



General Assembly

Distr.: General
22 March 2011

Original: English

**United Nations Commission
on International Trade Law**
Forty-fourth session
Vienna, 27 June-15 July 2011

Present and possible future work on electronic commerce

Note by the Secretariat

Contents

	<i>Paragraphs</i>	<i>Page</i>
II. Report on the colloquium on present and possible future work on electronic commerce (<i>continued</i>)	1-86	2
C. Electronic transferable records	1-30	2
D. Electronic single window facilities	31-66	6
E. Other topics	67-86	12



II. Report on the colloquium on present and possible future work on electronic commerce (*continued*)

C. Electronic transferable records

1. Possible work by UNCITRAL on the negotiability and transferability of rights in goods in an electronic environment was first mentioned at the Commission's twenty-seventh session, in 1994,¹ and subsequently discussed in various sessions of the Commission and of Working Group IV.² Two documents have dealt in depth with substantive aspects of the topic.
2. Document A/CN.9/WG.IV/WP.69 (of 31 January 1996) discussed both electronic and paper bills of lading and other maritime transport documents. It provided an overview of attempts to deal with bills of lading in the electronic environment and made suggestions for model legislative provisions that were eventually adopted as articles 16 and 17 of the UNCITRAL Model Law on Electronic Commerce.³
3. Furthermore, that document contained a preliminary analysis of the conditions for establishing the functional equivalence of electronic and paper bills of lading, highlighting as a key issue the possibility to identify with certainty the holder of the bill, which would be entitled to delivery of the goods. Such issue brought into focus the need to ensure the uniqueness of an electronic record incorporating the title to the goods.⁴
4. Document A/CN.9/WG.IV/WP.90 (of 20 December 2000) discussed general legal issues relating to transfer of rights in tangible goods and other rights. It offered a comparative description of the methods used for the transfer of property interests in tangible property and for the perfection of security interests, and of the challenges posed by the transposition of those methods in an electronic environment. It also provided an update on initiatives using electronic means for the transfer of rights in tangible goods.
5. With respect to documents of title and negotiable instruments, document A/CN.9/WG.IV/WP.90 stressed the desirability to ensure control over the electronic transferable record in a manner equivalent to physical possession, and suggested that a combination of a registry system and adequately secure technology could assist in ensuring the singularity and authenticity of an electronic record.⁵
6. The most recent update on the use of electronic communications for the transfer of rights in goods, including with respect to the use of registries for the creation and transfer of rights, was provided in document A/CN.9/692, paras. 12-47.

¹ *Official Records of the General Assembly, Forty-ninth Session, Supplement No. 17 (A/49/17)*, para. 201.

² See A/CN.9/484, paras. 87-93; *Official Records of the General Assembly, Fifty-sixth Session, Supplement No. 17 (A/56/17)*, paras. 291-293. For an historical record of previous sessions, see A/CN.9/WG.IV/WP.90, paras. 1-4.

³ United Nations publication, Sales No. E.99.V.4.

⁴ A/CN.9/WG.IV/WP.69, para. 92.

⁵ A/CN.9/WG.IV/WP.90, paras. 35-37.

7. The discussion on electronic transferable records at the colloquium began with a general illustration of the effects of the transfer of documents of title on property and contract law. Reference was made to previous discussions on the topic and to the documents cited above.

8. It was explained that, since documents of title might affect third parties, paper-based systems referred to notions such as “possession” and “holdership” that presupposed the existence of a physical document. Therefore, the challenge consisted in transposing such notions in the electronic world by defining equivalents able to achieve the same results of paper documents.

9. In that line, it was added that paper had been chosen as a support for documents of title due to its features that allowed, for instance, easy record-keeping and circulation of the document. Therefore, the need to establish criteria for equivalence for each function fulfilled by paper documents was highlighted.

10. It was said that under a functional-equivalence approach it might be preferable to adopt a broad and flexible standard that could satisfy all the functions of the paper document in the electronic environment rather than separate standards aiming at fulfilling each function of the paper document. It was also said that, while drafting the requirements for functional equivalence of electronic transferable records, attention should be paid not only to commercial needs but also to regulatory requirements.

11. It was added that a thorough analysis should assess the actual market demand for electronic equivalents. As an example, it was explained that, while attempts to produce electronic cheques were made in the early times of dematerialization, a combination of wider use of other payment systems (such as credit cards and electronic wire transfers) and of regulations mandating identification of the parties made the use of electronic cheques unnecessary. At the same time, the use of paper cheques significantly decreased and was discontinued by law in some jurisdictions. Similar considerations might be made with respect to the use of traveller’s cheques. (For the evolution in trade practice with respect to electronic letters of credit, see below, paras. 67-76.)

12. It was further explained that, due to the effects on third parties, the creation and circulation of documents of title could be subject to compliance with statutory provisions. However, most jurisdictions had not yet adopted statutes allowing the use of electronic means in that field. Therefore, explicit rules needed to be adopted to enable the use of those means.

13. Moreover, it was recalled that the use of electronic transferable records in cross-border trade would greatly benefit from the adoption of uniform standards for functional equivalence in the various jurisdictions and from the uniform interpretation of those standards.

14. It was further recalled that technology neutrality should be assured to accommodate innovation, and that interaction with third parties’ rights imposed a particularly high standard of legal clarity and predictability.

15. It was illustrated that existing legislative examples relating to electronic transferable records often referred to the notions of “singularity” or “uniqueness” and of “control”. That was the case, for instance, of the Comité Maritime International (CMI) Rules for Electronic Bills of Lading, rule 4; of the UNCITRAL

Model Law on Electronic Commerce,⁶ article 17, paragraphs (3) and (4), and of United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea (the “Rotterdam Rules”),⁷ article 1, paragraphs (21) and (22), and articles 50 and 51.

16. It was added that a presumption of originality with respect to presentation of electronic records could be found in rule 4.15 (b) of the Rules on International Standby Practices (ISP98) and in article e8 and of the electronic supplement to the Uniform Customs and Practice for Documentary Credits (e-UCP 500).⁸

17. It was noted that, due to technical reasons, uniqueness in electronic records was not reflected in the existence of a single record but rather of a single claim to the rights incorporated in the electronic transferable document.

18. Furthermore, reference was made to existing contractual systems for the creation and transfer of negotiable documents of title such as the Bolero Title Registry and the ESS-Databridge™ eDocs Exchange. It was explained that such systems were closed in nature, i.e. access to those was subject to previous acceptance of contractual terms contained, respectively, in the Bolero Rulebook and the ESS-Databridge Services & Users Agreement. In both cases, English law was the law governing the contract. However, since English law did not contain any specific provision for electronic documents of title, contractual rights were transferred through novation while attornment⁹ was used to transfer the title to property.

19. On the other hand, it was added that the law in the United States of America contained provisions on electronic documents of title. In particular, reference was made to the Uniform Commercial Code (UCC) articles 7-106 (Control of Electronic Document of Title), 7-501 (b) (Warehouse Receipts and Bills of Lading: Negotiation and Transfer) and 9-105 (Control of Electronic Chattel Paper), as well as section 16 (Transferable Records) of the Uniform Electronic Transactions Act (UETA), 1999, and section 201 of the Electronic Signatures in Global and National Commerce Act, 2000. That legislation made use of the notions of “single authoritative copy” and of “control” to establish the conditions for equivalence to the notions, respectively, of “holdership” and “possession”.

20. It was further explained that section 16 UETA set a general rule establishing that a party “ha[d] control of a transferable record if a system employed for evidencing the transfer of interests in the transferable record reliably establishes that person as the person to which the transferable record was issued or transferred”, and that that general rule was complemented by a description of specific conditions that, when met, would satisfy the general rule and therefore were associated with a presumption of control of a transferable record. It was noted that article 7-106 UCC

⁶ United Nations publication, Sales No. E.99.V.4.

⁷ United Nations publication, Sales No. E.09.V.9.

⁸ ISP98, rule 4.15 (b): “Presentation of an electronic record, where an electronic presentation is permitted or required, is deemed to be an ‘original’”. See also J. Byrne and D. Taylor, *ICC Guide to the eUCP — Understanding the electronic supplement to the UCP 500* (Paris, ICC, 2002), pp. 121-122.

⁹ Attornment is “a constructive delivery involving the transfer of mediate possession while a third party has immediate possession”: *Black’s Law Dictionary*, third pocket edition (St. Paul (MN), Thomson-West, 2006), p. 54.

had been amended in 2003 and article 9-105 UCC had been amended in 2010 to follow the approach adopted in section 16 UETA.

21. It was explained that the approach adopted in section 16 UETA had the advantage of being fully technology-neutral and therefore compatible with different technologies and models, including both open and closed systems. It was clarified that that approach could also accommodate systems based on registries. It was further explained that the amendment of article 9-105 UCC was enacted as a response to requests from the auto financing industry to foster wider use of electronic chattel papers. It was explained that a paramount consideration in the acceptance of electronic chattel papers in that business sector related to sufficient assurance to chattel paper financiers that superpriority would not be affected by the electronic nature of the record.

22. More generally, it was indicated that the possibility to act when an electronic transferable record was used as collateral was of key importance for business. In this line, the necessity to take into consideration the requirements related to the securitization of electronic transferable records was also expressed.

23. With respect to technical solutions, it was explained that systems for the management of electronic transferable records could be categorized under two models: the registry model and the transaction platform model.

24. It was illustrated that the registry model allowed for the creation, issuance and transfer of the record based on information transmitted to and recorded in a central registry. Access to the registry might be controlled and might be subject to acceptance of contractual provisions.

25. It was further illustrated that the transaction platform model used technology that was capable of ensuring the uniqueness of the electronic record and of enabling its transfer. As a result, the entity controlling the object could be identified as the holder of the electronic transferable record with all associated entitlements. It was suggested that technologies possibly relevant for transaction platform models included digital object identifiers (DOI) and digital rights of management (DRM).

26. It was explained that the concept of DOI referred to a unique set of numbers that could identify contents of an electronic document, including an electronic transferable record, by providing a persistent link to that document's location in the digital environment. Thus, DOI could ensure persistent identification of an electronic transferable record in case of changes, e.g., when the electronic transferable record was transferred from one information system to another. It was further indicated that the information contained in the electronic transferable record linked to the DOI might be updated after the issuance of that document to reflect variations in the real world, for instance in the location or condition of goods relevant for that electronic transferable record.

27. It was stressed that legislative provisions should strictly adhere to the principle of technology neutrality so as to accommodate all possible present and future models.

28. It was indicated that a critical element in the acceptance and diffusion of electronic transferable records related to their acceptance by third parties, which, in turn, depended on the level of trust. It was further said that existing models and legislative provisions assumed the existence of a provider of trust services whose

liability needed special consideration. For instance, in the case of registry systems the registry operator could be made liable for certain issues relating to negligence in the operation and malfunctioning of the system; in the case of transaction platform models, those profiles of liability could be allocated to software providers.

29. It was indicated that, while electronic transferable records could offer more benefits than their paper equivalents, those benefits would be particularly significant in the framework of the progressive integration of electronic documents in the paperless cross-border trade chain. The notion of electronic single window facility could provide a practical example of infrastructure enabling paperless cross-border trade. Therefore, in addition to the preparation of legal provisions for electronic transferable records, the development of an adequate infrastructure was of great importance for the successful use of those records.

30. In conclusion, it was indicated that the cross-border use of electronic transferable records called for the discussion of various complex legal aspects of electronic transactions and that UNCITRAL was uniquely positioned in terms of expertise and composition to undertake such work.

D. Electronic single window facilities

31. Pursuant to the requests of the Commission, the Secretariat has engaged in a number of activities related to the legal aspects of the design and operation of national and cross-border single windows for customs operations (“electronic single windows”). Such activities have taken place mainly in the framework of the meetings of the WCO-UNCITRAL Joint Legal Task Force on Coordinated Border Management incorporating the International Single Window (the “Joint Legal Task Force”).¹⁰ Additional relevant activities include cooperation with other bodies, such as the secretariat of the Eurasian Economic Community, and providing comments, at the request of the United Nations’ Centre for Trade Facilitation and Electronic Business (UN/CEFACT), on UN/CEFACT recommendation 35 “Establishing a legal framework for international trade Single Window”.¹¹

32. Given the relevance of work in this field for possible future on electronic commerce, a session of the colloquium was devoted to issues relating to electronic single windows, also in connection with other topics discussed at the colloquium.

33. That session was opened by an illustration of the work of UN/CEFACT International Trade & Business Processes Group on International Trade Procedures (TBG 15). It was explained that the mandate of TBG 15 was to “analyze, simplify, harmonize, and align public and private sector practices, procedures and information flows relating to international trade transactions both in goods and related services”.¹² In this framework, TBG 15 was conducting work on single window facilities, in particular by preparing a Draft UN/CEFACT Recommendation 36 on Single Window Interoperability, and on e-Invoicing.

¹⁰ Ibid., *Sixty-fourth Session, Supplement No. 17* (A/64/17), para. 337; Ibid., *Sixty-fifth Session, Supplement No. 17* (A/65/17), paras. 242-243.

¹¹ A/CN.9/692, para. 10.

¹² For more information, see the home page of TBG 15 at www1.unece.org/cefact/platform/display/TBG/TBG15.

34. It was recalled that electronic single windows might greatly contribute to trade facilitation, defined as: “The simplification, standardization and harmonization of procedures and associated information flows required to move goods from seller to buyer and to make payment.” Indeed, electronic single windows might provide advantages for both customs administrations and other public offices interested in cross-border movement of goods and traders. Such advantages could include: reduced administrative burdens and input errors thanks to data sharing; faster information flows with increased predictability of trade-related timelines; enhanced risk management for control and enforcement purposes. It was added that a positive impact on revenue collection and the prevention of corruption was also possible, at least under certain circumstances. In any case, it was stressed that the successful design and implementation of a national single window facility required a careful assessment of the environment where it was meant to operate.

35. It was indicated that, while significant progress has already been made with respect to national single window facilities, significant work remained ahead for the establishment of an international system. In this regard, UN/CEFACT draft Recommendation 36 intended to provide guidance on the interconnectivity and interoperability of two or more national (or regional) single windows by addressing the needs associated to cross-border trade data transfer.

36. It was explained that the design of a cross-border single window facility required taking into account technical, security and legal and regulatory requirements. In the same line, it was said that interoperability was a multifaceted process and that the greatest challenges so far in achieving interoperability between single window facilities arose from the need to streamline existing procedures.

37. It was added that information was currently provided by commercial operators along the lines of established procedures designed for existing facilities. As a result, a limited amount of customs information was shared between the exporting and the importing side. It might therefore be desirable to re-assess the manner in which information was captured, with a view to favouring its extraction in a structured manner and thus facilitating its subsequent reuse. In this regard, it was noted that an efficient cross-border single window model should facilitate coordination among different stakeholders whose objectives and procedures might differ significantly.

38. An additional layer of complexity in designing cross-border single window facilities related to the possible adoption of different architectures, including: a dedicated interconnection between national single window facilities; a network of interconnected national single window facilities; individual national single window facilities connected to a central secure hub; or a network of networks such as private sector Value Added Networks (VAN) or Local Area Networks (LAN). Each of these models might call for a different set of legal and operational requirements.

39. It was suggested that the progressive deployment of cross-border single windows could leverage on the involvement of authorized economic operators, a notion developed by customs administrations to identify certain professional operators whose greater capacity justified differentiated treatment. It was explained that their high level of compliance with procedures and willingness to invest in infrastructures could be rewarded with participation in a more integrated and more performing single window facility. This enhanced environment could encompass customs documents as well as transport and other commercial documents. An

example of such approach could be provided by the implementation of the European Union Modernised Customs Code.

40. Reference was made to the WCO project on Globally Networked Customs that was described as an “inclusive, interconnected customs-to-customs information-sharing system to support and improve the functioning of the international trading system, national economic performance, and the protection of society and fiscal management”. It was said that, while the goals of Globally Networked Customs did not pertain only to the trade facilitation field, the deployment of Globally Networked Customs might have an impact on commercial operations.

41. It was recalled that UN/CEFACT Recommendation 33 “Recommendation and Guidelines on Establishing a Single Window to Enhance the Efficient Exchange of Information between Trade and Government” and UN/CEFACT Recommendation 35 “Establishing a Legal Framework for International Trade Single Window” contained specific guidance with respect to legal issues relating to the operation of electronic single windows. In particular, UN/CEFACT Recommendation 35, in its Annex II, featured “Checklist Guidelines” listing and discussing the following legal elements: legal basis for implementing a Single Window facility; single window facility structure and organization; data protection; authority to access and share data between government agencies; identification, authentication, and authorization; data quality; liability issues; arbitration and dispute resolution; electronic documents; electronic archiving; intellectual property rights and database ownership; and competition.

42. Moreover, it was recalled that the WCO-UNCITRAL Joint Legal Task Force had also identified a preliminary set of legal issues relating to electronic single windows. Those issues included: enabling legislation; information sharing, data protection and confidentiality; organizational issues; liability of single window facility operators; competition law; use of electronic documents; intellectual property rights; data retention and limits on re-use of data, including for evidentiary purposes; mutual recognition of electronic and digital signatures (including through identity management systems); and electronic transfer of rights in goods.

43. It was said that some of the above-mentioned issues could be addressed, at least in part, with the adoption of UNCITRAL texts and, in particular, of the United Nations Convention on the Use of Electronic Communications in International Contracts, 2005 (the “Electronic Communications Convention”),¹³ of the UNCITRAL Model Law on Electronic Commerce, of the UNCITRAL Model Law on Electronic Signatures¹⁴ and of the United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea (the “Rotterdam Rules”).

44. It was indicated that the adoption of the Electronic Communications Convention was particularly relevant to establish a uniform legal framework for electronic communications in light of possible differences in the enactments of UNCITRAL model laws at the national level. It was also suggested that, in light of the fact that one effect of the Electronic Communications Convention was to enable the use of electronic communications in other international agreements, the study of

¹³ United Nations publication, Sales No. E.07.V.2.

¹⁴ United Nations publication, Sales No. E.02.V.8.

the operation of the Electronic Communications Convention in conjunction with the Protocol of Amendment to the International Convention on the Simplification and Harmonization of Customs Procedures, 1999 (the “revised Kyoto Convention”)¹⁵ and with other relevant WCO instruments, including the Framework of Standards to Secure and Facilitate Global Trade (SAFE), deserved further attention.

45. It was added that other topics discussed at the colloquium, such as identity management and electronic transferable records, were directly relevant for the establishment of an adequate legal framework for electronic single windows facilities.

46. It was further noted that the international dimension might further complicate difficulties related to the single windows implementation. For instance, in case of investigation, the enforcement agency of an importing country was likely to need electronic evidence from the customs authority of an exporting country. In case of regional electronic single window facilities, where data could be processed and distributed selectively to multiple offices in various jurisdictions, difficulties could increase in proportion to the number of jurisdictions involved. Similar considerations could apply to the harmonization of provisions on data confidentiality and of sanctions for their breach.

National electronic single window facilities

47. The case of the national single window (the TradeNet® System) of Singapore was illustrated. It was said that the implementation of that single window had been particularly effective and that the TradeNet® System covered 100 per cent of trade declarations, for a total of 9 million declarations per year.

48. It was explained that the legal basis for the validity of the use of electronic documents in that jurisdiction was provided by the Electronic Transactions Act 2010 that represented an enactment of the Electronic Communications Convention as well as of earlier UNCITRAL texts on electronic commerce. In particular, section 25, paragraph (1) of the Electronic Transactions Act 2010 enabled any public agency to use electronic communications, including when issuing permits, licences or approvals. Moreover, the establishment and operation of the electronic single windows in that jurisdiction was explicitly permitted by section 86 of the Customs Act that enabled the use of electronic means with respect to any communication foreseen in that Act.

49. It was further explained that two aspects were particularly relevant in the experience of Singapore’s single window facility. First, customs agencies expressed a paramount need to carry out enforcement functions effectively also in a single window environment. Specific rules on electronic evidence (contained in sections 35 and 36 of the Evidence Act) were adopted to ensure that goal. Secondly, merchants needed to be reassured that the confidentiality of the information submitted would be preserved. In this respect, it was noted that the submission and retention of information in electronic form might increase the risks of misuse. In the legal system of Singapore, section 6 of the Goods and Services Tax Act set the standards for official secrecy also with respect to customs operations and was applicable also to electronic communications.

¹⁵ United Nations, *Treaty Series*, vol. 2370, p. 27.

50. Another illustration of advanced electronic single windows facility regarded “uTradeHub”, the system for paperless trade implemented in the Republic of Korea. It was explained that uTradeHub offered electronic services related to cross-border trade in four main areas: trade financing, licensing/certification, customs clearance and logistics. The uTradeHub system connected customs offices, other governmental agencies, financial institutions and private sector operators such as shipping lines and logistics companies. Electronic documents exchanged on uTradeHub included letters of credit, certificates of origin, import and export clearances and import and export declarations.

51. The factors contributing to the success of uTradeHub were identified in clear policy guidance from the government, the establishment of a legal framework adequate for paperless trade, active collaboration with the private sector and highly developed information technology infrastructure.

52. It was indicated that the uTradeHub system had provided significant benefits in terms of time savings, increased security of documents and increased transparency in documents’ handling. In particular, the ability to obtain real time reports contributed to preventing forgery and fraud. It was added that financial savings were also considerable and arose from reduction of costs in four areas: labour; issuance and circulation of documents; warehousing and inventory management; and avoidance of redundant investments in information technology.

53. From the legislative standpoint, it was explained that the following acts were relevant for the operations of uTradeHub: e-Trade Facilitation Act (2006); Framework Act on Electronic Commerce (1999); Digital Signature Act (1999); Act on Promotion of Information and Communications Network Utilization and Information Protection (2001); and the provisions on electronic bills of lading inserted in the commercial law in 2008.¹⁶

Regional electronic single window facilities

54. Reference was made to initiatives aimed at building cross-border single window facilities in the Association of Southeast Asian Nations (ASEAN), in the European Union and in the East African Community, among others. Lessons learned from such initiatives pointed at the difficulty of reviewing and streamlining existing business processes. This prevented the choice of a model that represented in turn a condition for the preparation of adequate legislation. As a result, the implementation of those initiatives was delayed or was taking place on a smaller scale or at a slower pace than originally envisaged.

55. The legal aspects of the ASEAN Single Window were illustrated in detail as a prominent example of cross-border single window facility. In particular, it was explained that the study of legal and regulatory issues arising from the implementation of cross-border single windows might influence the technical architecture of the cross-border single window network. In fact, a careful choice of technical design could address or prevent certain legal or regulatory issues.

¹⁶ On the legislation of the Republic of Korea on electronic bills of lading, see A/CN.9/692, paras. 26-47.

56. It was recalled that two technical models had been considered for adoption in the ASEAN Single Window. The first model featured a centralized facility through which all information transmitted by national single windows would transit and be distributed to the national single window of destination. The second model adopted a bilateral scheme in which national single windows would exchange information under common protocols and data models.

57. It was explained that, while both models aimed at enabling the electronic submission of trade-related documents to more than one country, they raised different legal and regulatory issues. In particular, the centralized model would require addressing matters such as ownership and confidentiality of data stored in the centralized database, and therefore outside the control of the country of origin of the data. Moreover, it was noted that over-concentration of data in a single database might hinder data retrieval during investigations and other enforcement-related activities.

58. In addition, it was said that the operator of a centralized facility might face liability towards users from all States using that facility and therefore its potential risk could be particularly high. Moreover, centralizing and aggregating data processing and storage in a single centralized location could expose to catastrophic consequences in case of successful cyberattack. The fundamental issue of the attribution of the power of control and oversight over the operations of the centralized facility would also need to be clarified.

59. It was finally recalled that in response, at least in part, to those concerns, it had been decided that the ASEAN Single Window pilot project technical model would be based on a model featuring a technical infrastructure with transmission functions but without any data retention or storage capability.

60. The case of the Pan-Asian E-Commerce Alliance (PAA), an alliance of commercial operators whose goal was to facilitate cross-border transactions through the exchange of electronic communications over a secure infrastructure, was also mentioned. PAA offered mutual recognition of Public Key Infrastructure (PKI) certificates through a dedicated certificate policy authority. Business might have access to PAA's services through national PAA members.

61. Further efforts to create a regional electronic single window facility in Asia and Pacific were ongoing thanks to the work of a number of organizations and bodies including the United Nations Network of Experts for Paperless Trade in Asia and the Pacific (UNNExT) and the Asian-Pacific Economic Cooperation (APEC).

62. It was added that, while several jurisdictions in the region had similar legislative provisions on electronic communications and electronic signatures having adopted texts based on UNCITRAL models, rules on privacy and cross-border data flow might vary significantly.

63. It was reiterated that a condition for the establishment of a regional electronic single window facility was the removal of formal and procedural barriers to legal interoperability. In order to achieve that goal, it was suggested that the adoption of international standards and best practices at the national level should continue, based on the implementation of fundamental principles such as non-discrimination of electronic communications, technology neutrality and functional equivalence between electronic and other documents. Mutual recognition of electronic signatures

should also be encouraged. Existing provisions on data collection, sharing, access, archiving and submission to governmental agencies, on cross-border data flow, intellectual property protection and market competition, on privacy and confidentiality and on intellectual property rights should be reviewed in light of the needs of trade facilitation.

64. The view was expressed that an agreement on the electronic exchange of trade data and documents might be beneficial for regional trade facilitation and help the establishment of an electronic single window facility in East Asia. It was further suggested that, in light of the diversity of the region and complexity of the relevant issues, a gradual approach could be advisable. In particular, it was said that the full deployment of a national single window facility should not be a condition for participation in cross-border initiatives, since all countries were entitled to build experience from an early stage also at the international level.

65. As a general recommendation, it was stated that, given the number of organizations working on various aspects of electronic single windows, including legal ones, it was particularly desirable that UNCITRAL would continue its work in this field as well as maintain a coordinating role with a view to avoiding the emergence of multiple inconsistent legal standards.

66. It was added that the legal expertise already existing in Working Group IV on Electronic Commerce made it particularly qualified to discharge successfully that task. It was further indicated that possible future work of UNCITRAL in other areas of electronic commerce should take into due consideration also the desirability of supporting seamless electronic interaction between business and governments, including in the framework of electronic single window facilities.

E. Other topics

Electronic letters of credit

67. The principles and evolution of the use of electronic means in connection with letters of credits were illustrated. It was explained that, while electronic communications had been used in letters of credit for decades and at least since the introduction of the telegraph, differences in that use could be found with respect to the various phases of the life of a letter of credit. In particular, while the issuance and the payment of a letter of credit could easily be performed electronically, its presentation in electronic form could pose a number of challenges.

68. It was further explained that resistance to the use of electronic communications was due to expectations by business that a document would be presented in paper form, although the paper medium did not always offer higher levels of authenticity and integrity than its electronic equivalent. Letters of credit transmitted via trusted closed networks such as that managed by the Society for Worldwide Interbank Financial Telecommunication (SWIFT) constituted a notable exception to that business attitude.

69. Moreover, it was highlighted that a significant difference existed between commercial letters of credit, on the one hand, and standby letters of credit, independent guarantees and reimbursement undertakings, on the other hand. In the first case, the letters needed to be presented with accompanying documents in

original. Those accompanying documents, such as bills of lading and warehouse receipts, typically related to a transaction in goods and might lack an electronic authentic equivalent. Therefore, their electronic presentation could result impossible. On the contrary, such documents were usually not required in connection with the presentation of the second group of letters of credit.

70. It was indicated that the current status was the result of the interaction of different factors, i.e. legislation, other standards such as uniform rules and practice, and acceptance by market operators.

71. It was explained that legislative provisions, where existing, had promptly recognized the media flexibility established by practice. An early example of such legislative text was offered by Section 5-106 (2) of the Uniform Commercial Code's 1952 version, enabling the signature of a letter of credit by telegram.

72. However, it was added, the law did not mandate the use of electronic letters of credit by establishing a right of the beneficiary to make electronic presentations. This approach was commented favourably as in line with practice and market expectations.

73. Moreover, it was explained that in the field of letters of credit significant importance was attributed to default rules of practice that often replaced legislative provisions. It was also said that repeated attempts had been made to further expand the use of electronic communications through those rules. However, it seemed that technical standards, rather than rules of practice had been particularly relevant in promoting the use of electronic means.

74. As already mentioned, the acceptance by business of electronic letters of credit, especially at the presentation stage, was limited to exchanges in specific environments. In this respect, it was noted that the full-fledged introduction of electronic means in this field might transform the nature of the letter of credit and required a reconsideration of its legal foundations.

75. Practical examples of possible innovation related by the use of electronic means in letters of credit were given. Thus, it was suggested that certain information readily available in electronic form from reliable sources and necessary to complete the letter of credit could be linked to an electronic document. This was the case with reference to the determination of the price of oil in letters of credit containing an oil fluctuation clause. Another example referred to the possibility of verifying electronically if certain conditions stated in the letter of credit, such as the presence of certain goods on a given vessel or the location of that vessel, were actually true.

76. In conclusion, it was suggested that further increase in the use of electronic letters of credit was expected and that that increase was likely to impact significantly on business practice. Thus, for instance, further technical standardization of electronic letters of credit could bring a higher degree of uniformity of their content. Moreover, the use of electronic means could simplify the letters of credit workflow by eliminating certain intermediaries such as correspondents.

Cloud computing

77. At the colloquium several speakers made reference to cloud computing. It was explained that cloud computing envisaged the use of computing hardware and

software infrastructure and of applications that were remotely hosted and managed. It was further explained that the user of cloud computing did not know the physical location or the configuration of the system.

78. In particular, it was indicated that under the “software-as-a-service” (SaaS) model of cloud computing customers paid a fee for the use of the ICT solution but did not need to invest in the infrastructure nor to manage, upgrade or maintain it. Additional business benefits related to technical features typical of shared ICT solutions such as scalability.

79. It was explained that cloud computing could be categorized as private, highly managed and public.¹⁷ It was further indicated that cloud computing could pose operational, reputation and legal challenges. Some operational challenges could deserve a dedicated legislative treatment, for instance, in case of changes in the legal status of the concerned entities due to events such as mergers and acquisitions or insolvency.

80. A preliminary list of legal challenges associated to cloud computing referred to intellectual property rights, liability with respect to data and network security, jurisdictional issues including multi-jurisdictional compliance, electronic discovery, and loss or compromise of personally identifiable information or confidential data.

81. The need to take into account the increasing use of cloud computing in trade-related data processing and storage was mentioned, in particular, with respect to cross-border single window facilities. It was indicated that the increasingly diverse national origin of the various components of the supply chain added further complexity. The example of the large number of parts originating from several countries that were needed to assemble a car was provided as an illustration of the increasing fragmentation of value chains.

82. In conclusion, it was suggested that cloud computing presented some peculiar aspects that called for consideration in a supranational forum. It was further suggested that such legislative work might be usefully undertaken in the context of a broader treatment of legal issues relating to cybersecurity and relevant for electronic commerce.

Electronic invoices

83. As a practical example of the difficulties encountered in the transition from paper to electronic trade documents, the case of electronic invoices in the European Union was illustrated.

84. It was explained that electronic invoices could contribute meaningfully to a paperless commercial environment, thus saving significant resources. However, it

¹⁷ Under this classification, a private cloud indicates a dedicated or single-tenant cloud environment where the user exerts control over information to the extent it controls information on its own internal network. The private cloud is typically located on the user’s own premises or at another designated venue under the user’s control, regardless of actual ownership of computer resources.

A highly-managed cloud refers to IT services upon which the customer had a high degree of management, but that are controlled and managed by a provider.

Public clouds are provided and owned by service providers. These cloud computing resources are usually shared by multiple users.

was added that the use of those invoices in the European Union was still limited, as they did not represent more than 10 per cent of the total amount of invoices issued even in more technology-prone countries.

85. It was said that a number of reasons might explain such status. One relevant factor mentioned was the diversity in the implementation of the European Union directive on a common system for Value Added Tax¹⁸ that created up to 27 different legal and regulatory environments. It was explained that commercial companies were not ready to bear the costs of compliance in all jurisdictions.

86. Another relevant factor related to the imposition in certain jurisdictions of more stringent requirements for electronic invoices than for paper ones, for instance by mandating the use of a qualified or advanced electronic signature as defined under relevant European Community¹⁹ and national legislation, and thus possibly discriminating electronic means against non-electronic ones.

¹⁸ Council Directive 2010/45/EU of 13 July 2010 concerning amendments to Directive 2006/112/EC on the common system of value added tax, with regard to rules on invoicing, *Official Journal L* 189, 22 July 2010, pp. 1-8.

¹⁹ Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures, *Official Journal L* 013, 19 January 2000, pp. 12-20.