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| Institution: Queen Mary University of London | | |
| Unit of Assessment: 18 Law | | |
| Title of case study: A Legal Framework for Paperless Trade | | |
| Period when the underpinning research was undertaken: 2013-2019 | | |
| Details of staff conducting the underpinning research from the submitting unit: | | |
| Name(s): | Role(s) (e.g. job title): | Period(s) employed by submitting HEI: |
| Miriam Goldby | Professor of Shipping, Insurance and Commercial Law | Sept 2012-Present |
| Period when the claimed impact occurred: 2014-2020 | | |
| Is this case study continued from a case study submitted in 2014? N | | |
| 1. Summary of the impact | | |
| <p>Prof. Goldby's research has informed and significantly shaped key initiatives to provide a governance framework for digitalising trade. Global trade is underpinned by inefficient paper-based transacting and anachronistic laws that have impeded progress in dispensing with paper in step with the advance of digital technology. Her research informed the provisions of United Nations Commission on International Trade Law (UNCITRAL)'s 2017 Model Law on Electronic Transferable Records (MLETR). Her research has also informed the adoption of legislation in Bahrain and is key to the Digital Assets Law Reform project being undertaken by the Law Commission of England and Wales. Her research has been foundational to the adoption of rules and guidance by industry including by Lloyd's of London, the International Chamber of Commerce and commercially owned trade platforms.</p> | | |
| 2. Underpinning research | | |
| <p>Cross-border trade has for centuries relied on voluminous paper documentation. Consequently, the information supply chain is riddled with costly inefficiencies and is prone to delays. This creates compelling incentives to go paperless. However, because of the complexity of cross-border transactions and because the underlying legal framework assumes the use of paper documents, the transition to paperless transactions is extremely challenging.</p> <p>Goldby has, for many years, researched the legal barriers to digitalisation, including whether state action is required to remove such barriers and if so, what action should be taken [3.1; 3.6].</p> <p>Those wishing to replace paper with electronic data must rely on the private contractual frameworks used by commercially-owned digital trade platforms that bind users to legal outcomes mirroring those in the paper world. Goldby researched the effectiveness of such frameworks and found them imperfect because:</p> <ul style="list-style-type: none"> • the outcomes might not be recognised in all jurisdictions involved in a transaction • they require each participant in the supply chain to access and use the relevant trade platform to transact within the relevant private contractual framework [3.6]. <p>She concluded that only state legislation can provide the legal certainty needed for digitalisation.</p> <p>In the absence of an overarching cross-jurisdictional framework, the safest option is to continue to use paper. However, this is costly, time-consuming and leads to delays. Goldby researched how the transport, trade finance and insurance sectors have dealt with the challenges [3.2, 3.3, 3.4, 3.5, 3.6]. The (partial) interim solutions adopted include remote printing and the use of non-transferable documents. However, the former opens the door to fraud and does not achieve complete digitalisation; the latter can severely restrict the financing options of traders down the supply chain [3.2, 3.4, 3.5, 3.6].</p> <p>Goldby researched the emerging digital trade platforms based on blockchain technology and the growing interest in smart contracts [3.6, 3.8]. She also examined:</p> | | |

- how these new practices interface with the law, and what reforms they might engender or render necessary [3.4, 3.5, 3.6]
- what options are available in terms of legal development [3.6] including through the adoption of terms by non-governmental bodies [3.9]
- the potential contribution of digitalisation to fraud-prevention [3.7]
- the potential of smart contracts technology for insurance products [3.8].

3. References to the research

[3.1] Goldby, M. (2013). *Electronic documents in maritime trade: Law and practice*. OUP.

[3.2] Goldby, M. (2016). What is needed to get rid of paper? A new look at delivery orders. *The Journal of International Maritime Law*. Accepted. <http://gmro.qmul.ac.uk/xmlui/handle/123456789/10770>

[3.3] Goldby, M. (2016). The rising tide of paperless trade: Analysing the legal implications. In Soyer, B., & Tettenborn, A. (Eds.) *International Trade and Carriage of Goods*. Informa Law from Routledge.

[3.4] Goldby, M. (2019). The impact of new commercial practices on liner contracts of carriage: new wine in old skins? In Chuah, J. (Eds.) *Research Handbook on Maritime Law and Regulation* (pp. 223-51). Edward Elgar Publishing.

[3.5] Goldby, M. (2019). Substituting data for documents—a new meaning for ‘conforming tender’?. In Saidov, D. (Eds.) *Research Handbook on International and Comparative Sale of Goods Law* (pp. 152-79). Edward Elgar Publishing.

[3.6] Goldby, M. (2013). *Electronic documents in maritime trade: Law and practice*. Second edition. OUP.

[3.7] Goldby, M. (2019). Managing the Risks of Switch Bills of Lading. *Lloyd's Maritime and Commercial Law Quarterly*, 457-480.

[3.8] Goldby, M. (2019). Triggering innovation: How smart contracts bring policies to life. *Lloyd's Emerging Risk Report 2019: Understanding Risk*. Lloyd's of London. <https://www.lloyds.com/news-and-risk-insight/risk-reports/library/technology/triggering-innovation> [accessed 12 July 2019].

[3.9] Goldby, M. A. (2019). Legal Questions Raised by Digitalisation: To What Extent Are They Answered By ICC and CMI Instruments? Available at SSRN 3440510 or <http://dx.doi.org/10.2139/ssrn.3440510>

Evidence of quality of the research

[EQR.3.8] Goldby has obtained external funding to conduct her research from both public (ESRC through studentships) and private (Lloyd's of London) sources.

Goldby, M. [PI]. (2017-2019). Harnessing Smart Contracts for Insurance. *Lloyd's Innovation Department*. GBP24,700.

[EQR.3.9] is a discussion paper which was prepared to guide the discussion in a roundtable organised by Goldby featuring representatives from the International Chamber of Commerce and the Comité Maritime International the aim of which was to map out the extent to which these instruments, taken together, address the legal uncertainties created by digitalisation, with a view to identifying further work that may be necessary in this field.

4. Details of the impact

Prof. Goldby's research has informed and significantly shaped key initiatives to provide a legal framework for the digitalisation of international trade.

International impact: shaping the key United Nations instrument

The research strongly informed the work done by United Nations Commission on International Trade Law (UNCITRAL) to draft Model Law on Electronic Transferable Records (MLETR). UNCITRAL was set up to produce legislative texts to harmonise international commercial law across nations. MLETR is designed to enable digitalisation, in that legislation based on MLETR ensures that digital alternatives are legally recognized as functionally equivalent to paper documents of title and negotiable instruments used in cross-border trade.

As a participant in UNCITRAL's Working Group (WG) IV and Experts Group which drafted MLETR, Goldby put forward several drafting proposals, all of which drew from her research [3.1; 3.2; 3.3]. Her published research was acknowledged by Luca Castellani of the UNCITRAL Secretariat, as being 'a valuable starting point for the work of Working Group IV' and as essential to the drafting of the MLETR's three key provisions (Articles 10, 11 and 12) which underpin the recognition of electronic records as functionally equivalent to paper documents [5.1]. As evidenced also by letters provided by another member and an observer within the working group [5.1a, 5.1b], UNCITRAL's work drew directly on Goldby's key findings (see sections below). In the wake of the COVID-19 pandemic and the attendant restrictions on travel and transport, the inefficiencies of couriering paper documents around the world in order to process international trade transactions became ever more evident. Accordingly, the International Chamber of Commerce (ICC) called upon national governments to enable the use of digital alternatives by adopting legislation compliant with MLETR.

Goldby is participating as a UK expert in the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) project on transfer of MLETR-compliant titles, the aim of which is to create clear guidance in the form of a White Paper on how to fulfil the requirements set out in MLETR for issuing and transferring valid electronic transferable records using currently available technologies. Her research [3.5, 3.6] forms an essential underpinning to this project [5.2].

State-level impact: contributing to Bahraini and English law reform

In October 2016, the Bahraini government consulted Goldby on its draft legislation to implement MLETR. Her suggested amendments were adopted, resulting in the promulgation of Electronic Communications and Transactions Law 2018 (Decree No.54 of 2018). Bahrain's Economic Development Board commended Goldby's research and contribution in drafting the law [5.3].

More recently, the Law Commission of England and Wales has embarked on a project to review relevant legislation with a view to amending it, in order to recognise that documents of title and negotiable instruments can be digital, so long as they are issued in such a way as to be possessable. Goldby's research [3.4, 3.5 3.6] is essential to this project [5.4]. Prof. Sarah Green, Law Commissioner for Commercial Law and the Common Law, attests [5.4] that the Digital Assets Project team made 'extensive use' of Goldby's book [3.6] to understand better the scope of the necessary reforms and the significance of possession of documents such as bills of lading and insurance certificates in determining who may exercise rights. They also used other key publications to assess the implications of the intended reforms for regulated contracts of carriage [3.4] and to assess how blockchain technology may make digital documents possessable [3.5].

Impact on private/business frameworks

Goldby's research has been implemented in two ways. First, it has been used by the private business community in the development of standards for digital transacting. Second, it has been used by industry to develop contractual terms and frameworks to underpin the use of digital platforms designed to replace paper.

Standards for Digital Transacting

Two sets of ICC standards for digital transacting draw upon Goldby's research [5.5]:

1. The Uniform Customs and Practices for Documentary Credits—Supplement on Electronic Presentation, v 2.0 (2019), which enables the submission of data in place of documents for documentary credit agreements.
2. The ICC Uniform Rules for Digital Trade Transactions (URDTT), currently in their fourth revised draft, due to be adopted later in 2021, provide a framework that applies to all parties that participate in a Digital Trade Transaction, defined as the sale and purchase of goods or services evidenced through the use of Electronic Records.

As indicated by Chris Southworth, Secretary General of the ICC [5.5] Goldby's research 'fed into' both of these standard-setting exercises. In particular, he notes that the ICC 'benefitted from [Goldby's] research and publications, in particular [her] identification of the barriers and uncertainties arising from the legal framework underpinning digital transformation and [her]

suggestions for how these may be addressed....' He makes specific reference to outputs [3.5], [3.6] and [3.9].

Industry frameworks

1. Lloyd's of London

Goldby has worked with the Innovation Department at Lloyd's of London in exploring possible implementations of her research findings for real-world application to improve (i) documentation of insurance cover at the time of insurance contract formation, and (ii) claims processes. Trevor Maynard, Head of Innovation at Lloyd's has described her research as 'very influential' and 'invaluable' to Lloyd's efforts to implement new technologies, in particular smart contracts, to improve their processes [5.6]. Goldby led a joint initiative between the Centre for Commercial Law Studies at Queen Mary and Lloyd's of London to prepare an emerging risks/innovation report for the Lloyd's insurance market, which evaluates the potential for smart contracts to support insurance products, including cargo insurance products. The Report draws directly on her key findings relating to legal challenges raised by the digitalisation of cargo insurance certificates [3.1 chapter 8; 3.6 chapter 8]. Lloyd's said that the report 'is intended as foundational research to guide future market activity in this space' and that 'Lloyd's is considering a number of concrete implementations of the guidance... relevant to the field of digital transformation of international trade' [5.6]. Lloyd's has indicated that it is considering introducing new products based on Goldby's findings relating to cargo insurance [3.6; 5.6].

Lloyd's have also partnered with Goldby to submit a successful ESRC studentship application to fund further research supervised by Goldby which 'has the potential to play a valuable role in the market's legal preparations for the introduction of this technology' [5.6].

2. The Digital Container Shipping Association (DCSA)

Goldby's research was essential to the drafting of a set of Bylaws to support the use of electronic bills of lading in container transportation, pending the adoption of enabling national laws in key jurisdictions. The DCSA is an international association which brings together nine of the largest liner sea carriers globally (including Maersk, MSC and CMA-CGM). Mr Niels Nuyens, eDocumentation Programme Director has provided a testimonial indicating how the Bylaws drafting exercise has benefitted from output [3.6] [5.7].

3. Commercially-owned blockchain platforms providing digital alternatives to bills of lading

Goldby's research has also been instrumental to the development by two blockchain start-ups of private contractual frameworks (by-laws and standard terms and conditions) designed to address the uncertainties created by gaps in current law. In both cases Goldby was approached by the legal representatives of these start-ups after they became aware of her expertise in this field and she was asked to help apply her findings to the drafting of the contractual frameworks in question. Referring to output [3.1, Chapter 6], OGY Docs Inc, which recently launched the WAVE blockchain-based bill of lading system, commented [5.8]: '... we were pleased and grateful to be able to refer to [Goldby's] research... which analyses the manner in which electronic records and processes may achieve the same effects at law as the issue and transfer of a paper bill of lading.' Jonathan Lux, a barrister who drafted the standard terms and conditions underlying the use of a similar blockchain-based platform called CargoX said Goldby's research [3.3, 3.4, 3.5, 3.6] was 'extremely helpful' in drafting rules [5.9], in particular her findings on the mandatory application of international conventions [3.4], her findings on tender of digital alternatives to bills of lading under trade finance contracts [3.5] and her findings on gaps in emerging standards developed by shipping and trade industries [3.3].

Both the WAVE system developed by OGY Docs and the CargoX system were approved as suitable alternatives to paper bills of lading by the liability insurers of ship owners and operators (the International Group of Protection and Indemnity Clubs IGP&I) in December 2019 and February 2020 respectively. This is of supreme importance as P&I Club cover is lost by carriers if they deliver the goods other than against a paper bill of lading, so carriers would not use electronic alternatives without approval by the IGP&I. An important consideration when assessing systems for approval is the robustness of the legal framework underpinning them. Since then, the WAVE system is being promoted by major liner transportation

companies such as ZIM and MSC for use by their customers, especially in view of the added difficulties to the physical movement of paper bills of lading as a consequence of the COVID-19 restrictions. The expanding use of pioneer systems such as WAVE and CargoX is testament to the significant impact of Goldby's work.

5. Sources to corroborate the impact

[5.1] [Testimonial] Secretary, UNCITRAL Working Group IV (Electronic Commerce), 17 March 2017. See ICC Memo to Governments and Central Banks on essential steps to safeguard trade finance operations 3rd April 2020, available at <https://iccwbo.org/products/icc-memo-to-governments-and-central-banks-on-essential-steps-to-safeguard-trade-finance-operations>, p.2 and The ICC Digital Trade Roadmap available at <https://iccwbo.org/publication/icc-digital-roadmap/>, p.4 for the industry's reception of the Model Law referred to in this testimonial]. See also: [Corroborator 1]

- [5.1a] [Testimonial] Director, Maritime Law Research Center, Beijing University, 7 October 2018
- [5.1b] [Testimonial] Co-CEO essDOCs, 9 October 2018, both of which also attest to Prof. Goldby's contribution to the drafting of the Model Law.

[5.2] [Testimonial] Team Leader, United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) project on transfer of MLETR-compliant titles, documented at <https://uncefact.unece.org/display/uncefactpublic/Transfer+of+MLETR-compliant+titles> [Corroborator 2]

[5.3] [Testimonial] Senior Legal Advisor to Bahrain's Economic Development Board, 17 October 2018.

[5.4] [Testimonial] Law Commissioner of England and Wales for Commercial Law and the Common Law, 6 November 2020. The Digital Assets Project is documented at <https://www.lawcom.gov.uk/project/digital-assets/>. [Corroborator 3]

[5.5] [Testimonial] Secretary General of ICC UK, 24 October 2019. [Corroborator 4]

[5.6] [Testimonial] Lloyd's Innovation Department, 25 June 2019.

[5.7] [Testimonial] eDocumentation Programme Director, DCSA, 23 February 2021. [Corroborator 5]

[5.8] [Testimonial] CEO OGY Docs Inc, 13 June 2018. This system has been approved by the IGP&I, see UK P&I Circular Ref. 3/20 *Electronic (Paperless) Trading: Approval of Cargo X*, available online at <https://www.ukpandi.com/knowledge-publications/article/circular-3-20-electronic-paperless-trading-approval-of-cargox-151443/>. See also press releases which show that the solution referred to in this testimonial is being promoted by major liner carriers:

- 'ZIM promotes wider use of e-B/L during coronavirus crisis', ZIM press release, 24th March 2020 available at <https://www.zim.com/za-cn/news/press-releases/zim-promotes-wider-use-of-electronic-bill-of-lading-during-the-coronavirus-crisis>
- 'MSC partners with WAVE for wide adoption of its e-bill of lading in India' MSC Press Release 9th September 2020 available at <https://www.msc.com/ind/news/2020-september/msc-partners-with-wave-for-wide-adoption-of-its-e?lang=en-gb>

[5.9] [Testimonial] Barrister and legal consultant, 5 November 2019. This system has been approved by the IGP&I, see UK P&I Circular Ref. 16/19 *Electronic (Paperless) Trading*, 23rd December 2019 available online at <https://www.ukpandi.com/knowledge-publications/publications/article/circular-16-19-electronic-paperless-trading-151105/>.