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Should Bills of Lading be Recognised Under the Electronic Transactions Act 2000 (Cth) – if so, What Changes are Required for This?

Introduction

Emerging developments in trade digitisation are facilitating the increasingly digital nature of commercial dealings.¹ However, Australia's reluctance to recognise electronic bills of lading (e-bills) under the Electronic Transactions Act 2000 (Cth) (The Act) is inconsistent with this global movement towards an international digitised market.² While few legal systems recognise e-bills at present, international pressure for universal e-bill adoption is developing.³ Australia's non-recognition of e-bills is *prima facie* based on concerns over their functional equivalence. Accordingly, e-bills' recognition in The Act turns on whether this can be mitigated.

Bills of Lading

Australia's Bills of Lading

Bills of lading are commercial documents used to accompany freight.⁴ A carrier issues a bill to the exporter of goods, it states the agreement between shipper and carrier, and it must adhere to formality requirements.⁵ Bills also regulate the legal relationship between parties and serve the following key functions:

1. proof of a contract of carriage between exporter and carrier
2. documentary receipt for the goods
3. entitles the holder of the bill to acquire the relevant goods, as would a document of title.⁶

E-Bills in Australia

Section 7(1) of The Act notes that a transaction is not invalid for occurring wholly or partly via electronic communications.⁷ However, The Act presently does not expressly recognise electronic transferable records.⁸ Accordingly, e-bills are not recognised by The Act. However, a modern basis for attempts to do so is the United Nations Commission's UNCITRAL Model Law on Electronic Transferable Records (MLETR), adopted in 2017.⁹ MLETR adoption "[enables] use of electronic transferable records in ... domestic and international contexts", including e-bills.¹⁰ Australia is presently not party to the MLETR.¹¹



Patrick Stratmann

Should E-Bills be Recognised in Australia?

To determine whether e-bills should have ETA recognition, the advantages and disadvantages of using paper and e-bills should be evaluated.

Advantages of Paper Bills

Inability to be Hacked

Paper-based bills are not subject to e-bills' "latent risks" of hacking.¹² Noting how bills of lading are regarded as "the most important document" in shipping transactions,¹³ paper bills cannot be hacked.¹⁴ However, a recent cyber-attack against United States' fuel suppliers confirms the prevalence of cyber-attacks on commercially-transacting parties, which is facilitated by the e-bill system.¹⁵ Accordingly, whilst these hacking frauds are "rare", parties appear to preference paper bills due to the inability for e-bills' to "[completely] protect" their information, which "outweighs" the potential benefit from automated and cost-effective operation of e-bills.¹⁶

Disadvantages of Paper Bills

Forgery and Misdelivery

Paper bills' tangibility allows them to be manually forged, which – while possibly amounting to misdelivery of the associated goods – does not abrogate carriers' liability.¹⁷ Although *MSC Mediterranean* represents how e-bills are also susceptible to alternative fraud risks,¹⁸ the recent dispute in *Australian Capital Finance* indicates that paper bills are more "[insecure]" and "vulnerable to fraud",¹⁹ affirmed in Resolution MSC.428.²⁰

Advantages of E-Bills

Environmentally Friendliness

There are significant environmental reasons for trading parties to reduce their adverse environmental impacts, which would be supported by implementing an intangible e-bills system.²¹ The Digital Container Shipping Association recently advised that an e-bill system will not only "make every aspect of container shipping better, faster, cheaper (and) more secure", but be "environmentally friendly".²² This is also contemplated by IMO Resolution A.741(18), which facilitated the adoption of the International Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM Code),²³ which Australia is implementing as a party.²⁴

Capacity for "Smart Contract" Developments

The digital existence of e-bills allows for novel technology developments to be implemented in their function, which are highly advantageous to parties in terms of cost-effectiveness, risk assessment and certainty.²⁵ This also suggests that e-bill ETA recognition enables Australian trade to be kept abreast of commercial advances. An example of these digital incorporations are "viable smart contract-enabled" platforms, which are also compatible with Australia's adoption of MLETR.²⁶ For example, Abdellatif explores the viability of "smart contracting" for e-bills in the context of inserting a "GPS device feeding data on the location of goods in transit into [a] contract".²⁷ This system can effectuate payment to a carrier once the GPS registers either:

- a) goods' arrival to the destination
- b) a buyer recording the goods as having arrived in the appropriate condition.²⁸

This suggests that, unlike paper bills, use of e-bills allows for maritime commerce to be more efficient by incorporating developing commercial tools.²⁹

Disadvantages of E-Bills

Risks of Data Corruption and/or Loss

A practical disadvantage with e-bills is the “inherent risk” of data loss.³⁰ Unlike tangible paper bills, e-bills expose carriers to the risk of digital data corruption.³¹

On balance, particularly considering the technological and cost-saving benefits, e-bills appear more commercially viable than paper bills and therefore it is argued, they should be recognised under The Act.

Barriers to E-Bills’ Functional Equivalence

While ETA recognition would technically only require a statutory amendment, there is significant opposition against this change based on concerns that e-bills will lack functional equivalence with paper bills. Notwithstanding that e-bills should be recognised, there are two practical barriers to their functional equivalence.³² One barrier is that e-bills cannot serve the discrete functional operation of paper bills (discrete operational equivalence).³³ The second barrier is that e-bills are not equally viable for use in global trade markets as paper bills (international viability).

Discrete Operational Function

A metric of e-bills discrete operational equivalence is whether they can serve the below functions of paper bills, which are essential for any bill of lading’s commercial use:

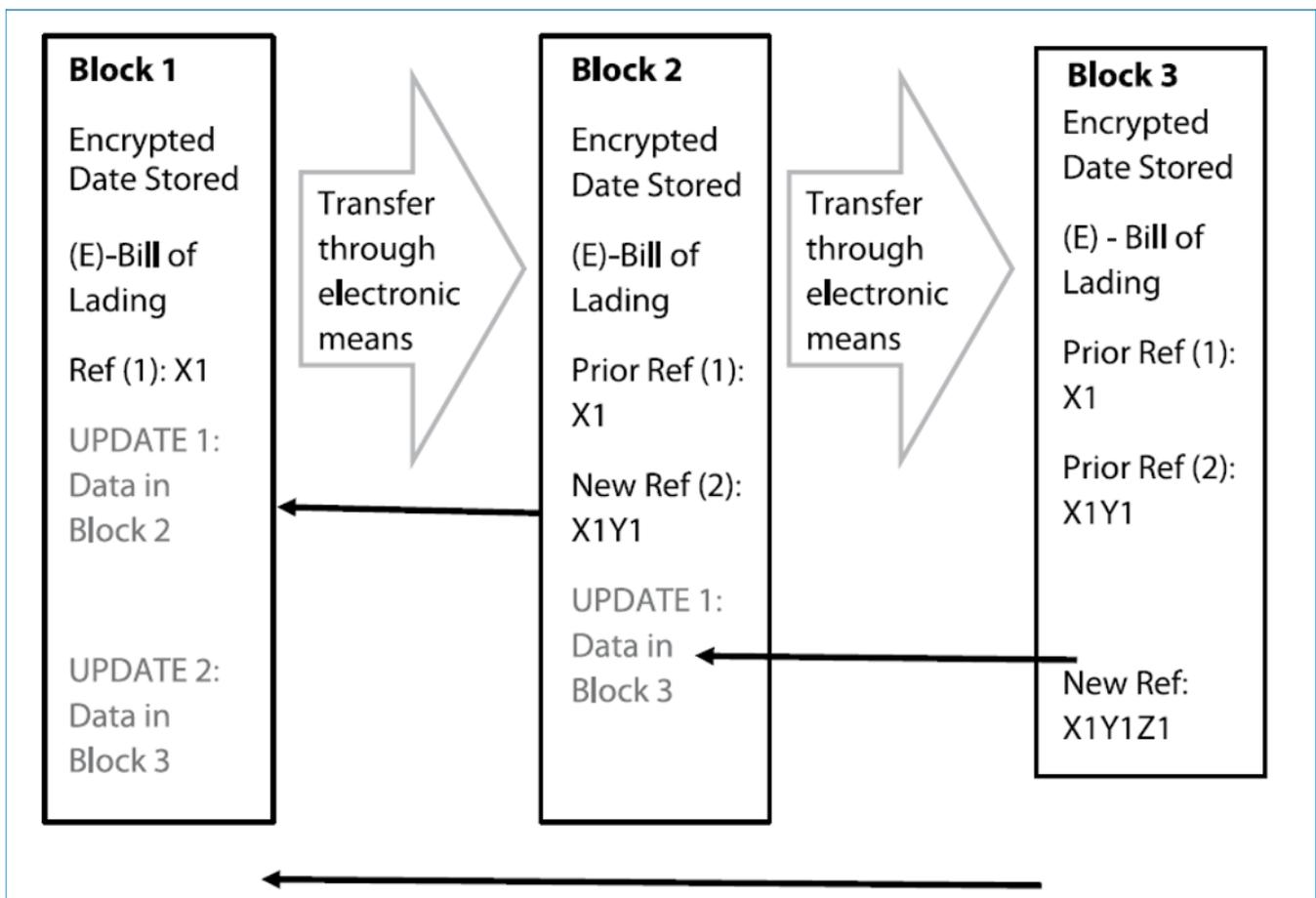
- a) serving as a receipt, confirming that the goods have been loaded onboard the vessel
- b) evidencing carriage contracts between shipowner and shippers, or lawful holders of bills
- c) serving as a document of title to goods.³⁴

Although scholarship has supported that e-bills satisfying (a) and (b) above is not problematic,³⁵ Thilakarathna notes the difficulty with e-bills functioning as title (c) is a barrier to their discrete operational equivalence, preventing transfer of title to goods regulated by the bill.³⁶ This appears to be based on recognition of e-bills as documents of title in few systems, obscuring their full use within international trade.³⁷ A further disadvantage that flows from e-bills’ inability to be title to goods is the resulting non-negotiability,³⁸ on the basis that the negotiability of bills “derives” from their discrete function as a document of title.³⁹

Blockchain

Scholarship suggests this above discrete operational deficiency could be overcome by the application of blockchain technology.⁴⁰ Noting the success of blockchain in “storing and linking data”, Thilakarathna and Herd note how blockchain technology could “[decentralise]” data from paper bills of lading into an online “central registry” network.⁴¹ This would not only “lock” e-bills’ data from risk of fraud or forgery, but enable parties to demonstrate title to goods by proof of a “genuine link or chain”, directly enabling e-bills’ discrete functions.⁴² The diagram overleaf⁴³ exemplifies this system, where an e-bill’s life-cycle via a tri-block system “allows ... [buyers] to get ... verification of the chain of transactions affecting the electronic bill of lading”.⁴⁴

The operative BOLERO central registry is an example of how blockchain e-bill systems can successfully function. Carriers or their authorised agents with electronic signature must digitally draft the e-bill, which is then published as a PDF.⁴⁵ The carrier or their agent then imports the PDF document to the online BOLERO portal.⁴⁶ After, the carrier creates a Title Registry Input (TRI) by noting the originating carrier, shipper, holder and other details on the BOLERO portal.⁴⁷ Once the TRI is created, BOLERO records and receives these title details electronically, which are then sent to the first holder of the e-bill.⁴⁸ The ability for the BOLERO registry to record all incidents of the bills, from creation to loss, also technically overcomes e-bills’ non-negotiability.⁴⁹



BOLERO, in addition to replicating e-bills' discrete function of title to goods, demonstrates a secure and accessible e-bill open system that is operative despite global objection against open systems.⁵⁰ BOLERO also represents how blockchain e-bill systems "render feasible [e-bill] use" by "[obviating] the need" for "[distrust]" and "digital island problems" associated with closed registries.⁵¹ However, Ziakas advises that e-bills within a blockchain central registry have relatively "deficient and inferior" security compared with paper bills, such that substitution and thus, functional equivalence, is "[impossible]".⁵² While Thilakarathna similarly notes this system is "vulnerable" to chain breaks, Kshetri suggests this could be avoided with "cryptographic hash functions" or "[full] (data) [encryption]" infrastructures.⁵³ Accordingly, Australia's development of a blockchain registry akin to BOLERO – with appropriate security – is a key recommendation fostering e-bills' discrete functional operation as not only a title to goods, but a document with protected data.

International Viability

Even despite the implementation of a BOLERO-style central registry system for e-bills, this does not directly resolve the barrier of e-bills' non-viability for legal use in international trade.⁵⁴ However, the MLETR provides a mechanism to address this.⁵⁵

Adopting MLETR

To facilitate international viability, Australia should adopt the MLETR to internationally legitimise Australia's e-bill recognition under The Act and use in global trade.⁵⁶ By virtue of Article 7(1), Australia's MLETR adoption would domestically incorporate the "relevant ... legal protection of the blockchain bill of lading", providing BOLERO-style e-bills with international viability.⁵⁷ More generally, the MLETR serves as a model international e-commerce infrastructure – a "framework to facilitate ... use of digital ... negotiable instruments"⁵⁸ – and therefore, MLETR adoption would also assist in developing Australia's digital economy.⁵⁹

As a model for Australia's MLETR adoption, Singapore exemplifies how MLETR adoption has modernised the nation's international trade, by facilitating international viability of e-bills.⁶⁰ E-bills were recently recognised under the Electronic Transactions (Amendment) Act 2021 (the Singapore Act), amended to provide for "electronic transferable instruments", enabling e-bills to be "legally equivalent to paper ... [b]ills".⁶¹ This amendment also came with a further amendment to adopt and domestically modify the MLETR into Singaporean law. The MLETR adoption not only allows Singapore's e-bill infrastructure to operate with "cross-border recognition" without "added [formalities]", but "[modernises]" Singapore's "digital infrastructure", strengthening its "digital economy".⁶² Accordingly, Singapore represents a model statutory recognition and international legitimisation of e-bills. Whilst the Australia-Singapore Free Trade Agreement facilitates digitised trade between the nations, the MLETR will expand Australian trade digitisation globally.⁶³

Particularly when coupled with a securitised blockchain registry,⁶⁴ Australia's adoption of MLETR e-commerce guidance would support e-bills global viability.⁶⁵ To indicate the advantage of this, the liquefied natural gas (LNG) market exemplifies an industry set to significantly benefit from MLETR adoption.⁶⁶ Not only has the LNG market utilised e-bills since 2016, but LNG is a product traded via e-bills with Rotterdam, Sweden and the Netherlands: the market is "well-placed for wider (e-bill) adoption" internationally.⁶⁷ For Australian industry, adopting MLETR would also assure that – as with Singapore – the Australian trade sector is appropriately modernised to participate in international e-commerce.⁶⁸

Conclusion

It is argued for all of the reasons outlined, that e-bills should be recognised under The Act.⁶⁹ Developing a national BOLERO-style blockchain system and adopting the MLETR are the key changes required for this,⁷⁰ by supporting e-bills functional equivalence. This would ensure that Australia can capitalise on increasingly digitised global markets.⁷¹

Footnotes

- ¹ Brian Bieron and Usman Ahmed, "Regulating e-commerce through international policy: understanding the international trade law issues of e-commerce" (2012) 46(3) *Journal of World Trade* 545.
- ² See Mark Dubovec, "The problems and possibilities for using electronic bills of lading as collateral" (2005) 23 *Arizona Journal of International and Competition Law* 437. Paul Todd, *Validity of Electronic and Digital Signatures in E-Commerce Law* (Routledge, 1st ed, 2005) 117. See generally Electronic Transactions Act 2000 (Cth) ("ETA").
- ³ Miriam Goldby, "Electronic bills of lading and central registries: what is holding back progress?" (2008) 17(2) *Information & Communications Technology Law* <<https://www.tandfonline.com/doi/full/10.1080/13600830802239381>> 125.
- ⁴ Justin Malbon and Bernard Bishop, *Australian Export: A guide to law and practice* (Cambridge University Press, 2nd ed, 2015) 144.
- ⁵ *Ibid.*
- ⁶ Roushi Low, "Replacing the Paper Bill of Lading with an Electronic Bill of Lading: Problems and Possible Solutions" (2000) *International Trade and Business Law* 159.
- ⁷ *ETA* (n 2) s 7(1).
- ⁸ see Electronic Transactions (Amendment) Bill 2011 (Cth) item 8, s 7A. See generally *ETA* (n 2).
- ⁹ United Nations: United Nations Commission on International Trade Law "UNCITRAL Model Law on Electronic Transferable Records (2017)" *Electronic Commerce* (Web Page, 2017). See United Nations Commission on International Trade Law, *UNCITRAL Model Law on Electronic Transferable Records*, 67th session, UN Doc A/72/458 (7 December 2017) ("MLETR").
- ¹⁰ See generally United Nations, "UNCITRAL Model Law on Electronic Transferable Records" (n 9).

- 11 Jake Herd, “Blocks Of Lading: Distributed Ledger Technology And The Disruption of Sea Carriage Regulation,” (2018) 18(2) *Queensland University of Technology Law Review* 317.
- 12 Vasileios Ziakas, “Challenges Regarding the Electronic Bill of Lading (eBoL)” (2018) 4(2) *International Journal of Commerce and Finance* 44.
- 13 Dubovec, “The problems and possibilities” (n 2) 439.
- 14 Ibid.
- 15 See Christopher Bing and Stephanie Kelly, “Cyber attack shuts down U.S. fuel pipeline ‘jugular,’ Biden briefed” (Online Article, May 2021) *Reuters*.
- 16 Ziakas, “Challenges Regarding the Electronic Bill” (n 12) 44.
- 17 Martin Dockray, *Cases and Materials on the Carriage of Goods by Sea* (Routledge, 5th ed, 2019) 92. See Časlav Pejovic, *Transport Documents in the Carriage of Goods by Sea: International Law and Practice* (2020) (Routledge, 1st ed, 2020) 39 [3.10.4]. See for example *Motis Exports Ltd v Dampskibsselskabet AF 1912 Aktieselskab & Anor*.
- 18 See generally *MSC Mediterranean Shipping Company v Glencore* [2017] EWCA Civ 365.
- 19 Ziakas “Challenges Regarding the Electronic Bill” (n 12) 41. See *Australian Capital Financial Management Pty Ltd v Freight Solutions (Vic) Pty Ltd* [2017] NSWDC 279.
- 20 See International Maritime Organisation, *Resolution MSC.428(98) on Maritime Cyber Risk Management in Safety Management Systems* 1.
- 21 Ziakas “Challenges” (n 12) 41. See generally Yann Duval and Simon Hardy “A primer on quantifying the environmental benefits of cross-border paperless trade facilitation” (2021) *ARTNeT Working Paper Series*, 1.
- 22 Ibid.
- 23 See International Maritime Organisation, *Resolution A.741(18): International Management Code for the Safe Operation of Ships and For Pollution Prevention (International Safety Management (ISM) Code)* 1.
- 24 See generally Australian Government: Australian Maritime Safety Authority, “Introduction” *ISM Code certification guidelines for regulated Australian vessels* (Web Page, 2021).
- 25 Kaan Thilakaranthna, “Using an Electronic Bill of Lading as a Document of Title: Prospects and Challenges” (2020) 25 *The Bar Association Law Journal* 2020 7.
- 26 Niels-Philip Abdellatif, “An Ethereum bill of lading under the UNCITRAL MLETR” (2020) 27(2) *Maastricht Journal of European and Comparative Law* 270.
- 27 Ibid 261.
- 28 Ibid.
- 29 See generally Jiatao Li, Liang Chen, Jingtao Yi, Jiye Mao, Jianwen Liao, “Ecosystem-specific advantages in international digital commerce” (2019) 20 *Journal of International Business Studies*.
- 30 Ziakas, “Challenges Regarding the Electronic Bill” (n 12) 42.
- 31 Ibid.
- 32 Dubovec, “The problems and possibilities” (n 2) 447.
- 33 Todd, “Electronic bills of lading” (n 2) 339.
- 34 Malbon and Bishop, *Australian Export* (n 4) 142; Low “Replacing the Paper Bill” (n 6) 159.
- 35 Thilakaranthna, “Using an Electronic Bill” (n 25) 4.
- 36 Ibid 5.
- 37 Goldby, “Electronic bills of lading” (n 3) 1. See Thilakaranthna “Using an Electronic Bill” (n 25) 4.

- 38 Ziakas, "Challenges Regarding the Electronic Bill" (n 12) 42.
- 39 Ziakias, "Challenges Regarding the Electronic Bill" (n 12) 42. Thilakaranthna "Using an Electronic Bill" (n 25) 4.
- 40 Thilakaranthna "Using an Electronic Bill" (n 25) 7.
- 41 Herd, "Blocks Of Lading" (n 11) 306.
- 42 Thilakaranthna "Using an Electronic Bill" (n 25) 7.
- 43 Ibid.
- 44 Ibid.
- 45 See generally Bolero, "Bolero EBL-as-a-Service" *Bolero for Carriers and Logistics* (Web Page, 2021).
- 46 See Bolero, "Bolero Insights: Electronic Bill of Lading for Carriers: Frequently Asked Questions" (Online Article, 2021) 7.
- 47 Ibid 3-5.
- 48 Ibid 5.
- 49 Ibid.
- 50 Ibid.
- 51 Todd, "Electronic bills of lading" (n 2) 339. Pejovic, *Transport Documents* (n 20) 232 [13.10.4].
- 52 Ziakas, "Challenges Regarding the Electronic Bill" (n 12) 44.
- 53 Thilakaranthna "Using an Electronic Bill" (n 25) 7. See especially Nir Kshetri, "Blockchain's roles in strengthening cybersecurity and protecting privacy" (2017) 41(10) *Telecommunications Policy* 1029.
- 54 Thilakaranthna, "Using an Electronic Bill" (n 25) 5. See generally Herd, "Blocks of Lading" (n 13) 306.
- 55 See generally MLETR (n 9).
- 56 See generally MLETR (n 9). See Abdellatif "An Ethereum bill of lading" (n 26) 250.
- 57 See especially MLETR (n 9) art 7(1), 8-12. Abdellatif "An Ethereum bill of lading" (n 26) 250.
- 58 United Nations, "UNCITRAL Model Law" (n 11).
- 59 Abdellatif, "An Ethereum bill of lading" (n 26) 250.
- 60 See Electronic Transactions (Amendment) Act 2021 (Singapore) s 2 ("Electronic Transactions (Amendment)"). See especially MLETR (n 9) art 7(1).
- 61 See Electronic Transactions (Amendment) (n 60) s 2, 3(a)-(b).
- 62 See MLETR (n 9); Rob O'Dwyer "Singapore government passes bill backing electronic Bills of Lading" *Smart Maritime Network* (Web Page, 2021).
- 63 See generally MLETR (n 9); Australian Government: Department of Foreign Affairs and Trade "Singapore-Australia FTA" *Free trade agreements in force* (Web Page, 2021).
- 64 See above "A Blockchain".
- 65 See generally United Nations, "UNCITRAL Model Law on Electronic Transferable Records" (n 10).
- 66 essDOCS, "LNG Trade embraces CargoDocs" *essDOCS Blog* (Online Blog, 29 September 2016).
- 67 Ibid.
- 68 MLETR (n 9). See Todd, "Electronic bills of lading" (n 2) 362.

- ⁶⁹ See ETA (n 2).
- ⁷⁰ See above “A Blockchain” and “A Adopting MLETR”.
- ⁷¹ Nataliia Trushkina, Olena Serhievieva and Yuliya Shkrygun, “Conceptual Approaches to Defining E-commerce” (2020) 4(46) *Problemi Ekonomiki* 1.

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