “record” is used instead of “document” to highlight its digital nature.

5. “Transferable instrument” generally refers to a financial instrument that may contain an unconditional promise to pay a fixed amount of money to the holder of the instrument, or an order to a third party to pay the holder of the instrument. Examples of transferable instruments may include promissory notes, bills of exchange, cheques and certificates of deposit. “Document of title” generally refers to a document which, in the regular course of business or financing, is treated as adequately evidencing that the person in its possession is entitled to receive, hold and dispose of the document and the goods indicated therein, subject to any defences to enforcement of the document. Examples of documents of title may include bills of lading and warehouse receipts.<sup>3</sup>

6. A key common feature of transferable instruments and documents of title is the possibility to “transfer” the entitlement to the performance referred to in the instrument or document with the physical transfer of the paper support on which the instrument or document is reproduced. An additional common feature, at least in

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<sup>1</sup> A/CN.9/737, para. 22.

<sup>2</sup> *Official records of the General Assembly, Sixty-seventh session, Supplement No. 17* (A/67/17), para. 83.

<sup>3</sup> A/CN.9/WG.IV/WP.115, para. 3.

some jurisdictions, is that those paper-based instruments or documents are usually issued individually and not en masse.<sup>4</sup>

7. However, fundamental differences exist among the various legal systems on the treatment of transferable instruments and documents of title. For instance, the law may limit the freedom of parties in devising such instruments so that, to be valid, they must conform to predefined models (numerus clausus rule).

8. While the terms “transferable” and “negotiable” have been used jointly in venerable case law precedents,<sup>5</sup> their use has subsequently given rise to significant discussion on the distinction between the two.<sup>6</sup> It may generally be said that “transferability” refers to the possibility to transfer entitlement to performance together with the possession over the instrument or document, while “negotiability” provides the holder of the instrument or document with a more valid title to performance than the one of the transferor, to the extent that the law limits the exceptions to the enforcement of the negotiable document vis-à-vis the good faith bearer of the negotiable document.<sup>7</sup>

9. Yet, whether an instrument or document is “transferable” or “negotiable” pertains to the applicable substantive law. In the past, uniform texts had been prepared to address substantive issues, namely: (i) the Convention Providing a Uniform Law for Bills of Exchange and Promissory Notes (Geneva, 1930),<sup>8</sup> (ii) the Convention Providing a Uniform Law for Cheques (Geneva, 1931)<sup>9</sup> and, (iii) the United Nations Convention on International Bills of Exchange and International Promissory Notes (New York, 1988).<sup>10</sup> It should also be noted that the notion of negotiability and in particular, its relevance for the use of electronic records, has been challenged.<sup>11</sup>

10. Existing legislation dealing with electronic transferable records varies in scope and approach. In some cases, provisions have been adopted enabling the general use of electronic transferable records, at least in theory. In other cases, a sectoral approach has been adopted dealing, in particular, with the use of electronic transferable records in the financial and transport sectors.

11. The following legislations deal with financial transactions: (i) the Electronically Recorded Monetary Claims Act (Act No. 102 of 2007, “ERMCA”) of Japan;<sup>12</sup> (ii) the Act on Issuance and Negotiation of Electronic Bills of Exchanges and Promissory Notes (Act No. 7197 of 22 March 2004, and subsequent amendments) of the Republic of Korea; (iii) article 7 (Documents of Title) of the

<sup>4</sup> A/CN.9/WG.IV/WP.116, Section 1(a).

<sup>5</sup> *Lickbarrow v. Mason* (1794) 5 T. R. 683, p. 685.

<sup>6</sup> For a summary of the discussion on the use of the term transferable and negotiable and their distinction, see Torsten Schmitz, “The bill of lading as a document of title”, *Journal of International Trade Law and Policy*, Vol. 10 No. 3, 2011, p. 255, at pp. 262-263.

<sup>7</sup> A/CN.9/737, paras. 51 and 53.

<sup>8</sup> League of Nations, *Treaty Series*, vol. 143, p. 257.

<sup>9</sup> League of Nations, *Treaty Series*, vol. 143, p. 355.

<sup>10</sup> United Nations Sales Publication No. E.95.V.16 (treaty not into force).

<sup>11</sup> Ronald J. Mann, Searching for Negotiability in Payment and Credit Systems, 44 *UCLA L. Rev.* (1997), 951.

<sup>12</sup> ERMCA came into force in Japan on 1 December 2008, for the purposes of facilitating businesses’ financing activities. Electronically recorded monetary claims refer to monetary claims for which electronic records in the registry are required for their assignment.

Uniform Commercial Code (UCC) of the United States of America; (iv) article 9 (Secured Transactions) of the UCC; (v) section 16 of the Uniform Electronic Transactions Act (UETA)<sup>13</sup> of the United States; and (vi) title 7 (Agriculture) of the Code of Federal Regulations of the United States of America, particularly the part dealing with electronic warehouse receipts (Part 735: Regulations for the United States Warehouse Act).

12. Other significant developments are as follows: (i) in Australia, upon review of its Bills of Exchange Act 1909 in July 2003, which aimed at addressing requests from industry for legislation enabling dematerialised bills of exchange and promissory notes, there was substantive discussion on the potential use of electronic transferable records.<sup>14</sup> As to options for reform, a statutory approach based on functional equivalence was recommended; (ii) in Brazil, article 889 of the Brazilian Civil Code (Law No. 10.406 of 10 January 2002) dealing with documents of title (Dos Títulos de Crédito) includes a separate provision dedicated to electronically-generated instruments;<sup>15</sup> and (iii) in China, Administrative Rules for the Operation of Electronic Commercial Bill of Exchange as well as Administrative Rules for Electronic Commercial Draft System (ECDS) were adopted in 2009<sup>16</sup> and in October 2009, ECDS was put into operation by the People's Bank of China, supporting the development of commercial draft business and facilitating the reduction of processing costs and risks.

13. The use of electronic transferable records in developing countries focuses on electronic warehouse receipts, which are considered an effective means to provide financing to farmers therefore contributing, in the long term, to food security on a more predictable and sustainable basis.<sup>17</sup> Article 11 of the Warehousing (Development and Regulation) Act, 2007 of India explicitly foresees the use of warehouse receipts in electronic format.<sup>18</sup> However, article 2 of the Warehousing

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<sup>13</sup> The UETA was prepared by the National Conference of Commissioners on Uniform State Laws of the United States of America. It has been enacted by forty-seven states, the District of Columbia, Puerto Rico, and the Virgin Islands.

<sup>14</sup> Working Group of Officials, National Competition Policy Review of the Bills of Exchange Act 1909, July 2003 and available at <http://archive.treasury.gov.au/documents/688/PDF/Final%20Bills%20of%20Exchange%20Act%20Review.pdf>.

<sup>15</sup> Paragraph 3 of article 889 states that the instrument may be issued from characters created on a computer or equivalent technical medium and appearing in the records of the issuer, provided compliance with the minimum requirements set forth in that article. However, as to the interpretation of that paragraph, some experts have cautioned that it does not necessarily enable the issuance of electronic transferable records, but rather simply recognizes that negotiable instruments may be originally prepared in electronic form, then followed by “materialization” in non-electronic form. Such interpretation relies on the definition set forth in article 887 of the Brazilian Civil Code, which qualifies the instrument as a “document”, generally associated with non-electronic media.

<sup>16</sup> See 2009 Annual Report of the PBC, pp. 62, 68, 78. Available at [www.pbc.gov.cn/image\\_public/UserFiles/english/upload/File/Annual%20Report%202009.pdf](http://www.pbc.gov.cn/image_public/UserFiles/english/upload/File/Annual%20Report%202009.pdf).

<sup>17</sup> Henry Gabriel, Warehouse Receipts and Securitization in Agricultural Finance, *Uniform Law Review/Revue de droit uniforme* 2012, p. 369.

<sup>18</sup> The Act came into force with effect from 25 October 2010 (full text of the Act is available at [http://dfpd.nic.in/fcamin/sites/default/files/userfiles/Warehouse\\_Act\\_2007.pdf](http://dfpd.nic.in/fcamin/sites/default/files/userfiles/Warehouse_Act_2007.pdf)). Besides mandating the negotiability of warehouse receipts, the Act prescribes the form and manner of registration of warehouses and issue of negotiable warehouse receipts including in electronic format and prescribes the establishment of the Warehousing Development and Regulatory

Development and Regulatory Authority (Negotiable Warehouse Receipt) Regulations, 2011 currently excludes from its scope negotiable warehouse receipts in the electronic form.<sup>19</sup> In Brazil, the Agribusiness Certificate of Deposit (CDA) and Agribusiness Warrant (WA), which may exist in electronic form, have been developed in the agricultural sector to commercialize stocks deposited in warehouses and they may exist in an electronic form.<sup>20</sup>

14. The development of warehouse receipt systems has emerged as an important means of improving the performance of agricultural marketing systems in Africa and electronic warehouse receipts are becoming popular in certain African states. The Ethiopia Commodity Exchange Proclamation No. 550/2007 (A Proclamation to Provide for the Establishment of the Ethiopia Commodity Exchange) provides for electronic warehouse receipts system<sup>21</sup> and similar regimes exist in Ghana, South Africa and Uganda. For example, in 2004, the South African Futures Exchange (SAFEX) announced that it would accept electronic as well as paper-based warehouse receipts for settlement of future contracts.<sup>22</sup>

15. The following legislation deals with the use of electronic transferable records in the transport sector: (i) article 862 of the revised Commercial Act and implementing legislation enabling the use of electronic bills of lading of the Republic of Korea (the “electronic bill of lading legislation of the Republic of Korea”)<sup>23</sup> and (ii) article 7 (Documents of Title) of the UCC. Also of relevance are

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Authority (WDRA), a regulatory body under the Act. It was predicted that the introduction of the negotiable warehouse receipt system will not only help farmers avail better credit facilities and avoid distress sales but also safeguard financial institutions by mitigating risks inherent in credit extension to farmers. The pledging/collateralisation of agricultural produce with a legal backing in the form of negotiable warehouse receipts was expected to increase the flow of credit to rural areas, reduce cost of credit and spur related activities like standardization grading, packaging and insurance and in the development of a chain of quality warehouses (see <http://pib.nic.in/newsite/erelease.aspx?relid=66574>).

<sup>19</sup> Full text of the Regulations is available at <http://wdra.nic.in/>.

<sup>20</sup> CDA and WA, created by Law No. 11.076/04, are credit instruments pegged to the production deposited in warehouses. CDA represents the promise of delivery of deposited goods, and WA grants the lien right on the goods described in CDA. Those instruments are twins, in that they are issued in the same moment and refer to the same lot of goods. They are issued by the depository of goods that belong to the owners of the stocks or to the successive buyers of those instruments. It must be registered and held in an entity authorized by the Central Bank. From that moment on the negotiation of the instruments necessarily becomes electronic. The WA allows its holder to pledge the product as collateral for a bank loan, while the CDA allows its holder to sell the goods, without any tax being due until the owner of the instruments, as economic agent, effectively desires to use the stored product for processing or sale.

<sup>21</sup> Full text of the proclamation is available at [www.ecx.com.et/downloads/rules/ecexproclamation.pdf](http://www.ecx.com.et/downloads/rules/ecexproclamation.pdf).

<sup>22</sup> Sarel F. du Toit, Reflections on Bills of Lading and Silo Receipts used in the South African Futures Market, 2 *Journal of International Commercial Law and Technology* 3 (2007) 105; Gideon Onumah, Promoting Agricultural Commodity Exchanges in Ghana and Nigeria: A Review Report, Report to UNCTAD, pp. 8-9; Gideon Onumah, Implementing Warehouse Receipt System in Africa – Potential and Challenges prepared for the Fourth African Agricultural Markets Program Policy Symposium (6-7 September 2010, Malawi), text available at [www.aec.msu.edu/fs2/aamp/sept\\_2010/aamp\\_lilongwe-onumah-warehouse\\_receipt\\_systems.pdf](http://www.aec.msu.edu/fs2/aamp/sept_2010/aamp_lilongwe-onumah-warehouse_receipt_systems.pdf); Ghana Grains Council Warehouse Receipt System Rules and Regulations, article 26(3): “GGC Warehouse Receipts shall be paper or electronic documents”.

<sup>23</sup> A/CN.9/692, paras. 26-47.

(i) articles 16 (Actions related to contracts of carriage of goods) and 17 (Transport documents) of the 1996 UNCITRAL Model Law on Electronic Commerce (Model Law on Electronic Commerce);<sup>24</sup> and (ii) chapter 3 and other relevant provisions of the 2008 United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea (the “Rotterdam Rules”).<sup>25</sup>

16. The Legislative Assembly of Ontario introduced the Electronic Commerce Amendment Act, 2012 (“Bill 96”) in May 2012 to facilitate the use of electronic means in real estate transactions.<sup>26</sup> If adopted, Bill 96 will amend the Electronic Commerce Act, 2000 of Ontario (S.O. 2000, Chapter 17: an act inspired by the Model Law on Electronic Commerce, 1996)<sup>27</sup> and enable the use of electronic transferable records equivalent to documents of title, although not the use of those equivalent to negotiable instruments.<sup>28</sup>

17. Notwithstanding the sectoral approaches mentioned above, adopting a broader definition of electronic transferable records for the purpose of discussion at the Working Group would allow for a more comprehensive approach to its work. A useful starting point might be article 2, paragraph 2, of the 2005 United Nations Convention on the Use of Electronic Communications in International Contracts (Electronic Communication Convention)<sup>29</sup> which sets out the types of transferable instruments or documents excluded from the scope of that Convention. Under such an approach, electronic transferable records may refer to “the electronic equivalent of 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”.

18. Moreover, the fact that the treatment of electronic payments and electronic money would generally not fall under the above-mentioned scope may need further clarification, as they may be correlated with electronic transferable records for practical and operational purposes.

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<sup>24</sup> United Nations publication, Sales No. E.99.V.4. Articles 16 and 17 of the Model Law on Electronic Commerce have been enacted in national legislation, for example articles 26 and 27 of Law 527 (1999) of Columbia and articles 31 and 32 of Decree No. 47 of Guatemala (2008). However, those provisions do not seem to find application in practice.

<sup>25</sup> United Nations publication, Sales No. E.09.V.9.

<sup>26</sup> Available at [www.ontla.on.ca/web/bills/bills\\_detail.do?locale=en&Intranet=&BillID=2644](http://www.ontla.on.ca/web/bills/bills_detail.do?locale=en&Intranet=&BillID=2644).

<sup>27</sup> Available at [www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_00e17\\_e.htm#BK37](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_00e17_e.htm#BK37).

<sup>28</sup> Subsection 31 (1), paragraph 5, of the Electronic Commerce Act states that the Act does not apply to negotiable instruments and Bill 96 does not contain any proposals to amend this paragraph.

<sup>29</sup> United Nations Publication, Sales No. E.07.V.2.

## B. Management of electronic transferable records

19. Currently, there are at least two systems available for the management of electronic transferable records. One, which is more prevalent in practice, is based on the use of electronic registries (“registry-based system”). The other is based on the use of electronic tokens, incorporated in the electronic transferable record (“token-based system”).<sup>30</sup>

20. A registry-based system is based on the establishment of a registry that contains information about the electronic transferable records. Similar to registries established for the assignment of title or ownership rights, the registry would indicate the identity of the owner of the electronic transferable record and transfer of the electronic transferable record would be reflected in the registry. Such a registry-based system satisfies the control requirement (see below paras. 51-61) by ensuring the identification of a sole owner of the record and of the rights incorporated in that record at any time.

21. A token-based system may be described as being more similar to operation in a paper-based system. It is based on the identification of the original and unique record that can be recognized as such by software or a technology and can therefore be transmitted from one information system to another without losing any of the aforementioned qualities. In this way, it is possible to replicate the approach taken in the paper-based environment in the electronic environment, whereby the transfer of an electronic transferable record involves the transfer of the record itself (or of the control of the record).

22. In both systems, the determination of the existence of the electronic transferable record, its qualities and its effects, as well as its ownership and transfer, is based on the exchange of information. Again in both systems, in order for an electronic transferable record (recognized as original and authentic) to be transferred, control of that record must be transferred.

23. While a system-neutral approach should be adopted to the extent possible, a number of the provisions compiled hereinafter refer to the operation of registry-based systems. Therefore, preparation of specific provisions for such a system could be desirable, yet remindful of the principle of technological neutrality.

24. With respect to registry-based systems, the following questions would need to be addressed: (i) whether they would operate at a national or an international level;<sup>31</sup> (ii) whether the registry would be tailored to specific types of electronic transferable records or would encompass multiple types;<sup>32</sup> and (iii) whether a registry-based system adopting a specific technology could accommodate all types of electronic transferable records and operate in States with varying levels of available information and communication technology.<sup>33</sup>

25. As to those questions, existing examples of relevant national registries show that each registry is tailored to a single type of electronic transferable record. In some instances, more than one registry may exist for the same type of electronic

<sup>30</sup> A/CN.9/WG.IV/WP.116, Section 3.

<sup>31</sup> A/CN.9/737, para. 72.

<sup>32</sup> Ibid., para. 73.

<sup>33</sup> Ibid., para. 74.

transferable record, which, for instance, is the case for electronically recorded monetary claims in Japan. However, the possibility of designing an electronic registry capable of managing multiple types of electronic transferable records should not be discarded.

### **III. Legal issues with respect to electronic transferable records**

26. Currently, there is no internationally accepted, generalized and harmonized legal framework addressing the various issues involved in the use of transferable instruments or documents of title (apart from the texts mentioned above in para. 9) including the use of their electronic equivalent, electronic transferable records.<sup>34</sup>

27. National legal frameworks are necessary to enable and facilitate the use of electronic transferable records and to generate confidence in its users. Lack of such provisions has prevented the development of practice in this area.<sup>35</sup>

28. The following part discusses the challenges and obstacles arising from the use of electronic transferable records, which would need to be addressed in an international or national legal framework on electronic transferable records. It also provides a general overview of the life cycle of such records and various methods for identification of the holder.

#### **A. Creation and release of electronic transferable records**

29. In a paper-based environment, transferable instruments and documents of title may be easily issued directly by the issuer. Yet, the modalities for release<sup>36</sup> of their electronic equivalent would depend on the system chosen. Whereas electronic transferable records may be released directly by the issuer in a token-based system, a registry-based system would require a third-party registry operator. Therefore, the issuer would need to submit a request for the release of the electronic transferable record to the registry operator.

30. For instance, under section 9-105 (Control of Electronic Chattel Paper) of the UCC, an electronic chattel paper is created when the secured party communicates the authoritative copy of that electronic chattel paper to the designated custodian (i.e. the registry operator). The debtor does not create the electronic transferable record directly, though its consent is necessary for the use of electronic means.

31. Requesting the release of an electronic transferable record may be an obligation for the issuer. For instance, under article 35 of the Rotterdam Rules, the shipper may be entitled to receive from the carrier a negotiable electronic transport record, in which case, if a registry-based system is adopted, the carrier would be

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<sup>34</sup> Ibid., para. 14.

<sup>35</sup> Ibid., para. 46.

<sup>36</sup> The term “release” of an electronic transferable record is used to refer to the technical step of putting that electronic record into circulation, while the terms “issuance” and “issuer” are used in their well-established meaning under applicable substantive law. The Working Group may wish to consider whether to proceed with using the term “release” for electronic transferable records.



obliged to request the release of that electronic negotiable transport record to the registry operator.

32. This approach has been implemented in the electronic bills of lading legislation of the Republic of Korea, which has opted for a registry-based system.<sup>37</sup> Under that legislation, the carrier needs to submit a request to the registry operator in order to release an electronic bill of lading, and that request also constitutes the authorization to issue an electronic bill of lading.

33. Article 15 of ERMCA provides that electronically recorded monetary claims accrue by way of making an accrual record. To do so, both the debtor (i.e. electronically recorded claim obligor) and the creditor (i.e. electronically recorded claim holder) have to make the request to the registry<sup>38</sup> and the registry generates the record.<sup>39</sup> This means that the generation of a record, instead of the manifestation of intention, is the necessary condition for the creation of electronically recorded monetary claims.

34. With respect to the content of the electronic transferable record (i.e. the information contained therein), a common rule demands that the record shall contain the same substantive information required for its paper-equivalent. At a general level, requesting more substantive information for electronic transferable records would be contrary to the principle of non-discrimination of electronic communications. Terms and conditions may be incorporated in the electronic transferable record by reference, in line with the provision contained in article 5 bis of the Model Law on Electronic Commerce.

35. However, there are instances where certain information may be omitted in the paper-based document, but not in the electronic transferable record. For instance in the Republic of Korea, the release of blank promissory notes is allowed if the document is paper-based,<sup>40</sup> but it is forbidden if in an electronic form.<sup>41</sup>

36. Information may be contained in an electronic transferable record, but not in its paper-equivalent, due to its electronic nature. While some of that information may be of a technical nature only, the consent of the parties to the use of the electronic form is a substantive element. In fact, the law may allow a general agreement on the use of electronic means, or may require specific consent to the issuance of each electronic transferable record.

37. In some cases, additional information may be available only in the electronic transferable record due to its dynamic nature, as opposed to the static one of paper-based documents. For instance, the location of a vessel at a given moment may be relevant for certain commercial documents and may be verified through automated systems able to locate and track that vessel.

38. Information contained in the electronic transferable record may be used for purposes other than the management of that record. For example, electronic bills of

<sup>37</sup> A/CN.9/692, paras. 30-32.

<sup>38</sup> Article 5(1) and 7 of the ERMCA.

<sup>39</sup> Article 7(1) of the ERMCA.

<sup>40</sup> Article 10 of the Bills of Exchange and Promissory Notes Act, Act No. 1001 of 1962, and subsequent amendments.

<sup>41</sup> Article 6, paragraph 6, of the Act Relating to the Issuance and Negotiation of Electronic Promissory Notes.

lading may be used to submit information to the national electronic single window facility, according to a model that is currently being tested in the Republic of Korea. In addition, information contained in financial instruments may be aggregated to monitor credit exposure and the dematerialization of the financial instrument could simplify the collection of data. Article 87, paragraph 1, of ERMCA provides that interested parties of the record may request disclosure of the data of the record. Furthermore, paragraph 2 of that article permits data use by those who are not interested parties as long as those who requested the generation of the record had agreed at the time of request. For example, the rating agencies or investors may make requests for disclosure of the data of the record according to that provision.

## **1. Uniqueness**

39. An issue particularly relevant to electronic transferable records is the need to satisfy the functional equivalence of the paper-based concept of “uniqueness” (or singularity). “Uniqueness” is guaranteed for transferable instruments and documents of title to prevent the circulation of multiple records relating to the same performance, which may result in a sum of money being paid or goods delivered to a party not entitled to that payment or delivery.

40. Uniqueness is a requirement that should be satisfied independently of the effective circulation of the electronic transferable record. In fact, the issuance of multiple electronic transferable records, all of them presented to the debtor by their first holder, would equally expose the debtor to multiple requests for performance and to the possibility of payment or delivery to a party not entitled.

41. It has often been noted that concerns regarding the guarantee of uniqueness arise from the fact that an electronic record generally can be copied in a way that creates a duplicate record identical to the first and thus, indistinguishable from it.<sup>42</sup> Moreover, electronic copies may be produced in large quantity, in a short period of time and at limited cost.

42. However, it should also be noted that paper-based documents do not always provide an absolute guarantee of uniqueness. In fact, it may not be possible to find a single legislative definition of uniqueness. Furthermore, fraud based on illegal duplication of those documents is common.<sup>43</sup> Additional issues may arise due to difficulties in collecting a full set of paper-based documents for presentation if more than one original has been issued. Hence, setting a higher standard of uniqueness for electronic transferable records in order to address the concerns mentioned above and to maximize security might be discriminatory when compared to the level of security offered by their paper-based equivalent, and may ultimately hinder the diffusion of those electronic transferable records in business practice.

43. Currently, two approaches are available to satisfy the functional equivalent of uniqueness in an electronic environment. One approach is based on technical

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<sup>42</sup> A/CN.9/WG.IV/WP.115, paras. 14 and 36.

<sup>43</sup> For example, Clayton P. Gillette & Steven D. Walt, *Uniformity and Diversity in Payment Systems*, 83 Chicago-Kent Law Review 499 (2008), at 529, compare security of two concurrent payment systems, paper-based checks and debit card transactions. They find a fraud ratio of 6:1, i.e., losses due to fraud were six times more frequent in check transactions than in debit card transactions, in the year 2004. The average value of losses was also significantly higher for check transactions than for debit card transactions.

uniqueness, i.e. the assurance that the electronic record may not be reproduced. Yet, such assurance may not be technologically feasible for electronic records, as it is not for paper-based documents. In theory, it may be technically possible to create a truly unique electronic document that cannot be copied (at least without the copy being distinguishable as a copy) and that can be transferred. If and when technology that is capable of ensuring the uniqueness of an electronic record and of enabling its transfer is widely available, it would provide a basis for rendering an electronic record unique. Technologies possibly relevant for achieving technical uniqueness might include digital object identifiers (DOI) and digital rights management (DRM).<sup>44</sup>

44. Another approach relies on the designation of an authoritative copy, providing sufficient guarantee of uniqueness. Designating an authoritative copy of an electronic transferable record may address concerns regarding the integrity of the record (i.e. establishing “what” the holder has an interest in) without the need for absolute guarantee of the existence of a unique record. This approach is currently prevalent both in system-neutral legislation and in legislation utilizing a registry-based system.<sup>45</sup> The designation of an authoritative copy of the electronic transferable record may take place through different methods, namely, based on storage in a specific secure system, and based on verifiable content or location.<sup>46</sup> That designation may occur in a registry-based system or in a token-based system, according to the technology used.<sup>47</sup>

45. As noted, one of the methods for the designation of an authoritative copy is based on the existence of a specific secure system, i.e. an electronic registry, where the registry operator assigns a unique identification number at the moment of the creation of an electronic transferable record. The unique identification number does not per se provide assurance of uniqueness, but the system ensures that each unique identification number is matched with only one corresponding record. This approach is used in the ERMCA of Japan,<sup>48</sup> the electronic bill of lading legislation of the Republic of Korea,<sup>49</sup> and in the electronic warehouse receipt legislation of the United States of America.<sup>50</sup>

46. A system-neutral approach is adopted in the UCC, the provisions of which deal with uniqueness in the context of the requirements to establish control, respectively,

<sup>44</sup> A/CN.9/WG.IV/WP.115, para. 37.

<sup>45</sup> Ibid., paras. 37-38.

<sup>46</sup> Ibid., para. 40.

<sup>47</sup> A/CN.9/WG.IV/WP.116, section 3.

<sup>48</sup> Article 16(1)(vii) of ERMCA.

<sup>49</sup> A/CN.9/692, para. 31.

<sup>50</sup> Code of Federal Regulations, Title 7: Agriculture, Part 735-Regulations for the United States Warehouse Act, Subpart D-Warehouse receipts, Section 735.303(b)(5).

over electronic documents of title<sup>51</sup> and electronic chattel papers.<sup>52</sup> The safeguards aiming at ensuring uniqueness under that approach consist of the ability of the system to create a single authoritative copy that is unique and identifiable, the possibility for the person asserting control over the single authoritative copy of the electronic transferable record of controlling the issuance of any non-authoritative copy thereof, and the ready ascertainability of any copy of the single authoritative copy of the electronic transferable record and of any amendment thereto as such.

47. A hybrid approach seems to have been adopted in the legislation relating to electronic promissory notes of the Republic of Korea. Article 8 of the Presidential Decree on the Issuance and Negotiation of the Electronic Promissory Note<sup>53</sup> deals with the functional equivalence of the electronic promissory note. In particular, paragraph 2 of that article indicates that the electronic promissory note shall be accompanied by a device that does not permit the creation of duplicate copies. The electronic promissory notes system of the Republic of Korea is managed through a registry (“UNote”).<sup>54</sup> However, that registry system interacts with users through the electronic banking network, due to the fact that electronic promissory notes are

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<sup>51</sup> UCC Section 7-106 Control of Electronic Document of Title

(a) 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.

(b) A system satisfies subsection (a), and a person is deemed to have control of an electronic document of title, if the document is created, stored, and assigned in such a manner that:

- (1) a single authoritative copy of the document exists which is unique, identifiable, and, except as otherwise provided in paragraphs (4), (5), and (6), unalterable;
- (2) the authoritative copy identifies the person asserting control as:
  - (A) the person to which the document was issued; or
  - (B) if the authoritative copy indicates that the document has been transferred, the person to which the document was most recently transferred;
- (3) the authoritative copy is communicated to and maintained by the person asserting control or its designated custodian;
- (4) copies or amendments that add or change an identified assignee of the authoritative copy can be made only with the consent of the person asserting control;
- (5) each copy of the authoritative copy and any copy of a copy is readily identifiable as a copy that is not the authoritative copy; and
- (6) any amendment of the authoritative copy is readily identifiable as authorized or unauthorized.

<sup>52</sup> UCC Section 9-105. Control of Electronic Chattel Paper

A secured party has control of electronic chattel paper if the record or records comprising the chattel paper are created, stored, and assigned in such a manner that:

- (1) a single authoritative copy of the record or records exists which is unique, identifiable and, except as otherwise provided in paragraphs (4), (5), and (6), unalterable;
- (2) the authoritative copy identifies the secured party as the assignee of the record or records;
- (3) the authoritative copy is communicated to and maintained by the secured party or its designated custodian;
- (4) copies or revisions that add or change an identified assignee of the authoritative copy can be made only with the participation of the secured party;
- (5) each copy of the authoritative copy and any copy of a copy is readily identifiable as a copy that is not the authoritative copy; and
- (6) any revision of the authoritative copy is readily identifiable as an authorized or unauthorized revision.

<sup>53</sup> Presidential Decree No. 18637 of 31 December 2004 and subsequent amendments.

<sup>54</sup> Additional information is available at [www.unote.or.kr](http://www.unote.or.kr).

issued, endorsed and paid through that network. Therefore, the registry system may benefit from additional trust arising from the fact that electronic banking clients are subject to strict identification procedures, and use authentication and authorization methods conferring a higher level of security. A higher level of assurance over the identity of the users may have a positive impact on the risks associated with the notion of uniqueness of the electronic transferable record.

48. Other methods of dealing with uniqueness are also available. One of them is adopted in the Check Clearing for the 21st Century Act (the “Check 21 Act”) of the United States of America. The Check 21 Act facilitates check truncation, i.e. the suppression of the paper-based check in favour of an electronic copy during the check collection process. More precisely, it allows for the creation of a negotiable instrument, called “substitute check”, replacing the paper-based check. The substitute check is actually also paper-based, and represents the print out of the electronic image of the original paper-based check. The Check 21 Act declares the substitute check equivalent to the original check for all purposes.

49. The Check 21 Act deals with uniqueness by demanding the bank that transfers, presents, or returns a substitute check and receives consideration for that check to warrant to other interested parties that they will not receive presentment or return of the substitute check or of the original check, in any form, and therefore will not be asked to make a double payment (section 5). Hence, the mechanism to ensure uniqueness is based on allocation of risk, and not on a legal standard reliably assuring uniqueness of the document. Furthermore, it aims at ensuring the uniqueness of the performance of the debtor rather than the uniqueness of the document entitling that performance.

50. An alternative approach to electronic check truncation may be found in the Imaged Cheque Clearing and Archive System (ICAS) recently developed by the Bank of Thailand. While the purpose and mechanism of ICAS is generally similar to that of the Check 21 Act, ICAS is being implemented without adoption of dedicated legislation, relying solely on the Electronic Transactions Act of Thailand that represents an enactment of the Model Law on Electronic Commerce.<sup>55</sup>

## **2. Control of the electronic transferable record**

51. The concept of “control” over an electronic record is used in most legal systems dealing with electronic transferable records as the functional equivalent of “possession”. That is, the person in control of the electronic transferable record is considered the holder capable of enforcing the electronic transferable record. Where control of an electronic transferable record is used as a substitute for possession, transfer of control serves as the substitute for delivery of an electronic transferable record, just as delivery (plus endorsement where required) serves as transfer of a paper-based document.

52. In short, the ability to transfer the electronic transferable record and of the performance embodied therein is referred to as “control”. Whereas the rights embodied in an electronic transferable record are governed by the substantive law

<sup>55</sup> Bank of Thailand, Imaged Cheque Clearing and Archive System, sub. 9, available at [www.bot.or.th/English/PaymentSystems/PSServices/ChequeClearingSys/ICAS/Pages/ImagedCheque.aspx](http://www.bot.or.th/English/PaymentSystems/PSServices/ChequeClearingSys/ICAS/Pages/ImagedCheque.aspx).

applicable to that electronic transferable record, the discussion below focuses on the concept of “control” equivalent to that of possession for paper-based documents.

53. Existing legislation enabling the use of electronic transferable records through control over that record may be divided into three groups. The first group is drafted in a manner accommodating both paper-based documents and electronic records. The second group provides generic rules for recognizing functional equivalence between paper-based documents and electronic records. The third group implements the notion of control based on a registry-based system. Therefore, while the first two groups are system-neutral, the third one is not.

54. The Rotterdam Rules offer an example of the first group of legislation where the definition of document of title contained in the substantive law (i.e. the Rotterdam Rules themselves) already foresees media-neutrality. Article 1 (paragraphs 21 and 22) of the Rotterdam Rules indicates that the notion of control is closely related to both issuance and transfer of the negotiable electronic transport record.<sup>56</sup> Article 9, paragraph 1, of the Rotterdam Rules further provides a general rule to establish functional equivalence between possession of a paper-based document and control over an electronic record.<sup>57</sup>

55. Section 7-106 (Control of Electronic Document of Title) of the UCC is an example of the second group of legislation.<sup>58</sup> That provision establishes the functional equivalence between control in the paper-based environment (normally exercised with actual or constructive possession of the paper-based document) and control in the electronic environment by using a system that reliably establishes an entity to which the electronic transferable record was issued or transferred (i.e., the holder). To do so, the system must provide for the existence of a single authoritative copy, which is the functional equivalent for the notion of uniqueness. Moreover, the system must reliably identify the first holder of the electronic transferable record, or the transferee.

56. As section 7-106 (b)(3) of the UCC permits the authoritative copy to be communicated and maintained by the person asserting control or its designated custodian, the provision is compatible with the registry-based system, where the designated custodian would be the registry operator, and with the token-based system, where the person asserting control could communicate and maintain the copy either on its own or through a third-party custodian. As already noted above (see para. 46 above), section 7-106 (b)(4)-(6) of the UCC details certain conditions to achieve and maintain uniqueness of the electronic transferable record.

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<sup>56</sup> Article 1, paragraph 21. The “issuance” of a negotiable electronic transport record means the issuance of the record in accordance with procedures that ensure that the record is subject to exclusive control from its creation until it ceases to have any effect or validity.

Article 1, paragraph 22. The “transfer” of a negotiable electronic transport record means the transfer of exclusive control over the record.

<sup>57</sup> Article 9, paragraph 1. The use of a negotiable electronic transport record shall be subject to procedures that provide for:

- (a) The method for the issuance and the transfer of that record to an intended holder;
- (b) An assurance that the negotiable electronic transport record retains its integrity;
- (c) The manner in which the holder is able to demonstrate that it is the holder; and
- (d) [...].

<sup>58</sup> *Supra* note 51.

57. The details of the implementation of the system foreseen above have been discussed in the literature with regard to section 9-105 of the UCC, containing a similar provision applicable to electronic chattel papers.<sup>59</sup> It is important to stress that the determination of the factual existence of those elements establishing control should not aim at absolute perfection: rather, it is a matter of achieving a sufficient degree of reliability. That determination should examine the intersection of law and technology to ascertain whether the system used, in its human and technological components and in the related processes, offers that sufficient level of reliability.

58. More detailed parameters for the evaluation of the reliability of a system for the management of electronic transferable records may come from the consideration of all applicable provisions. In other words, rules such as those contained in section 7-106 of the UCC need to be completed and specified with contractual provisions, as well as voluntary industry standards, co-regulatory tools, etc.

59. A third group of legislation is based on the use of electronic registries. In closed systems, such as those of electronic registries, the legislation assumes that uniqueness of the record and adequate identification of the party may suffice to entitle the holder to transfer the electronic transferable record. Control as such may not be specifically addressed, but is implicit in the mechanisms set for the operation of the registry. For instance, article 9, paragraph 2, of the ERMCA of Japan states that the electronically recorded person<sup>60</sup> shall be presumed to legitimately hold the right to the electronically recorded monetary claim pertaining to the electronic record in question.

60. A similar approach is adopted in the legislation on electronic bills of lading and on electronic promissory notes of the Republic of Korea.<sup>61</sup> In particular, article 6, paragraph 3, of the Act on Issuance and Negotiation of Electronic Bills of Exchanges and Promissory Notes indicates that, when the issuer signs the electronic promissory note with a digital certificate, that note shall be regarded as being duly stamped or signed pursuant to article 75, paragraph 7, of the Bills of Exchange and Promissory Notes Act. This provision, which seems to be technology specific with respect to electronic signatures, establishes control based on identification and guarantee of uniqueness equivalent to that provided by an electronic registry.

61. Specific provisions may be envisaged for the case of multiple holders, so that control could be exercised jointly or separately according to applicable substantive law. The existence of multiple debtors, jointly and severally liable, seems to pose fewer challenges to the extent that those debtors do not need to exercise control. However, as they may be involved in the circulation of the electronic transferable record (e.g. as recipients of notices) dedicated provisions may also be useful.

<sup>59</sup> Working Group on Transferability of Financial Assets, Framework for Control over Electronic Chattel Paper — Compliance with UCC § 9-105, 61 *The Business Lawyer* (2006), 2.

<sup>60</sup> The term "electronically recorded person" in ERMCA means the person recorded in the monetary claims record as the obligee or pledgee of the electronically recorded monetary claims.

<sup>61</sup> A/CN.9/692, para. 32.

### 3. Identification of the issuer and of the first holder

62. For the creation of the electronic transferable record to be effective, the identification of the issuer and of the first holder of the record is necessary. In fact, the functional equivalent of possession should identify the sole holder entitled to performance and exclude all other persons from demanding performance.<sup>62</sup> The system should also identify with a similar level of reliability the debtor, if such identification is necessary under applicable law.

63. The reliability of the mechanisms for the identification, authentication and authorization of the holder of that record (so-called “level of assurance”) is of paramount importance to ensure the acceptance of electronic transferable records in business practice. However, it seems also relevant to note that, similarly to what takes place in the paper-based environment, trust among parties to an electronic transaction is based on a number of factors, including some relating to the transaction itself such as its value, and others relating to the relationship between the parties, including past exchanges and direct interaction. Those considerations apply to all phases of the life cycle of the electronic transferable record.

64. In a paper-based environment, the issuer would create the document and identify in that document the first holder, unless the document is supposed to circulate anonymously (“to bearer”). In an electronic environment, these operations may not necessarily be replicated in the same exact terms due to technical requirements. For instance, if the system relies on the services provided by a third party, such as a registry operator, that third party will release the electronic transferable record on behalf of the issuer.<sup>63</sup> Moreover, anonymity might not be allowed or achievable in an electronic environment, and therefore, such electronic transferable records might not be issued to bearer.<sup>64</sup>

65. Thus, in the legislation on electronic bills of lading of the Republic of Korea, which has opted for a registry-based system, the carrier submits a request to the registry operator for the release of the electronic bill of lading.<sup>65</sup> However, article 5, paragraph 1, of the ERMCA of Japan demands a request from both the electronically recorded claim holder and the electronically recorded claim obligor. The latter approach may ensure that all parties agree on the use of electronic means.

66. The reliable identification, authentication and authorization of the parties involved in the creation of the electronic transferable record, as well as in the subsequent phases of its life cycle, are critical to build confidence in the system. At least in part, the matter is currently dealt with by the law on electronic signatures. That law could leave to the parties to determine the adequate level of authentication, or enumerate the requirements for authentication.<sup>66</sup> The UNCITRAL Model Law on Electronic Signatures, 2001, may provide initial guidance on the issue.

67. It should be noted that registry-based systems typically presuppose a strong offline identification of the users admitted to those systems. On the other hand, token-based systems may not require or foresee specific previous identification of

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<sup>62</sup> A/CN.9/737, para. 66.

<sup>63</sup> Ibid., para. 59.

<sup>64</sup> Ibid., para. 34.

<sup>65</sup> A/CN.9/692, para. 30.

<sup>66</sup> A/CN.9/737, para. 69.



the parties, requiring reliable identification only at the time of the transaction involving the electronic transferable record. Future developments in the field of identity management could be particularly relevant in this respect.

68. Existing legislation on electronic transferable records refers to general provisions on electronic signatures, rather than setting specific standards.<sup>67</sup> In certain cases, it might be possible to benefit from additional authentication elements available from other information technology systems. For instance, the legislation on electronic promissory notes of the Republic of Korea relies on the intermediation of banks for the identification of the bank accounts of the parties involved in the issuance and transfer of the electronic promissory notes. The Bolero system also allows users to become members through their banks.<sup>68</sup> In these cases, the possibility to use identification factors extrinsic to the electronic transferable records may significantly increase the level of assurance.

69. In current practice, especially for high-value transactions, due to legislative or contractual choice, the use of PKI-based technologies seems prevalent. However, if legislation on electronic signatures prescribes the use of specific technologies, difficulties in cross-border recognition of those electronic signatures may arise. Such difficulties may be avoided with the adoption of adequate provisions, similar to article 12 of the Model Law on Electronic Signatures and article 9, paragraph 3, of the Electronic Communications Convention.

70. Due consideration should be given to the system architecture chosen. In fact, under certain approaches, users may be requested to register with the system operator before being granted access to the system. In that case, the desirability of providing guidance on standards for identification of the parties by the system operator might need to be considered.

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<sup>67</sup> See for example, legislation on electronic bills of lading of the Republic of Korea on the choice for a PKI-based system for electronic signatures (A/CN.9/692, para. 28).

<sup>68</sup> [www.bolero.net/en/home/enrolment.aspx](http://www.bolero.net/en/home/enrolment.aspx).