JICLT
Journal of International Commercial Law and Technology
Vol. 8, No.3 (2013)

Certainty at last? A "new" framework for electronic contracting in Singapore

Eliza Mik[1]

Assistant Professor,
School of Law, Singapore Management University
elizamik@smu.edu.sg

Abstract: Singapore is the first Asian country to accede to the UNCITRAL Convention on the Use of Electronic Communications in International Contracts. Singapore is not only the first Asian nation to accede to the CUECIC but also the first nation to implement some of its provisions locally. It is these provisions that are the subject of this paper. The ETA is significantly wider in scope than the Convention, as it deals not only with electronic contracting but also with the use of electronic communications in the public sector, the liability of network service providers and the remote authentication procedures.[2] This paper examines how the provisions transplanted from the Convention interface with the principles of contract law. Do they create the long-awaited "certainty" in the controversial field of e-commerce? As Singapore's contract law is predominantly based on English common law, the problems discussed herein will be encountered in any legal system relying on similar principle

1. Introduction

> "*The more one looks at the legal issues, the less awesome most of them appear, and the less radical the measures needed to ensure that the law does not unnecessarily impede e-commerce.*"[3]

Singapore is the first Asian country to accede to the UNCITRAL Convention on the Use of Electronic Communications in International Contracts[4] ("CUECIC" or "Convention").[5] Upon accession, the Singaporean Electronic Transactions Act[6] ("ETA" or "Act") was re-pealed and re-enacted in a modified version, with effect from 1 July 2010.[7] The modified ETA retains the framework of the original ETA but adds or amends certain provisions dealing with electronic contracting to align domestic e-commerce regulations with the Convention. Accordingly, Singapore is not only the first Asian nation to accede to

[1]. Research on this paper was funded by the Singapore Management University Internal Research Project Grant. The author remains indebted for the invaluable assistance of Ms Lucia Scheidl-Kornis and Mr Luca Castellani at the UNCITRAl Library in Vienna.
[2] Joint IDA-AGC Review of the Electronic Transactions Act Proposed Amendments, 2009, ("Joint Review") para 2.16.3.
[3] J D Gregory, "Solving Legal Issues in Electronic Commerce" (1999) 32 Can. Bus. L.J. 84 at 85.
[4] As adopted on 23 November 2005; the Convention relies on the UNCITRAL Model Law on Electronic Commerce ("MLEC"), an early e-commerce flagship project dating back to 1996.
[5] Singapore acceded to the Convention on 7 July, 2010,
see: www.uncitral.org/uncitral/en/uncitral_texts/electronic_commerce/2005Convention_status.html; See generally: A H Boss & W Killian, *The United Nations Convention on the Use of Electronic Communications in International Contracts* (Kluwer Law International, 2008) ("*Boss & Killian*").
[6] Electronic Transactions Act (ETA) (Cap 88, 1999 Rev Ed).
[7] www.ida.gov.sg/Policies%20and%20Regulation/20060420164343.aspx

the CUECIC but also the first nation to implement some of its provisions locally.[8] It is these provisions that are the subject of this paper. The ETA is significantly wider in scope than the Convention,[9] as it deals not only with electronic contracting but also with the use of electronic communications in the public sector, the liability of network service providers and the remote authentication procedures.[10] This paper examines how the provisions transplanted from the Convention interface with the principles of contract law. Do they create the long-awaited "certainty" in the controversial field of e-commerce? As Singapore's contract law is predominantly based on English common law,[11] the problems discussed herein will be encountered in any legal system relying on similar principles.

The reader will encounter frequent references to "classic" or "traditional" contract law and "contract law applying to electronic contracts." This terminology is used with great reluctance. It is the very creation of a division between the "old" and the "new" contract law that is criticized in this paper. The division itself is by no means intuitive or self-explanatory because the two regimes – one "classic" and one "pertaining to electronic contracts" – do not exist in parallel. Parallelism would imply the existence of a clear-cut choice as to which set of rules to apply. As described below, this is not the case. The two regimes may intersect and interfere with each other, rendering it difficult to analyze the contracting process whenever it involves an "electronic" method of communication.

1.1 Roadmap

The discussion is divided into two parts: general and specific. The general part criticizes the broader assumptions of the Act and provides the conceptual frame for everything that follows. The specific part zooms into the individual provisions and examines the extent, if any, to which they facilitate or interfere with the analytical framework provided by "classic" contract law. Quotes of explanatory notes or legislative reports are kept to a minimum. Those provisions of the ETA that are not directly related to contract law and have not been copied from the Convention are out of scope. It must be remembered that irrespective of the business model and the contractual subject matter, most legal questions in e-commerce are questions of contract law.[12] For present purposes, e-commerce is understood as the use of Internet-enabled methods of communication to form and perform commercial transactions.[13]

1.2 Scope: Everything Electronic

An analysis of the definitions in Section 2 sheds light on the potentially wide application of the Act. The term "electronic," which lies at the heart of all interconnected definitions, relates to technologies having electrical, digital, magnetic, wireless, optical, electromagnetic or similar capabilities; "electronic communication" means any communication made by means of "electronic records." The latter indicate records generated, communicated, received or stored by electronic means in an information system or for transmission from one such system to another; "information system" means a system for generating, sending, receiving, storing or otherwise processing electronic records. Interestingly, with the exception of face-to-face dealings and exchanges of paper letters by traditional mail, *all communications at a distance are 'electronic'* as they involve the intermediation of an "information system" or some form of transmission or storage of an "electronic record." With the noted exceptions, all communications at-a-distance fall under the ambit of the Act. As a result, apart from "facilitating e-commerce," the ETA may affect transactions that would otherwise not be considered "electronic." A good example is a fax message. In Australia which enacted a slightly different version of the ETA in 1999, a fax "falls within the

[8] Singapore was also the first country to enact an Electronic Transaction Act in response to the 1996 Model Law.
[9] For a more detailed discussion about the differences between the Convention and the 1998 ETA see: Chong Kah Wei, Chao Suling, "United Nations Convention on the Use of Electronic Communications in International Contracts—a New Global Standard" (2006) 18 SAcLJ 116.
[10] Joint IDA-AGC Review of the Electronic Transactions Act Proposed Amendments, 2009, ("Joint Review") para 2.16.3.
[11] Singapore follows the common law of contract, see: Application of English Law Act (Cap 7A, 1994, Rev Ed).

[12] E A Cavazos, G Morin, *Cyberspace and the Law: Your Rights and Duties in the On-line World*, (MIT Press 1994, Cambridge) at p 34; John D. Gregory, *supra* n 1 at 86.
[13] See generally: K C Laudon, C G Traver, *E-commerce: Business, Technology, Society* (Prentice Hall 2010)

definition of "electronic communication" because it is a message sent over phone lines as information."[14] The same approach would apply to telexes or telephones. The ETA retrospectively subsumes older methods of communication under its regime whenever they involve an "electronic element." It is unclear whether such "inclusion" was intended or constitutes an unplanned side-effect of the term "electronic."

Difficulties arise in the case of "mixed" interactions, where the contracting process involves a combination of traditional and modern means of communication.[15] It is unclear whether a single electronic message, or the use of an electronic device, would bring all preceding and subsequent communications within the scope of the ETA, even if they lack an electronic element, or whether the Act would apply to this single message only. If the latter was the case, there could be transactions where some communications are governed by the new regime whereas others are governed by traditional rules. If the former was the case, then the sending of a single email or SMS during negotiations otherwise conducted exclusively by non-electronic means, would trigger the applicability of the ETA and subsume all communications relating to the transaction under the modified regime. In sum, the broad definition of "electronic record" produces one of two side-effects: two different sets of rules apply to communications within the same transaction; or, traditional exchanges are absorbed by a regime tailored to modern (i.e. "electronic") means of communication.

1.3 Technology Neutrality

Both the Act and the Convention rely on the concept of "technology neutrality." Despite its apparent importance, the term seems ambiguous[16] and little more than a slogan used in arguments justifying the regulation of e-commerce.[17] Technology neutrality means that the Convention covers "all factual situations where information is generated, stored or transmitted in the form of electronic communications, irrespective of the technology or medium used."[18] The provisions of the Convention – and consequently all laws deriving from it - are supposed to be neutral in that they "do not presuppose the use of any technology in particular."[19] Technology neutrality is often difficult to distinguish from media neutrality. Media neutrality may be regarded as a subset of technology neutrality as it relates to physical carries only,[20] whereas technology neutrality seems to be a broader concept encompassing storage and transmission methods. Both refer to the alleged independence of legal principles from the technologies and media by means of which parties manifest agreement. Both assume that legal principles should withhold technological change and not lock the law into a particular technology. They also prohibit the discrimination of electronic methods of communication in requiring that they be treated at par with traditional methods.

It is beyond doubt that law should withhold technological change. In this sense, technology neutrality constitutes a desirable feature of any regulation. Some legal principles are, however, by their very nature not technology neutral. The offer and acceptance model itself has developed around a specific method of communication: the post. Moreover, the frequent references to "adapt the law to paperless trade" made in the preparatory works leading to the Convention and subsequently the ETA,[21] are an indirect acknowledgement that contract law often relies on tangible media.[22] Paper, while not a legal requirement *per se*, can be regarded as an implicit assumption underlying many legal principles. Given that neither technology nor media neutrality are inherent characteristics of contract law, it can be debated whether they should constitute guiding principles in the facilitation of electronic contracting. As discussed below, many of the substantive provisions introduced into the ETA are *not* technology neutral as they are either

[14] See: www.ag.gov.au/ECommerce/Pages/Frequentlyaskedquestions.aspx
[15] D Hettenbach, *Das Ubereinkommen der Vereinten Nationen uber die Verwendung elektronischer Mitteilungen bei internationalen Vertrag*en (Mohr Siebeck 2008) at p 41.
[16] Ch Reed, "Online and Offline Equivalence: Aspiration and Achievement" (2010) I.J.L. & I.T. 18(3) at 249.
[17] For a detailed discussion of its many potential meanings and legal implications see: Bert-Jaap Koops, "Should Regulation be Technology Neutral?" in *Starting Points for ICT Regulation, Deconstructing Prevalent Policy One-Liners* (ITeR 2006).
[18] CUECIC *Explanatory Note* para 47.
[19] CUECIC *Explanatory Note* para 47.
[20] CUECIC *Explanatory Note* para 48.
[21] CUECIC *Explanatory Note* para 48;
[22] J A Estrella Faria, "Online Contracting: Legal Certainty for Global Business—The New U.N. Convention on the Use of Electronic Communications in International Contracts" (2006) 39 No. 1 UCC L. J. ART 2 at 3

tailored to a particular technology or presuppose certain technological features.[23] In this sense, they discriminate against modern communication technologies by treating them differently. Lastly: the very existence of legislation dealing with *electronic* contracting defies technology neutrality. Can an act designed to deal with *electronic* communications be technology neutral? As one author put it, "technology neutrality becomes relevant only after a decision has been made that 'electronic communication services' require special regulation."[24] Contracts are usually regulated due to their subject matter or the weaker position of one contracting party – not because of the communication method used in their formation.[25]

1.4 "Obstacles" and Formal Requirements

The Convention and the Act aim to "facilitate electronic contracting" and "remove obstacles to e-commerce." Statements like these must be approached cautiously. While it cannot be said that the electronic transacting environment does not create any technology-related problems, it is incorrect to state that contract law contains any inherent obstacles to electronic commerce. A simple illustration is the process of contract formation. There are many ways of forming a contract: parties may negotiate orally, in writing or engage in specific conduct. In common law systems, such as Singapore,[26] as long as there is consideration, certainty and an intention to create legal relations, the promises made during the formation process are binding and enforceable.[27] The new transacting environment changes nothing in this regard. Contract law generally disregards the manner the contract is formed. It is the content of a statement, not the manner of its expression or communication that determines its legal effect. Contract law focuses on intention. And intention can be expressed in any manner. Its existence is frequently established by using the tools of "offer and acceptance." Whether a particular communication is an offer or an acceptance is *exclusively* a question of intention, which is determined on the basis of construction rules.[28] As the offer and acceptance model came into being with the advent of the post,[29] its application outside the realm of paper documents and face-to-face communications does, by definition, encounter problems. The difficulties in applying this model are not indicative of its shortcomings but derive from the fact that mapping "models" onto real-life situations is inherently difficult. New methods of communication may render the "offer and acceptance" analysis more complex but can hardly be regarded as "obstacles" to the formation of valid and enforceable contracts. In the words of one author:

> *"[T]he existing rules and principles need not be changed, let alone replaced or abrogated… [t]he difficulty is one of application rather than substantive content as such. This is, perhaps, not wholly surprising as, by their very nature, common law as well as equitable rules and principles will tend to be stated at a very general level of abstraction or universality, thus leaving much scope for actual as well as potential application to a large variety of contexts, including one as ostensibly radical as cyberspace."*[30]

Another popular misapprehension is that many legal requirements prescribe the use of traditional paper-based documentation or signatures and therefore constitute a "significant obstacle to the development of modern means of communication."[31] First, it is difficult to find such "legal requirements"

---

[23] See Art.8 and the definition of functional equivalents of "signatures"
[24] Diane Rowland, Uta Kohl, Andrew Charlesworth, *Information Technology Law* (Routledge 4th ed. 2012) at p 233.
[25] Donnie, L. Kidd, Jr. & William Daughtrey, Jr., *Adapting Contract Law to Accommodate Electronic Contracts* (2000) 26 Rutgers Computer and Tech L J 215, 269; see also: Ch. Reed, "How to make bad law: lessons from Cyberspace" (2010) 73 MLR 6.
[26] Singapore follows the common law of contract, see: Application of English Law Act (Cap 7A, 1994, Rev Ed).
[27] M Furmston, ed., *The Law of Contract* (Butterworths, 4th ed, 2010) ("*The Law of Contract*") at p 255; A Phang, *Cheshire, Fifoot and Furmston's Law of Contract* (Butterworths Asia, 2nd Singapore and Malaysian Ed, 1998) at pp 82-83; see also: Andrew Murray, *Information Technology Law*, OUP 2010, p 414.
[28] *The Law of Contract* pp 257-261
[29] *The Law of Contract* p 259
[30] A Phang, T M Yeo, "The Impact of Cyberspace on Contract Law" in *Impact of the Regulatory Framework on E-Commerce in Singapore* (D Seng ed) (Singapore Academy of Law 2002) ("Phang, Yeo") pp 39-58.
[31] CUECIC *Explanatory Note* para 50.

within contract law. Formalities, such as writing or signatures, may be required by law (other than contract law)[32] or by the contracting parties themselves. No formalities *whatsoever* are required for the conclusion or performance of a contract. Absent a general requirement for contracts to be in written form or be signed, formal requirements are an exception not the rule.[33] After all, "[i]f an oral agreement should suffice for the formation of a valid and binding contract, then surely an agreement reached with the use of electronic communications should be afforded the same recognition."[34] Statements regarding the "enabling" or "validating" purpose of the Act can therefore be questioned. ETA Section 11 is on the point: the provision does not create a new rule but confirms that "*for the avoidance of doubt*, it is declared that in the context of the formation of contracts, an offer and the acceptance of an offer may be expressed by means of electronic communications." [my emphasis] This declaration would have sufficed to dispel any remaining doubts regarding "electronic contracting." Any further regulation can be regarded as redundant. The more so, that those few contracts that do require formalities are specifically excluded from ambit of ETA.[35] It is also debatable whether any requirements within contract law could hinder the development of modern communication technologies. Technology and law develop independently. This has been the very problem of the technological progress related to the Internet – technology has progressed irrespective of any legal requirements or prohibitions. The best examples are the web itself and file-sharing, which came into being despite the existence of copyright. It can only be suspected that it is not so much the development but the adoption or proliferation of certain technologies that could be affected by legal requirements. To repeat: such requirements are generally absent in contract law.

Concessions must, however, be made to those who claim that electronic transacting triggers a need to modernize law. Existing legislation may in fact be inadequate or outdated in that it does not contemplate the use of dematerialized interactions.[36] It may not always be possible to accommodate paperless means of communication by a creative interpretation of certain legislative provisions. New legislation or amendments to existing provisions may therefore be necessary.[37] The need to modernize legislation must, however, be distinguished from the need to modernize contract law. The latter is predominantly based on common law – not statute. "Updating" individual statues must therefore be distinguished from "updating" contract law in general. No legislative "updates" seemed necessary to "accommodate" or "facilitate" contract formed by means of telex or fax. Broad statements implying the need to change the *law* to accommodate electronic transactions should be narrowed down to encompass the legislative framework only. Accommodating developments in communication technologies may require a regulatory response – but not a change in contract law.

1.5 Electronic, Heterogeneous, Diverse

The term 'electronic' permeates legal literature and features in the titles of most Internet-related regulations. Being "electronic" does not, however, introduce anything new into the discussion.[38] After all, both the telephone and the telegraph involve the transmission of electronic impulses. Neither required special enabling legislation to "facilitate electronic contracting." Most challenges in mapping contract law onto transactions concluded by novel means of communication derive from the fact that most of these communications rely on the Internet. In fact, although the use of the term 'electronic' has become a convention, it is the Internet that provided the technological "push" for those methods of interaction that

[32] See e.g. Law of Property Act 1925 (UK); Civil Law Act (cap 43, 1985 Rev Ed) (Singapore).
[33] *The Law of Contract* p 559.
[34] S Eiselen, "The Interaction between the Electronic Communications Convention and the United Nations Convention on the International Sale of Goods" in *Boss & Killian* p 343.
[35] Section 4 and First Schedule, exclude the application of the Act to, amongst others, "negotiable instruments, documents of title, 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," "any contract for the sale or other disposition of immovable property, or any interest in such property" as well as to
"The conveyance of immovable property or the transfer of any interest in immovable property."
[36] Tana Pistorius, "Contract Formation: a Comparative perspective on the Model Law on Electronic Commerce" (2002) 15 The Comparative and International Law Journal of South Africa at 129,130.
[37] H S K Tan, "The Impact of Singapore's Electronic Transactions Act on the Formation of E-contracts" (2002) 9 Electronic Communication Law Review 85 at 85.
[38] See generally: E Mik, "The Unimportance of Being Electronic – Or Popular Misconceptions About "Internet Contracting" (2011) 19 International Journal of Law and Information Technology 324

are referred to as "modern." Arguably, the most pertinent characteristic of the Internet is that it is a *heterogeneous network*.[39] Or better: a heterogeneous *network of networks*. This heterogeneity manifests itself at different technical levels. First and foremost, the Internet is a collection of multiple independent networks. The core protocol suite underlying the Internet, TCP/IP, ensures basic interoperability between different network environments, which otherwise would not be able to exchange data. If the Internet were homogenous, uniform and fully interoperable – it would not be called the *Inter*-net. The prefix "inter-" denotes "between" or "among." Individual networks often employ proprietary protocols that differ from the transport environment of the Internet, i.e. each network may retain some individual characteristics. Traversing networks often involves a conversion between the "idiosyncrasies of the two original networks."[40] The resulting problems are pertinent in corporate environments, which often deploy different internal protocols and formatting conventions frequently leading to situations where messages sent from one company cannot be received or displayed by another company.

Secondly, while the lower layers of the TCP/IP protocol are essentially standardized, individual communication services at the application layer (i.e. the layer closest to the user, which "contains" email, the web, twitter, blogs etc.) continue to display differences.[41] The application layer is characterized by a multiplicity of competing protocols and standards. Again, not all of them are interoperable. One email application may not correctly display a message sent from another email application; one browser may not display a website in the same way as another browser.[42] On a practical level, the heterogeneity of the component network(s) and the lack of full compatibility at the application layer, translate into a number of novel communication risks. The challenges in applying contract law to novel contracting scenarios pertain to the necessity of allocating these new risks by means of the existing principles.

Lastly, heterogeneity can also relate to the diversity of communication methods enabled by the Internet. The latter is nothing but a general purpose, open transmission infrastructure underpinning an practically unlimited number of different communication technologies, which in turn enable a plethora of interactions – from real-time communications, through file sharing, to unilateral data retrieval.[43] Some of these "interactions" have no equivalent in the real world. The Internet is more than the world-wide-web and email. It encompasses whole new communication platforms, which in themselves provide separate infrastructures for interaction. Facebook provides a good example. From its interface, the social platform enables at least 3 different communication services: "classic" chatting or messaging (depending on the availability of the other party) as well as wall posts and status updates. The catch-all phrase "electronic communications" or the generic term "Internet" do not fully reflect the diversity of interactions enabled by the network and the richness of the application layer. This wide range of communication methods relies on multiple protocols and architectures, each of them characterized by its own idiosyncrasies. A provision tailored to email, will not necessarily work for web-based interactions or instant messaging – and the other way round. It is questionable whether the Act appreciates the aforementioned complexities. On a more general level, it is questionable whether it is possible to draft legislation to accommodate (i.e. provide certainty) all "electronic" methods of communication without compromising clarity, length and – technology neutrality. Any of the technological descriptions contained in this paper could be criticized for being too simplistic and superficial. All arguments could be embellished with further technical detail. The goal, however, is not to copy textbooks on data networks or digital communications. The goal is to illustrate the difficulty of drafting provisions that can apply to multiple technologies and various permutations of technological features.

---

[39] E Hall, *Internet Core Protocols: The Definitive Guide*, Cambridge 2000, Chapter 1, An Introduction to TCP/IP, par 1.1.3; RFC 1594, *Answers to Commonly Asked "New Internet User" Questions*, A Marine et al (1994)

[40] J. Glenn Brookshear, *Computer Science, An Overview* (8th edn Pearson Addison Wesley, Boston 2004) p 138

[41] For an excellent description of the differences between the individual layers, with particular emphasis on the diversity of the application layer, see: Craig McTaggart, "A Layered Approach to Internet Legal Analysis" (2003) McGill L.J. 571 at 578-580

[42] See generally: E Mik, "Some Technological Implications for Ascertaining the Contents of Contracts in Web-based Transactions" (2011) 27 CLSR 368.

[43] For a description of the "generative" properties of the Internet as a platform for new technologies see: Jonathan Zittrain, The Future of the Internet (Yale University Press 2008).

2. Zooming in

The following sections discuss the four substantive provisions of the modified ETA. The potential impact of these provisions must not be underestimated: they must be included in legal analyses of contract formation whenever the intention of one or both parties is manifested by electronic means. The formation process determines the contents of the contract and the contract's very existence. These initial stages are therefore particularly vulnerable to any interference. Even the smallest inconsistency in the formulation of a provision or a minute change in the applicable default rules will send ripple effects across the whole transactional landscape of e-commerce and - given the broad reach of the Act - contract law as a whole.

2.1 Section 13 – "Dispatch" and "Receipt"

Section 13 follows Article 10 of the CUECIC and establishes when and where electronic communications are deemed dispatched or received. The provision does not deal with the legal effect of a message (e.g. whether it constitutes an acceptance or an acknowledgement of receipt) but only with the mechanics of dispatch and receipt.[44] Neither does it address the question whether acceptances communicated by electronic means are subject to the principle of receipt or to the postal acceptance rule. Given the lack of consensus and the difficulty of devising a single rule to govern all forms of electronic transactions, it was proposed not to include any provision stipulating the substantive rules regarding contract formation.[45] It was emphasized that the introduction of a definitive rule regarding the effectiveness of acceptances would create a duality of regimes.[46] The absence of such rule, however, is unfortunate given the uncertainty in this area and the ongoing academic debate regarding the time of formation of contracts concluded electronically.[47] It is also unclear why the drafters (of both the Act and the Convention) founded their argument on the "fear of creating a duality of regimes" given that other provisions create such duality.

The classic rules on formation are clear: a contract is concluded when an acceptance becomes effective. Effectiveness may be tied to receipt (the receipt rule) or to dispatch (the exception, called the postal acceptance rule).[48] Dispatch is traditionally associated with posting. As no distinction is made between delivering a letter to the post office or placing it in a mailbox in the street, the exception burdens the addressee with the risk of all accidents during the time letters remain in the sender's mailbox and their subsequent transfer. Acceptance is effective even if a letter is lost during these initial stages. In the case of telegrams, dispatch occurs at the office where the machine is located.[49] Receipt is generally associated with the arrival of a message at the addressee's machine.[50] In traditional communications courts devote limited attention to determining the precise point of formation or defining the words "dispatch" and "receipt", as there is usually only one place or one machine that must be taken into consideration. As most electronic communications rely on the client-server architecture, e-commerce transactions may involve (at least) two machines on each side of the transmission channel and therefore two potential points of contract formation. This picture may be further complicated in the case of mobile communications, which add another possible endpoint to the picture. There is also the question of communication risks. While the principle of receipt and the postal exception constitute basic tools of risk distribution, the latter requires further refinement in light of the *increased* risk in networked communications. Transfers between different network environments often require that messages – or informational content in general – be processed in order to enable delivery and display. Whenever content is processed, there is a risk that it will be interfered with and/or rendered illegible. As one author described it: "[i]n the electronic world there may be more intermediaries, and more addresses, and more

[44] W Kilian, Comment on CUECIC Article 10 in *Boss & Killian* at p 163.
[45] Joint Review, para 2.12.3,
[46] See generally: *Phang, Seng, Yeo*, who stated that it would be best for the Electronic Transactions Act to establish which rule should apply, at paras 15 & 42.
[47] See e.g.: P Goodrich, "The Posthumous Life of the Postal Acceptance Rule' (2005) Benjamin N Cardozo School of Law, Working Paper No 127; J Hogan-Doran, "Jurisdiction in Cyberspace: the When and Where of On-line Contracts" (2003) 77 ALJ 377; S Hill, "Flogging A Dead Horse – The Postal Acceptance Rule and Email" (2001) 17 JCL 2; P Fasciano, "Internet Electronic Mail: A Last Bastion for the Mailbox Rule" (1997) 25 Hofstra L Rev 971.
[48] *Henthorn v Fraser* [1892] 2 Ch 27; *Dunlop v Higgins* (1848) 1 HLC 381; *Adams v Lindsell* (1818) B & Ald 681.
[49] *Henkel v Pape* (1870) LR 6 Exch 7; *Bruner v Moore* [1904] 1 Ch 305; *Cowan v O'Conner* (1888) 20 QBD 640 at 642; *Brinkibon v Stahag und Stahlwarenhandelsgesellschaft mbH* [1983] 2 AC 34 at 38.
[50] *Tenax Steamship Co Ltd v Owners of the Motor Vessel 'Brinmes' (The Brinmes)* (1974) 3 All ER 88 at 93.

hazards to delivery than for paper."[51] Consequently, "dispatch" and "receipt" not only determine the time of formation but also allocate communication risks in that they establish the point in the communication infrastructure at which risk is transferred from sender to addressee.

Section 13 states that "dispatch" occurs when an electronic communication *leaves an information system under the control of the originator*. "Receipt" takes place when the communication becomes *capable of being retrieved by the addressee*, which is deemed to occur when *it reaches the addressee's electronic address*.

The potential problems inherent in this wording are best illustrated by email. Email involves the sender's mail-client and outgoing mail-server as well as the addressee's incoming mail-server and mail-client. The exact moment of formation depends on whether it is the server or the client that is considered relevant.[52] There is no *direct* transmission between mail-clients, i.e. from the computer of the sender to the computer of the addressee. Email is first sent to a mail-server "associated" with the sender, then to a mail-server "associated" with the addressee, and then finally to the addressee.[53] Only mail-clients are on the parties' computers and therefore under their control.[54] Mail-servers are often operated by Internet Service Providers ("ISPs") – hence the term "associated" instead of "owned" or "run." How, then, do ISPs fit into the analysis? Telecommunication carriers and the post are generally regarded as independent third parties, which provide the communication infrastructure. With effectiveness on dispatch, 'transmission' commences when letters are placed in the mailbox, which constitutes part of the postal system. The latter frequently enjoys the status of a public utility and is subject to strict regulatory service obligations. In other words, risk passes when and – assuming the postal acceptance rule applies – the contract is formed when the letter is out of the sender's hands: in the mailbox operated by the postal service. Should ISPs be treated like the post and mail-servers like mailboxes? Depending on the answer to this question, the time of formation will vary significantly as there may be delays between the time messages are transferred between mail-client and mail-server. Also, mail-servers may "crash" and prevent messages from being dispatched or reaching the addressee's client machine. Different problems will arise depending on whether one analyzes the sending or the receiving sequence in a transaction. The question is always: when does transfer of risk occur? Intuitively, the answer is simple: mail-servers are not mailboxes and ISPs are not independent third parties, comparable to the post. Each party chose its ISP and remains in a contractual relationship with it. Despite having no actual, technical control over the mail-server, each party must assume the perils of the ISPs bad performance, including any malfunctioning of the mail-server. To claim otherwise would produce an illogical result: the addressee would bear the risks of operation of the *sender*'s outgoing mail-server and the sender would bear the risk of operation of the *addressee*'s mail-server. It must be remembered that ISPs provide a service that, from a purely technical perspective, can be undertaken by the parties themselves. Only if Internet connectivity and mail-servers were *always and exclusively* provided by a universal telecommunications provider, such 'ISP' would bear similarity to the post.[55] Entering the ISP's mail-server would be synonymous with loss of control, comparable to placing a letter into a mailbox. Given, however, that [many isp and can do oneself] the client and the server must be regarded as a single unit for which each communicating party is responsible in its entirety. Message transfers between mail-clients and mail-servers as well as the parties' frequent lack of actual control over the mail-server should be disregarded. This approach can be further strengthened by the fact that many companies do in fact run their own mail-server(s). Introducing a distinction based on control would differentiate the time of formation depending on whether a party operates its own server or not. Although Section 13 and its accompanying literature seem to emphasize actual control of the communication infrastructure,[56] the provision must be interpreted in light of the above observations.

---

[51] W Kilian, Comment on CUECIC Article 10 in *Boss & Killian* at 177.

[52]Technically, servers and clients are *processes*, not discrete pieces of machinery. Frequently their separation is only logical.

[53] David D. Clark, Marjory S. Blumenthal, "The End-to-end Argument and Application Design: the Role of Trust" (2011) 63 Fed. Comm. L.J. 357 at 359.

[54] I disregard whether the sender uses a shared computer and whether the mail-client takes the form of a browser, as in the case of web-mail, or a dedicated email application, such as Outlook.

[55] G B Delta, J H Matsuura, *Law of the Internet* (Aspen Publishers, 2nd ed. 2005) online para 3-10

[56] A/CN.9/546, para. 64.; see also CUECIC Explanatory Note 177; it must be noted that in a scenario where a message is posted on a website or when messages are exchange within a single system (e.g.. gmail to gmail

"Receipt" is associated with 'capability of being retrieved', which (in the case of email) indisputably points to the addressee's mail-*server* as messages are *retrieved* from storage spaces on mail-servers.[57] Section 13 could be interpreted as separating the mail-server from the mail-client in the case of dispatch but treating them as one unit for the purposes of receipt: dispatch equals loss of control, receipt equals ability to retrieve. In the case of email, given that the mechanism is similar, the definition should be mirrored on both sides of the communication channel or be more consistent with the actual functioning of this communication method. The discrepancy is likely to be the result of the fact that the provision applies to various methods of communication. The "capability of being retrieved" seems, however, ill-fitted for web-sites. As the contents of every web-site are hosted on a web-server and await retrieval, they are – by their very nature - always capable of being retrieved! Accordingly, they are always "received." Furthermore, how does one "retrieve" a status update on facebook or an instant message on skype? In the case of the aforementioned communication methods, a more appropriate term would seem to be "displayed."

To complicate matters, when defining "dispatch" Section 13(1)(a) refers to "parties who send messages on behalf" of the originator and points to communication intermediaries.[58] In the case of receipt, "persons acting on behalf" are not mentioned. Section 2 (1) defines "originators" of electronic communications as parties who, *or on whose behalf*, an electronic communication has been sent and does not include a party acting as an intermediary. "Addressees" are described as parties who are intended by the originator to receive the electronic communication, but do not include intermediaries.[59] The explanatory notes emphasize that the "addressee" is the person with whom the originator intends to communicate, as opposed to any person who might receive, forward or copy the message. The "originator" is the person who generated the message even if that message was transmitted by another person.[60] This implies that intermediaries belong to the sphere of control of originators or addressees respectively. While this seems to be the correct approach, it is not compatible with references made to 'control.' It also misaligned with statements indicating that Section 13 transposes traditional rules onto an electronic environment.[61] If the "control" test is applied verbatim and if postal communications are used as a point of reference, then dispatch of an email occurs when it leaves the mail-client.

One might ask: if "control" is not a correct term, what wording would be more adequate? It is not "control" by itself that creates interpretive difficulties. It is "control" combined with the vague "information system." The latter denotes the "entire range of technical means used for transmitting, receiving and storing information"[62] and does not distinguish between clients and servers[63] or between any elements of such systems. The broad definition ("entire range") renders analysis even more difficult as it points towards a further point in the network – not just the mail-server. The "information system" provided by an ISP includes a network as ISPs provide not only mail-servers but first and foremost connectivity to the Internet. Technically, the network of the ISP "ends" at the router, which interconnects its network to another network closer to the Internet backbone. Consequently, it can be said that loss of control occurs when the message leaves the network of the ISP associated with the originator. The discussion could be enriched with more technical detail, accounting for the fact that servers and routers operate at different levels (i.e. layers) of the communication infrastructure. Given the lack of clarity whether "information system" should be approached from a physical (hardware) or from a conceptual (software protocols and functions) perspective, "control" and "information system" are ambiguous. Notably, "information system" is used only in the provision concerning dispatch. When defining "receipt," it is replaced with "electronic address." The latter concept is significantly narrower than the former and makes it easier to pinpoint the exact time of formation. In the case of email, it also confirms that it is the mail-server that must be taken into account when establishing receipt as it indicates a specific

---

communications) – the message never leaves the control of the sender and receipt occurs when it is received; see Section 13 (1) (b).

[57] With certain types of email accounts (gmail, hotmail) retrieval is not necessary as messages are only accessed, not downloaded on the client machine.

[58] W Kilian, Comment on CUECIC Article 10 in *Boss & Killian* at 170.

[59] CUECIC Explanatory Note 99.

[60] CUECIC Explanatory Note 98.

[61] CUECIC Explanatory Note 171.

[62] CUECIC Explanatory Note 101.

[63] Joint IDA-AGC Review of the Electronic Transactions Act Stage 1: Electronic Contracting Issues, 2004 (Joint Review Stage 1") para 5.13.3.

location within the information system. At the same time, it is difficult to apply in web-based interactions as they usually do not involve an address.

Complications also arise from the division into "designated" and "non-designated" electronic addresses. When messages are sent to "non-designated" addresses, receipt occurs when the message becomes retrievable *and* the addressee becomes *aware* that the message was *sent* to such address. Allegedly, "awareness" is more "equitable than holding the addressee bound by a message sent to an address that the addressee could not reasonably expect would be used in the context of its dealings with the originator or for the purpose for which the data message had been sent."[64] At the same time, it was admitted that "awareness" gives power to the addressee to effect receipt and places a heavy evidential burden on senders.[65] Awareness is a difficult-to-prove, subjective factor, which is bound to create uncertainty in mass-market commercial transactions and place originators at the mercy of addressees.[66] Moreover, none of the traditional principles governing the time of contract formation refers to any subjective factors on the side of the addressee. The concept of "designation" does not form a component of the principle of receipt or the postal exception. Concerns associated with the sending of massages to non-designated addresses,[67] were justified in 1996 (when the MLEC, the predecessor of both the Act and the Convention was drafted) as email and electronic communications were a novelty and "consumers could not be expected to check their electronic mail regularly."[68] It is questionable whether such concerns remain valid in an era where pervasive connectivity and the proliferation mobile devices enables 24/7 access to email and instant messaging accounts.

Neither the Convention nor the Act clarifies how designation is to take place. While "it would not be reasonable to expect that the addressee, e.g. large business entities, should pay the same level of attention to all the electronic addresses it owns,"[69] it must also be assumed that once an address is held out or disseminated, any communication send to it should be effective. With this default rule in mind, situations where a commercial message, such as an offer or purchase order, is sent to an email address labeled "complaints" or "feedback" should be looked at *in casu*. The current wording raises the broader question whether a company maintaining a website with various email addresses should be expected to monitor all of them. Should messages sent to the "incorrect" address be internally redirected to the correct department? The concept of "designation" seems to complicate business communications on the Internet and is not consumer friendly. Associating receipt with "awareness" in the case of non-designated addresses is a step back in comparison with the previous version of the provision in ETA'98, which tied receipt in non-designated systems to actual retrieval. The latter constituted an objective and easy-to-determine event. It appears questionable whether the development of special addressing rules provides certainty in on-line contracting. "Designation" obligates senders to investigate the correct address without imposing an equivalent obligation on addressees to clearly indicate the electronic address they can be contacted at. If an address is held out to receive communications, its designation should be implied. To achieve certainty, "designation" should be defined or the concept should be abandoned altogether.

The use of the verb "reach" instead of "enter" in the provision concerning receipt is technically incorrect. According to Section 13, messages are presumed to be capable of retrieval when they *reach* the addressee's electronic address.[70] This wording disregards the fact that messages may reach the system, be rejected by a protective measure (such as a filter or firewall) and not become retrievable. Receipt would occur despite such rejection.[71] Spam filters, virus checkers may be deployed at the receiving end point of the mail transfer or "in the middle," at one of the relay points.[72] Frequently, there may be a legal obligation, express or implied, to keep the network and the resources stored thereon secure. The deployment of security measures is therefore a necessity. The only practical question is whether the security settings in a given communication scenario were reasonable in light of the resources being

---

[64] A/CN.9/528 para 143.
[65] A/CN.9/528 para 144.
[66] Joint Review Stage 1, para 5.7.
[67] W Kilian, Comment on CUECIC Article 10 in *Boss & Killian* at 169.
[68] CUECIC Explanatory Note 72.
[69] CUECIC Explanatory Note 188.
[70] CUECIC Art 10, see also CISG Art 18.
[71] In A/CN.9/528 para 80, concerns were expressed over technologies restricting receipt; for general discussion see: Ch H Martin, "The UNCITRAL Electronic Contracts Convention: Will it be Used or Avoided?" (2005) 17 Pace Int'l L Rev 261 at 294.
[72] David D. Clark, Marjory S. Blumenthal supra n x at 363.

protected. Such issues must be decided *in casu*. The term "reach" – which is copied from CISG Article 18 – does not fit this technical reality and effectively precludes any analysis whether the security measures were reasonable and the rejection of a message should be regarded as justified. One might accuse the drafters of not fully addressing all possible scenarios regarding the deployment of security measures.[73] At the same time, it must be acknowledged that allowing for *all scenarios* is virtually impossible, given the large number (and type) of possible configurations. Rather than prescribing inflexible default rules, situations in which messages have been rejected or lost must be examined individually. At present, such individual examination is precluded by the term "reach" in Section 13. The "capability of being retrieved" should be tied to "entry," as messages must enter a system - not just reach it - to become capable of retrieval. Needless to say, the word "reach" is virtually pointless in the case of interactions occurring through a web-interface. Generally – at least from the perspective of the person visiting the website - the information must be displayed to be communicated.

Lastly, Section 13 ignores the problem of the potential illegibility of messages due to system incompatibility. Receipt occurs when a message is capable of being retrieved. A technically correct solution would associate receipt with the capability "of being processed." This was the original wording in the MLEC (Article 15) and the ETA'98. Both "processability" and "legibility" seem closer to the classic principle that acceptance must be communicated – a principle resting on the assumption that the addressee will know of the acceptance of his offer. One remains sceptical whether Section 13 transposes *existing* principles onto electronic scenarios. Given the difficulty of its application to basic email exchanges, it can be questioned whether it will accommodate more complex communication methods. How would it apply where the "information system" was distributed, as in cloud computing architectures? The latter are characterized by the "information system" being device- and location-independent. How would it apply to Facebook interactions, which occur in a closed communication platform but at the same time involve geographically dispersed clusters of hardware? In sum, the mechanism presented in Section 13 is limited assistance for email interactions, and will most likely fail on web-based transactions – unless the section is interpreted in a very creative manner that takes into account the actual functioning of the communication method in question.

2.2 Section 14 – Offer and Invitation to Treat

Section 14, implementing CUECIC Article 11, provides that a proposal to conclude a contract made through electronic communications which is not addressed to one or more specific parties but is generally accessible to parties making use of information systems (including proposals that make use of interactive applications for the placement of orders through such systems) is deemed to be an invitation to make offers, unless it clearly indicates the intention of the party making the proposal to be bound in case of acceptance. A presumption is created that websites, or statements made thereon, are not binding. Interestingly, such presumption does not exist in contract law. Whether a statement is binding or not is solely a question of intention – not the manner of expression. It is not immediately apparent why a statement made on a website should be subject to different rules of interpretation than the same statement made in a newspaper or verbally. It is the *content* of a statement, not the *method* of its communication that determines its legal effect. To recall the basics: offers indicate a definite willingness to enter into a contract without further negotiations. Invitations to treat are non-binding indications of a general willingness to contract.[74] Offers can be accepted by a *single* act of acquiescence because they contain all the required contents of the contract, i.e. they are certain and complete. [75] Invitations lack the required completeness and can be regarded as requests to submit offers. Being non-binding by nature, they give the maker of the statement the ultimate choice whether to contract or not.[76] The distinction between offers and invitations depends *exclusively* on the intention of the maker of the statement and is inferred from the words in the context in which they are used.[77]

[73] W Kilian, Comment on CUECIC Article 10 in *Boss & Killian* at 167.
[74] *The Law of Contract* p 2.193.
[75] *May and Butcher Ltd v R* [1934] 2 KB 17n.
[76] *Esso Petroleum Ltd v Customs and Excise Commissioners* [1976] 1 WLR 1 at 11.
[77] *Information Technology Law*, at p 237

Invitations shield the maker of the statement from the risk of 'over-acceptance,' i.e. the inability to perform when the number of acceptances exceeds the number of items on stock.[78] Assumedly, the recurring emphasis on this 'protective' function of invitations derives from a number of cases where a website displayed incorrect pricing information and the vendor was obliged to sell its goods at the incorrect, significantly lower price. The presumption embodied in Section 14 can therefore be regarded as a safeguard against computer errors, which are an undesirable but unavoidable side effect of the increasing complexity of information systems. An example of such error is provided by *Chwee Kin Keong v Digilandmall.com Pte Ltd*, where a website offered professional printers for 66 S$ instead of S$ 3000.[79] Proponents of the presumption disregard the fact that the protective function of invitations to treat is not required in e-commerce transactions. The risk of over-exposure can easily be prevented by technological means: applications can be programmed not to accept orders of goods low on stock and dynamically change product information to reflect the number of items available. With digital products, e.g. music and software, the risk of over-acceptance is absent altogether as the supply of such "products" is infinite. Lastly, the website operator can protect himself by explicitly stating that the website does *not* constitute an offer. A simple disclaimer is as effective as a technological measure. In practice, e-commerce is dominated by browse-wrap and click-wrap contracts, where the entire formation process is confined by a rigid transacting interface. It must be noted that the last act in a transacting sequence need not necessarily constitute acceptance. In a typical B2C purchase, the customer must insert/select the required amount or description of the goods/service in question as well as provide delivery and payment details. Quite often he or she must also explicitly or implicitly agree to a set of standard terms. The latter often determine the legal character of the response expected from the other party or state who makes the acceptance.[80]

The discussion could end here. Given the large interest generated by the issue at hand, some additional observations are apposite. Section 14 can be regarded as an example of misplaced focus. It cannot be denied that websites are comparable to virtual shop displays, mail-order catalogues or traditional advertising in mass media, all of which are routinely regarded as invitations.[81] Both advertisements and shop displays, however, may constitute offers if they are sufficiently certain to allow the inference of intention.[82] There is no legal presumption that a shop display or an advertisement is always an invitation. More importantly, websites can also be compared to vending machines, which are generally regarded as offers.[83] An intention to be bound is expressed by displaying the machine and delivering the product or service to *anyone* who inserts the coin.[84] The resemblance to vending machines is particularly strong, when the delivery of a digital 'product' or service occurs directly on or from the website.[85] In this sense, amazon.com or iTunes are nothing but giant, sophisticated vending machines with the user interface taking the form of the webpage displayed in the browser window and the delivery mechanisms taking the form of database servers operating in the background.

The legal effect of a statement does not depend on the number of addressees. It is trite law that if an offer is made to the public at large the offeror becomes liable to the person who accepts, not to everyone.[86] Although websites are *potentially* available to anyone with an Internet connection, they are a pull medium, i.e. a website must be specifically requested before it displays on the computer screen. In this sense, websites do not resemble publicly displayed billboards, which are virtually impossible to avoid by anyone within their line of sight. A website is not broadcast - it is requested. Its "reach" is limited to

---

[78] *Grainger & Son v Gough (Surveyor of Taxes)* [1896] AC 325 at 334; *Partridge v Crittenden* [1968] 2 All ER 421; *Digilandmall* at [94]-[96] per V K Rajah; see also: Joint Review Stage 1, para 4.2.2.
[79] [2004] SGHC 71.
[80] *Information Technology Law*, at p 236
[81] *The Law of Contract* para 2.196.
[82] *Carlill v Carbolic Smoke Ball Co* [1893] 1 QB 256 at 262, *Lefkowitz v Great Minneapolis Surplus Store* 86 NW 2d 689 (Minn 1957); *Lexmead (Basingstoke) Ltd v Lewis* [1982] AC 225; see also M A Eisenberg, "Expression Rules in Contract Law and Problems of Offer and Acceptance" (1994) 82 Cal L Rev 1127 at 1167, 1168, who criticizes the counter-intuitive nature of the construction rule that shop displays are invitations, as such rule cannot be based on the understanding of the reasonable addressee.
[83] *The Law of Contract* par 2.199; *Thornton v Shoe Lane Parking Ltd* [1971] 2 QB 163; see also: *digilandmall* at 93.
[84] P S Atiyah, *An Introduction to the Law of Contract*, (Oxford University Press, 5th ed., 1995) at p 58.
[85] A Endeshaw, "Web Services and the Law: A Sketch of the Potential Issues" (2003) 11 IJT & IT 251.
[86] *Carlill v Carbolic Smoke Ball Co* [1893] 1 QB 256 at 268; but see: E Özsunay, supra at 177, who cryptically states that absent evidence of contractual intention, an electronic communication addressed to the world at large cannot be an offer.

those who specifically type in the URL or follow the requisite link. Otherwise it remains hidden from view. One must therefore remain skeptical about statements implying that the legal character of a website is (or should be) affected by its "unlimited reach" or "unlimited number of addressees." Skepticism is also warranted when analyzing the popular question "are website advertisements binding?" Not every website is an advertisement. The starting point of any analysis is the intention expressed by a statement. The question should be: *is this statement intended to be binding?* and not: *is this statement an advertisement, a shop display or a vending machine?*[87] According to the principle of technology neutrality, the legal effect of a statement should not depend on the manner of its expression. Technology should not eclipse content. Contract law is only concerned with the question whether the maker of a statement wanted to be bound – not whether he addressed it to a specified number of addressees or whether the resulting contract could be performed immediately. The ability to immediately perform the contract is not a prerequisite of an offer and need not indicate an intention to be bound.[88] The introduction of a presumption unnecessarily prejudices the analysis and alters well-established rules. One author, who addressed the issue before the new ETA was enacted, described the introduction of a default rule as an "unusual statutory development."[89]

2.3 Section 15 – Automated Transactions

Following CUECIC Article 12, Section 15 asserts that contracts formed through the use of automated systems are valid and enforceable, even though no natural person had reviewed the action of the systems or output of its operations. Allegedly, such provision is necessary to "give legal effect to the acts of electronic agents, which are increasingly used in e-commerce."[90] Notably, ETA'98 dealt with problems of automation under "attribution." According to Article 13, an electronic record was deemed to be that of the originator if it was sent "by an information system programmed by or on behalf of the originator to operate automatically." Given the continuing debate on the topic, it is worthwhile discussing the contractual aspects of "automation" in more detail. Despite the fact that web-based transactions have been at the heart of e-commerce for more than a decade,[91] it is frequently being implied that contracts concluded with the assistance of computers[92] require a theoretical framework justifying their validity. Multiple theories propose the "emancipation" of computers[93], possibly as a response to their increasing sophistication.[94] Once statements are not merely transmitted by computers but also *generated* by them, it becomes difficult to attribute these statements to the persons operating such computers ("operators").[95] The main source of doctrinal discomfort is "autonomy:" the old vending machine morphs into an "intelligent" system that forms its *own* decisions[96] and acts on the basis of its *own* experiences.[97] This leads to the conclusion that "autonomous" (i.e. sophisticated) computers should be separated from their operators and endowed with legal capacity. In other words, automated transactions are "validated" by emancipating the computer or comparing it to an agent. Both approaches serve to distinguish between those 'automated contracts' that should bind the operator from those, which should not.[98] Separation theories attribute computer-generated output *to the computer* to protect the operator from the consequences of unplanned or incorrect operations. As a result, it becomes necessary to grant legal

---

[87] Andrew Murray p. 416
[88] E Özsunay, Comment on CUECIC Article 11 in *Boss & Killian* at 182.
[89] A Phang, "Contract Formation and Mistake in Cyberspace" (2005) 17 SAcLJ at 370
[90] Ter Kah Leng, "Towards Uniform Electronic Contracting Law" (2006) 18 SAcLJ 234 at 244
[91] W A Effross, "The Legal Architecture of Virtual Stores: World Wide Web Sites and the Uniform Commercial Code" (1997) 34 San Diego L Rev 1263; S T Middlebrook, J Muller, "Thoughts on Bots: The Emerging Law of Electronic Agents" (2000) 56 Bus Law 341; K C Laudon, C G Traver *supra* n 12, at paras 4-16 and 7-52.
[92] For all intents and purposes the term "computer" can be used interchangeably with "information system."
[93] G Finocchiaro, "Electronic Contracts and Software Agents: The Conclusion of the Electronic Contract through "Software Agents" A False Legal Problem? Brief Considerations" (2003) 19 CLSR 20.
[94] J Bongard, V Zykov, H Lipson, "Resilient Machines Through Continuous Self-Modelling" (2006) 314 Science 1118; W Kilian, Comment on CUECIC Article 12 in *Boss & Killian* at 187.
[95] T Allen, R Widdison, "Can Computers Make Contracts?" (1996) 9 Harv J Law & Tech 25 ("*Allen & Widdison*"); Ch C Nicoll, "Can Computers Make Contracts" (1998) JBL 34; see also: Joint Review Stage 1, para 6.2.1.
[96] E Weitzenboeck, "Electronic Agents and the Formation of Contracts" (2001) 9 Int JLIT 204; L E Wein, "The Responsibility of Intelligent Artifacts: Towards and Automation Jurisprudence" (1992) 6 Harv J Law & Tech 103
[97] S J Russell and P Norvig, *Artificial Intelligence: A Modern Approach* (Prentice Hall, 1995) p 31.
[98] S Chopra, L White, "Artificial Agents and the Contracting Problem: A Solution via an Agency Analysis" (2009) U. Ill. J.L.Tech. & Pol'y 363 at 393.

capacity to the computer - otherwise there is nobody to be held accountable. This approach, however, renders it difficult to attribute the *correct* output to the operator.

The above theories can be rejected on a number of grounds. As a starting point, *unplanned* output is not synonymous with *incorrect* output. Software is by nature unreliable.[99] A corollary of technical sophistication and self-learning algorithms is that computers may produce transactions unfavorable to the operator, such as issuing a purchase order at a price that exceeds an amount acceptable to him. Unfavorable transactions may, however, be the product of correct operations. The difference lies only in the subjective perception of the operator. Objectively, from the perspective of the person transacting "with" the computer the output produced by a malfunction may be identical to the output produced by the correct operation. Theories relying on "autonomy"[100] also ignore the fact that a computer is autonomous because it was *programmed* to be autonomous. It did not self-acquire this feature. It is always a human person who *instructs* and *controls* a computer. There is no justification - theoretical or otherwise - for technical sophistication to translate into legal capacity. It is therefore not a question of establishing what computers must be able to do for the law to treat them as persons.[101] Legal capacity is not a function of technological advancement. Moreover, as computers do not "have" assets, it does not matter whether they have legal capacity.[102] The only asset susceptible of economic evaluation is the software or hardware - owned by the operator.

A parallel trend, based on the fact that computers can be programmed to respond with a complexity close to human,[103] compares computers to agents.[104] The term 'electronic agent' permeates both legal literature and model regulations. Agency principles appear to provide automation with a solid theoretical framework: agents are *instruments* of the principal, intention and capacity belong to the latter, not the former.[105] As agency relationships may arise by operation of law, the agent's consent or the principal's willingness to have his position changed are not required.[106] Authority, both actual and apparent, is conferred by putting the computer into operation.[107] Agency-based theories must, however, be discarded as relaying on the incorrect premise that computers are separate rights-and-duty bearing entities. There being no two separate *persons*, there can be no agency relationship. Agency constructs lead back to separation theories and the necessity to grant capacity to the computer. It is also forgotten that "apparent authority" relies on the perception of third parties.[108] The more sophisticated the computer - the more transparent its operations. Third parties have no reason to believe they are transacting with an agent. It is therefore counter-intuitive to assume that they are analysing websites in terms of authority. Absent a perceived division into principal and agent, there can be no *appearance* of authority. To protect operators from unplanned or incorrect output, proponents of agency theories claim that operators are only liable for output, which *appears* to be within the scope of authority. Inadvertently, this approach imposes the burden of investigating back-office operations on the person *least able to do so* – the person interacting "with" the computer. The attribution of *correct* output to the operator is further justified on the basis of ratification.[109] This approach, however, invites abuse: the operator can decide whether the output is advantageous in retrospect and selectively ratify *some* transactions.[110] Again, ratification requires *two* separate entities and that the principal's existence is known to the third party.

---

[99] C Karnow, "Liability for Distributed Artificial Intelligences" (1996) 11 Berkeley Tech L J 147 at 161.
[100] L B Solum, "Legal Personhood for Artificial Intelligences" (1992) 70 NCL Rev 1231.
[101] M Bain, "E-commerce Oriented Software Agents: Legalising Autonomous Shopping Agent Processes" (2003) 19 CLSR 5; *Allen & Widdison* at 37.
[102] J-F Lerouge, "Symposium: UCITA: The Use of Electronic Agents Questioned Under Contractual Law: Suggested Solutions on a European and American Level" (1999) 18 J Marshall J Computer & Info 403 at 410.
[103] I R Kerr, M Bornfreund, "Buddy Bots: How Touring's Fast Friends are Under-Mining Consumer Privacy" (2005) 14 Presence: Teleoperators and Virtual Environments 6
[104] J P Fisher, "Computers as Agents: A Proposed Approach to Revised UCC Article 2" (1997) 72 Ind L J 545 at 570; D D Wong, "The Emerging Law of Electronic Agents: E-commerce and Beyond" (1999) 33 Suffolk U L Rev 83 at 87; A J Bellia Jr, "Contracting with Electronic Agents" (2001) 50 Emory L J 1047; W Kilian, Comment on CUECIC Article 12 in *Boss & Killian* at 186.
[105] G H L Fridman, *Fridman's Law of Agency* (Sweet & Maxwell, 6th ed., 1990) at 50-51; F M B Reynolds, *Bowstead & Reynold's on Agency* (Sweet & Maxwell, 16th ed, 1968) at pp 3-4.
[106] G H L Fridman *supra* at pp 98, 119.
[107] I R Kerr, *supra* n 98 p 35
[108] *Bowstead & Reynolds supra* n 100 p 8
[109] I R Kerr, *supra* n 98 p 38
[110] *Bowstead & Reynolds supra* n 100 p 54

Last but not least, the validity of automated transactions is being questioned on the ground of lack human intention *at the time* of contract formation. It is forgotten that **t**he parties' minds need not meet in perfect simultaneity.[111] A direct parallel can be drawn to vending machines: intention persists as long as the computer is held out. Computers do not make their "own" decisions, but execute earlier human decisions within the limits of pre-set parameters.[112] The original expression of intention consists in programming and deploying the computer. Once manifested by holding out the computer, intention need not explicitly refer to all future transactions. Arguments based on the remoteness of human involvement conflate "intention" and "awareness," as they imply that there is no intention if the operator is not aware of a particular transaction taking place.[113]

Arguments justifying the necessity to "validate" automated transactions can be rebutted by a simple contention: the complexity or correctness of the original programming is as irrelevant as the subjective state of mind. The provenance of a statement need not be apparent from its contents. Quite the opposite: sophisticated computers will most likely generate statements *identical* to those made by humans.[114] The only question is whether a reasonable person would think the other party intends to contract on the terms provided.[115] The objective theory of contract disregards the fact that a statement was not only manifested but also generated by a computer. Both occurrences are transparent to the addressee and therefore irrelevant. Persons visiting a website cannot see (or imagine) the technological complexity of servers and databases, which operate in the background. This reasoning underlies the scarce case law on the subject.[116] In *State Farm Mutual Insurance Co v Bockhorst*, computer errors were regarded as errors of its human controllers.[117] The court in *Thornton Shoe Lane Parking*[118] stated that the machine was only a presenter of the defendant's offer. Law protects those who reasonably rely on the communications emanating from the computer, the latter being a "booking clerk in disguise."[119] By initiating the computer, operators accept that contracts concluded by the computer are binding on them - despite any malfunctions or programming errors. [120]

The protection from unplanned or incorrect output can be achieved by the classic principles of unilateral mistake[121] or on the basis of lack of contractual intention.[122] Where the addressee should be reasonably aware that a statement does not represent the intention of its maker, he is in the best position to reduce the costs of unexpected obligations.[123] One cannot take advantage of appearances when the "actual reality of the situation is starkly obvious"[124] or "snap up" offers which cannot reasonably represent the intention of their makers.[125] Problems arise, however, when computer-generated output remains within the bounds of commercial reasonableness, i.e. the other party has no reason to know that the output was *not* intended (i.e. incorrect). In such case, the decision turns on the question: *was the mistake (malfunction) apparent to a reasonable man?*[126] A balance must be struck between objectivity and the imposition of a minimal investigative burden when a deal is "too good to be true." Despite its unappealing simplicity, the analogy between websites and vending machines is correct. Automation

---

[111] *Kennedy v Lee* 36 Eng Rep 170 (Ch 1817); J M Perillo, "The Origins of the Objective Theory of Contract Formation and Interpretation" 69 Fordham L Rev 427 at 439, 440
[112] R Nimmer, *Contract Law in Electronic Commerce* (2000) 587 PLI/Pat 1127
[113] S Chopra, L White *supra* n 93 at 366
[114] Toh See Kiat, *Law of Telematic Data Interchange* (Butterworths Asia, 1992) at p 32.
[115] P Atiyah, *Essays on Contract* (Oxford 1990) at p 21.
[116] see e.g.*: Child's Dinning Hall Co v Swingler* 197 A 105 (Md 1938); *Bernstein v Northwestern National Bank in Philadelphia* 41 A2d at 442; *Marsh v American Locker Co* 72 A 2d 343 (NJ Super Ct 1950); *Ellish v Airport Parking Co of America* 345 NYS 2d 650 (NYAD 1973).
[117] *State Farm Mutual Automobile Insurance Co v Bockhorst* 453 F 2d 533 (USCA 10th Circuit 1972).
[118] *Thornton v Shoe Lane Parking Ltd* [1971] 2 QB 163.
[119] *Thornton v Shoe Lane Parking Ltd* [1971] 2 QB 163 at 169.
[120] *Allen & Widdison* at 46; M J Radin, "Humans, Computers and Binding Commitment" (2000) 75 Ind L J 1125 at 1128.
[121] *Hartog v Colin Shields* [1939] 3 All ER 566; *Smith v Hughes* (1871) LR 6 QB 597.
[122] *Hartog v Colin Shields* [1939] 3 All ER 566 at 568; *Taylor v Johnson* (1983) 151 CLR 422; see also: *Digilandmall* per V K Rajah at 136; Joint Review Stage 1 para 4.4.3.
[123] *Allen & Widdison* at 46
[124] *Digilandmall* at 105.
[125] *Tamplin v James* (1880) 15 Ch D 215; Ter Kah Leng, "Legal Effects of Input Errors in eContracting" (2006) 22 CLSR 157.
[126] *Taylor v Johnson* (1983) 151 CLR 422; A Phang, "Contract Formation and Mistake in Cyberspace" (2005) 21 JCL 1 at 202.

comports with the objective evaluation of contractual intention and with the possibility to express such intention in any manner. Contract law is indifferent to the fact that a message was not *only* transmitted but also *generated* by a computer. From the addressees perspective the statement is the same. Although theoretically redundant, the introduction of Section 15 into the ETA is praiseworthy as closing a long legal debate.

2.4 Section 16 – Input Error

Section 16, which follows CUECIC Article 14, recognizes the difficulties brought about by novel transacting interfaces in web-based transactions. It continues the protective theme from Section 14, albeit from a different perspective. Whereas Section 14 is tailored to the needs of website operators and shields them from overexposure, Section 16 is directed at persons interacting with websites. It provides that where a natural person makes an input error in an electronic communication exchanged with the automated message system of another party and such system does not provide an opportunity to correct the error, that person has the right to withdraw the portion of the electronic communication in which the input error was made. This right of (partial) withdrawal applies if the person who made the error:

> (a) notifies the other party of the error as soon as possible after having learned of the error and indicates that he made an error in the electronic communication; and
>
> (b) has not used or received any material benefit or value from the goods or services, if any, received from the other party.

The above mechanism can only be invoked by natural persons interacting with automated systems. It does not apply to errors in the functioning of such systems. A clear dividing line must therefore be drawn between *computer* errors and *input* errors. The most common example of a "Section 16 situation" is a person filling out an order form on a website and accidentally typing '11' instead of '1.' The provision does not cover situations like *digilandmall*, as in that case the problem was attributable to an error on the side of the person *operating* the automated system, not to an incorrect selection by the person *interacting with* the system.

While the desirability of the mechanism contained in Section 16 cannot be questioned in limited circumstances, such as in consumer protection legislation,[127] the principle established therein may be difficult to apply and produce further complications. The provision differs from the classic principles of contract law: parties are generally bound by their manifested intention and cannot retract previously made statements. In limited circumstances, when the existence or "quality" of a party's intention can be questioned on the grounds of mistake, misrepresentation, undue influence or unconscionability, the whole contract may be subject to the right to rescind or be void *ab initio*. Contract law does not recognize a right to retract a statement once a contract has been formed. It must not be forgotten that in the scenario addressed by Section 16 a valid and enforceable contract might have come into being. The right to withdraw disregards the latter circumstance – the statement can be withdrawn before or after formation. The main weakness of Section 16, however, lies in the absence of any indication of the legal effects of withdrawal. Whether it would invalidate the contract depends on the nature of the retracted portion. In many instances, even a partial withdrawal may deprive the statement of its certainty and completeness thereby annihilating the entire transaction. If, for example, the item number or the item selection is withdrawn – the contract cannot stand as it is devoid of the contractual subject matter. It has been suggested that the right of "partial withdrawal" derives from the desire to preserve the contract to the extent possible, by focusing only on the portion of the message that contains the error.[128] The 'right to withdraw' the relevant portion was preferred to a 'right to correct' the original statement. Allegedly, the right to correct would create an obligation on the side of the website operator to keep negotiations open for a new contract.[129]

---

[127] See, e.g. Joint Review Stage 1 para 6.5.5.
[128] John D. Gregory, Joan Remsu, Comment on CUECIC Article 14 in *Boss & Killian* at 206.
[129] *Ibid.*

It is difficult to categorize Section 16 within contract law and to anticipate the legal effects of partial withdrawal. The mechanism does not fit the principles of rectification as the latter pertains to a failure to correctly record the intention of both parties.[130] Rectification relates to existing contracts, whereas partial withdrawal pertains to the antecedent question whether a contract has been formed or whether it can continue to exist. The absence of an opportunity to correct remotely resembles a vitiating factor as, in effect, it may prevent a contract from coming into being or annihilate what seems to be a valid contract. Despite the intuitive association of 'input errors' with 'mistake,' the former do not easily fit under any of the popular scenarios relating to contractual mistake. Only in exceptional circumstances, e.g. when an element of inducement or knowledge of the mistake is present,[131] can a mistaken belief of one party produce legal consequences. Under the common law position, the contract would be allowed to stand unless the mistake or error must have been obvious to a reasonable person. Section 16 is not, however, intended to interfere with or alter the rules of mistake, especially regarding its consequences. Seemingly, the provision is designed to *prevent* mistakes, i.e. a discrepancy between *real* and *expressed* intention. If an opportunity to correct errors is provided, the right of withdrawal does not exist and any 'errors' are governed by traditional principles.[132] Section 16 precedes any discussions of mistake and does not necessarily overlap with the said doctrine. After all, mistake pertains to incorrect intention, whereas Section 16 addresses a situation where the problem lies only in an incorrect manifestation of such intention. The provision also sidesteps the classic prerequisite of an operative mistake: "fundamentality."[133] The right to withdraw exists irrespectively of the importance of the erroneous statement. Quite the opposite: absent an opportunity to correct, the right to withdraw can be exercised on the basis of the smallest triviality. In other words, the provision disregards both intention and fundamentality.

As an aside, it can be mentioned that although *digilandmall* related to a scenario where the input error (i.e. uploading the incorrect template to a web-server) was made by the party operating the automated message system, some observations made therein are transposable to situations where the error is made by a natural person. Ultimately, the problem concerns the broader question whether the error was or should have been apparent to the other party.[134] As in the case of computer error, recourse can be had to the objective theory of contract. The contract's existence can be denied when the addressee of the erroneous statement must have known that it did not represent the true intention of its maker. The objective test does not apply in favor of a person who knows the truth.[135] Irrespective of whether the problem is discussed from the perspective of mistake or on the basis of lack of contractual intention the practical result is similar: there is no agreement. This approach is also buttressed by popular statements questioning the existence of the doctrine of mistake and treating the associated issues as part of the "offer and acceptance model."[136] Combining constructive knowledge and objectivity, the presence of an input error could easily translate into an absence of consensus. The problem with this seemingly simple solution lies in the fact that an evaluation of the "true intention" of a natural person cannot be undertaken by an automated system. Evaluating the objective reasonableness of a statement requires *human* review…

The right of partial withdrawal is contingent on the absence of an opportunity to correct the error - not on the intention of the party who made the error. Absent such opportunity (assuming notice was provided and no benefit has been obtained), a natural person may retract virtually any statement - even if it was originally intended. In other words, the "error" may not have been an error. The provision was designed to address situations where a natural person types in '111' or '11' instead of '1.' Unquestionably, it would be more difficult to imply constructive knowledge on the side of the website operator when the input error takes the form of '11' instead of '111.' Much will depend on the character of the transaction (commercial or consumer), the price and the contractual subject matter. Section 16, however, permits withdrawal in situations where the natural person typed in '2' instead of '1' or selected item X from the scroll down menu and later changed her mind having found the same item cheaper elsewhere. In both instances, the

---

[130] *Law of Contract* 4.115, p 1029.
[131] *Hartog v Colin & Shields* [1939] 3 All ER 566; *Taylor v Johnson* (1983) 151 CLR 422.
[132] CUECIC Explanatory Note 233.
[133] A Phang, *Cheshire, Fifoot and Furmston's Law of Contract* (Butterworths, 2nd Singapore and Malaysian Ed, 1998) at p 414.
[134] *Digilandmall* at 149.
[135] E Peel, Treitel, the Law of Contract, ((Sweet & Maxwell, 12th ed., 2007) at p 10.
[136] For a detailed discussion see: *S Smith, P Atiyah, An Introduction to the Law of Contract* (Oxford University Press, 6th ed, 2006) pp 76, 77, who speak of mistakes in *formation;* see also: A Phang *supra* n 121 at 420.

original intention reflected the expressed intention. In both instances, however, the shopper can withdraw from the transaction as long as there was no opportunity to correct the input. Some practical considerations enter the picture. First, the immediacy of notice implies that the words "as soon as possible" are practically synonymous with "before any benefit has been obtained." This may not cause many problems where physical goods must be dispatched but will be difficult in the case of virtual goods. The natural person may only have as much time as it takes to download the music, application or movie. Having chosen the correct method of communication (in terms of speed), the person trying to exercise the right to withdraw must also chose the correct, *designated* address – as per Section 13. If the chosen address was not designated, the effectiveness of notice will depend on the awareness of the operator of the automated message system. Given that the message system is automated, awareness of its human operator may be delayed or absent altogether. Absent a separate indication of address for the purposes of notice of withdrawal, the provision is bound to create a cascade of practical and theoretical problems. In sum, Section 16 requires that whenever a web-interface is not equipped with an opportunity to correct input errors there must be a clear indication (i.e. designation) of an address where the withdrawal can be sent. The question arises: why would an operator who failed to provide a corrective mechanism bother to indicate an address for the exercise of the right to withdraw?

While Section 16 does not seem to directly interfere with principles of contract law, especially with the doctrine of mistake, its legal effect is difficult to evaluate as it creates a *sui generis* right that does not fit easily within the existing legal framework. It is not immediately apparent whether it will facilitate electronic transactions or constitute an additional theoretical hurdle in legal analysis. Apart from its implications for contract formation in web-based commerce, the provision will directly affect the design of transacting interfaces. Without judicial guidance, the provision is bound to result in uncertainty after the right to withdraw has been exercised.

3. Conclusions:

Certainty at last? Do the new provisions facilitate electronic contracting and contribute to the removal of existing uncertainties? Even a superficial overview of the Act and a simple attempt to apply it to email communications or web-based transactions reveal that in most instances, the amendments add an additional layer of complexity to the traditional analysis. This complexity derives from the difficulties in interpreting the provisions in light of the actual functioning of "electronic communications" and their interaction with the classic principles of contract law. It can hardly be concluded that the Act provides certainty or facilitates e-commerce. Crafting any "special" rules to address electronic methods of communication inevitably creates a dual regime within contract law: one for contracts formed by traditional means and one for contracts formed "electronically." It is unclear whether the existence of such "duality" was intended or whether it constitutes an undesired side-effect of the amendments. It can even be questioned whether the new provisions can co-exist with "classic" contract law without creating analytical bottlenecks and interpretative problems. Given the broad scope of the term "electronic record," the new provisions may affect transactions that are not otherwise perceived as "electronic."

The creation of default rules and presumptions tailored to specific technologies, such as those introduced by Section 14 with regards to invitations to treat, unnecessarily strengthens the perception that electronic transactions require different treatment or that contract law in its current state is unable to accommodate them. Contrary to popular belief, contract law contains a sufficient set of tools to absorb any developments in the way parties communicate intention. In accordance with classic contract doctrine, the intention of the parties remains paramount - irrespective of the manner the contract is concluded. The content of statement is more important than the method of its communication. In this sense, it is questionable whether any regulation is necessary in the first place. The confirmation of the validity of automated transactions in Section 15 closes a lengthy argument that has been permeating legal literature for years. The admissibility of automated contracting derives directly from the basic principles of contract law and, theoretically, does not require confirmation. Irrespective of the foregoing, the practical effect of Section 15 will be beneficial or neutral. This, however, cannot be said about Section 13. Supplementing the traditional rules of establishing the time of formation with provisions defining "dispatch" and "receipt" does not enhance certainty in electronic transactions - especially given the broad meaning of "information system" and the reference to "control." The provision downplays the complexity of modern communication technologies and fails to identify the real problems created by modern, network-based

communications. It simplistic approach to technology renders it difficult to apply in even most basic e-commerce transactions. The division into "designated" and "non-designated" addresses further complicates the question regarding the time of formation of contracts concluded electronically by introducing a set of rules, which are absent in traditional contract law. The right to withdraw a portion of the statement in web-based transaction, as stipulated by Section 16, while providing an incentive for clearer transacting interfaces, affects the certainty of e-commerce by indirectly encouraging attempts to withdraw from the transaction. It also leaves a theoretical gap after the right of partial withdrawal has been exercised and creates potential for abuse: an existing contract can be annihilated on the basis of a mere technicality.

Sections 13, 14 and 16 set incorrect points of departure for examining the legal issues at hand. The very existence of these provisions may inhibit the growth of e-commerce by imposing an additional analytical hurdle in evaluating transactions, which involve "electronic" methods of communication. The proposed default rules must be regarded as either unnecessary or too simplistic to ensure certainty. It can be suspected that the sheer multiplicity of technical configurations renders it practically impossible to provide a one-size-fits-all regulation. The richness of "electronic" interactions can only be accommodated by a case-by-case analysis weighing the risks and interests of a given communication scenario.

Given the above uncertainties, contracting parties are advised to include express provisions in their agreements, which would be tailored to the specific communication method deployed in a given transaction and prescribe the time of formation and/or the legal character of the individual acts. The parties can also explicitly exclude the operation of the ETA.[137] Otherwise, the default settings provided by the Act are bound to introduce difficulties – especially when dealing with the establishment of the time of formation. This is a regrettable outcome. After all, "inefficient defaults only raise transaction costs unnecessarily" as the parties are compelled to contract out of them.[138]

Legislation resembling the ETA should aim at modernizing *individual* statutes that may contain provisions incompatible with technological progress. Specific *contractual* issues should be left to common law developments. After all, facilitating legislation was not necessary to accommodate the post or telephone. The latter methods of communication, although revolutionary at the time of their introduction, were slowly absorbed under the existing regimes. Some uncertainty is always present when applying the principles of contract law to novel transacting scenarios – such as those encountered in electronic transactions. Frequently, this uncertainty is the result of a general discomfort with the communication technology in question – not the existence of any obstacles to its use.

.* * * * *

Cite as: Mik, Eliza. Certainty at last? A "new" framework for electronic contracting in Singapore. .*Journal of International Commercial Law and Technology,* Vol.8 No.3 *(*July, 2013)

[137] See ETA Section 5 (3) (a), which indicates that sections 13,14,15 and 16 (amongst others) can be excluded by agreement from applying to a contract.
[138] A Schwartz, R E Scott, "Contract Theory and the Limits of Contract Law" (2003) 113 Yale L J 541 at 608.