

TO BOLDLY GO, PART I: DEVELOPING A SPECIFIC LEGAL FRAMEWORK FOR ASSESSING THE REGULATION OF INTERNATIONAL DATA TRADE UNDER THE CISG

BENJAMIN HAYWARD*

The United Nations Convention on Contracts for the International Sale of Goods ('CISG') is an international sales law treaty concluded in 1980. Given its vintage, the CISG was drafted with traditional (physical) goods trade in mind. A significant body of scholarship has addressed the CISG's capacity to govern electronic software transactions. However, only limited commentary has explored its digital application beyond software per se. This article develops a specific legal framework for assessing the CISG's capacity to regulate international trade in non-software data: a framework so far missing from existing scholarship. 'To Boldly Go, Part II', this article's counterpart, will go on to apply this framework to non-software data trade. Collectively, these articles establish that the CISG is capable of governing not only software trade (as previously established) but also trade in non-software data: a category of trade becoming increasingly economically important.

I INTRODUCTION

Big data. The cloud. Analytics. Artificial intelligence. Machine learning. Blockchain. Bitcoin. Smart contracts. Privacy. Bots. Data scraping. Data mining. Data visualisation. The Internet of Things.

These words are ubiquitous in commerce,¹ and in the mainstream media. But it wasn't always so. Though it's hard now to imagine a world without it, Apple's iPhone

* Dr Benjamin Hayward is a Senior Lecturer in the Department of Business Law and Taxation, Monash Business School, Monash University. The author would like to thank participants at the Department's 'Digital Trade Law and Governance Workshop' (2 October 2019, Melbourne) and 'To Boldly Go' webinar (20 October 2020, online) for their helpful comments and questions regarding earlier drafts of this article. The author would also like to thank the Department's International Trade and International Commercial Law research group for hosting both events. Convention accession statistics given in this article are current as at 28 July 2021.

1 See, eg, Dan Svantesson, 'Data Localisation Trends and Challenges: Considerations for the Review of the Privacy Guidelines' (Digital Economy Papers No 301, Organisation for Economic Co-operation and Development, December 2020) 7 ('Data Trends').

did not exist 15 years ago.² And given the vastly different economic and technological circumstances surrounding the drafters of the *United Nations Convention on Contracts for the International Sale of Goods* ('CISG')³ in 1980, none of these concepts could have been within their contemplation.⁴ Even computer software's significance, at the time, 'was recognised by only a few farsighted individuals'.⁵

Nevertheless, according to the business community, the future of commerce is digital. The following exchange between Gabriel Petrus ('GP')⁶ and Tim Conley ('TC')⁷ on the International Chamber of Commerce's ('ICC') *Trading Thoughts* podcast illustrates this point of view:

GP: One of the key projects that we are now discussing is how chambers are going into the 4.0 revolution ... [I]t's really important to prepare them and build capacity for chambers of commerce to go into the digital world. So this is our greatest challenge right now ... [T]his is the top priority.

TC: There's been a rise of protectionism and populism around the world. It appears as if multilateralism is in retreat these days. Given this, how is ICC pushing forward to break down barriers and provide businesses with access to new markets?

GP: [W]e have a clear strategy for that, and the answer is technology. We do want to use new technologies to counterbalance the rise of protectionism ... We have also partnered with ITC [the International Trade Centre] for the implementation of the Global Trade Helpdesk, which simplified market research. So we are actually unlocking market opportunities there not being explored by companies because they don't have access to data. So we are ... using technology to provide companies more data, more transparency, and more international trade and more prosperity for all.

-
- 2 Todd Haselton, 'The iPhone Went on Sale 10 Years Ago Today: Here's How Far It's Come', *CNBC* (online, 29 June 2017) <<https://www.cnn.com/2017/06/29/iphone-10th-anniversary.html>>. At the time of its launch, the iPhone did not yet feature the Apple App Store: Steven Winkelman, 'Appy Birthday: A Brief History of the App Store's First 10 Years', *Digitaltrends* (online, 10 July 2018) <<https://www.digitaltrends.com/news/apple-app-store-turns-10/>>.
 - 3 *United Nations Convention on Contracts for the International Sale of Goods*, opened for signature 11 April 1980, 1489 UNTS 3 (entered into force 1 January 1988) ('CISG').
 - 4 It is routinely observed, for example, that software transactions were not: Thomas Neumann, 'Dominant Control: A Proposal for the Classification of International Transactions of Modern Software' (2017) 21(2) *Vindobona Journal of International Commercial Law and Arbitration* 109, 114, 127; Sarah Green and Djakhongir Saidov, 'Software as Goods' [2007] (March) *Journal of Business Law* 161, 162, 178; Frank Diedrich, 'The CISG and Computer Software Revisited' (2002) 6 *Vindobona Journal of International Commercial Law and Arbitration, Supplement* 55, 55 ('Revisited'); Trevor Cox, 'Chaos Versus Uniformity: The Divergent Views of Software in the International Community' [2000] (3) *Business Law International* 359, 360. Regarding electronic contracting and smart contracts: Christina Ramberg, 'CISG Advisory Council Opinion No 1: Electronic Communications under the CISG' in Ingeborg Schwenzer (ed), *The CISG Advisory Council Opinions* (Eleven International Publishing, 2017) 15, 16 [11.1] ('Opinion 1'); Anna Duke, 'What Does the CISG Have to Say about Smart Contracts? A Legal Analysis' (2019) 20(1) *Chicago Journal of International Law* 141, 158–9, 170. Regarding data exchange: Hans Markus Wulf, *UN-Kaufrecht und eCommerce: Problembereiche bei der Anwendung des Wiener Übereinkommens auf Internet-Verträge* (Peter Lang, 2003) 17, 40. See also Edgardo Muñoz, 'Software Technology in CISG Contracts' (2019) 24(2) *Uniform Law Review* 281, 282, 290.
 - 5 David Fairlie, 'A Commentary on Issues Arising under Articles 1 to 6 of the CISG (with Special Reference to the Position in Australia)' in Singapore International Arbitration Centre (ed), *Celebrating Success: 25 Years United Nations Convention on Contracts for the International Sale of Goods* (2006) 39, 44.
 - 6 Deputy Director, ICC Membership and Services, International Chamber of Commerce.
 - 7 Global Communications Officer, International Chamber of Commerce.

TC: ... [T]he future of business is clearly changing. The future brick and mortar and Ma and Pa shops appear clearly dead.⁸

What does any of this have to do with an international sales law treaty drafted the same year as the launch of Commodore's VIC-20, Sinclair's ZX80, the World Wide Web's predecessor, and the world's first microcomputer hard drive?⁹ Potentially, quite a lot. While some authorities consider that the passage of time now warrants the *CISG*'s replacement,¹⁰ others consider it remains highly relevant in a digitised world:¹¹ 'blooming as a modern international treaty capable of evolving to meet continuing advances in technology'.¹² Despite some dated technological references in its text,¹³ the *CISG*'s broadly-framed contract formation rules support electronic contracting,¹⁴ and possibly also smart contracts.¹⁵ Though *CISG* article

-
- 8 'Trading Thoughts with Gabriel Petrus of ICC's World Chambers Federation', *Trading Thoughts* (International Chamber of Commerce, 3 May 2020) 0:03:04–0:06:05 <<https://soundcloud.com/iccwbo/chambers-of-commerce-in-the-21st-century>>. See also 'The Importance of Branding to Digital Transformation', *The Allen & Overy Podcast* (Allen & Overy, 16 April 2020) 0:15:05–0:15:40 <<https://allenoverypodbean.com/e/the-importance-of-branding-to-digital-transformation/>> ('Branding').
 - 9 'Timeline of Computer History', *Computer History Museum* (Web Page, 2021) <<https://www.computerhistory.org/timeline/1980/>>.
 - 10 See generally Leandro Tripodi, *Towards a New CISG: The Prospective Convention on the International Sale of Goods and Services* (Brill Publishing, 2015). See also Jacqueline Mowbray, 'The Application of the United Nations Convention on Contracts for the International Sale of Goods to E-commerce Transactions: The Implications for Asia' (2003) 7(1) *Vindobona Journal of International Commercial Law and Arbitration* 121, 146–7, 150; Marcus G Larson, 'Applying Uniform Sales Law to International Software Transactions: The Use of the *CISG*, Its Shortcomings, and a Comparative Look at How the Proposed UCC Article 2B Would Remedy Them' (1997) 5 (Spring) *Tulane Journal of International and Comparative Law* 445, 486–8.
 - 11 Mirjam Eggen, 'Digitale Inhalte unter dem *CISG*: Eine Rundschau über Herausforderungen und mögliche Lösungen' (2017) 17(6) *Internationales Handelsrecht* 229, 237.
 - 12 Muñoz (n 4) 301.
 - 13 *CISG* (n 3) art 13: 'telegram and telex'; *CISG* (n 3) art 20(1): 'telegram or letter', 'telephone, telex or other means of instantaneous communication'; *ibid* 291.
 - 14 *CISG* (n 3) art 11; Ramberg, 'Opinion 1' (n 4) 16 [11.1]; Ulrich G Schroeter, 'Der digitale Binnenmarkt für Europa und das UN-Kaufrecht' (2016) 115(2) *Zeitschrift für Vergleichende Rechtswissenschaft* 270, 279, 285–6; Ingeborg Schwenzer and Florian Mohs, 'Old Habits Die Hard: Traditional Contract Formation in a Modern World' (2006) 6(6) *Internationales Handelsrecht* 239, 239; Renaud Sorieul, 'The United Nations Convention on Contracts for the International Sale of Goods (*CISG*) as a Set of Uniform Rules for Electronic Commerce' [2000] (3) *Business Law International* 380, 383. See, eg, *ALAKart Kft v Pizzul SrL*, Tribunale di Trieste [District Court of Trieste], 2640/2016, 17 June 2019, [10] [tr Caterina Luzzi Conti et al] <https://cisg-online.org/files/cases/13098/translationFile/5184_38656440.pdf>. See also United Nations Commission on International Trade Law, *Report of the Working Group on Electronic Commerce on Its Thirty-Eighth Session*, 38th sess, Agenda Item 6, UN Doc A/CN.9/484 (24 April 2001) 4 [8], 19 [95] ('*Report of the Working Group*'); Luca G Castellani, 'The Electronic *CISG* That Already Is: UNCITRAL Texts on Electronic Contracting' in Ingeborg Schwenzer and Lisa Spagnolo (eds), *The Electronic CISG: 7th MAA Schlechtriem CISG Conference* (Eleven International Publishing, 2017) 41, 42–3, 50–5 ('Electronic *CISG*'); Muñoz (n 4) 282, 290–3; Anjanette H Raymond and J Benjamin Lambert, 'Technology, E-commerce and the Emerging Harmonization: The Growing Body of International Instruments Facilitating E-commerce and the Continuing Need to Encourage Wide Adoption' (2014) 17(1) *International Trade and Business Law Review* 419, 424–5. Electronic contracting was said to be 'a relatively new phenomenon' even 17 years after the *CISG*'s conclusion: Larson (n 10) 485.
 - 15 Duke (n 4) 159–60, 163–76; Benjamin Hayward, Lisa Spagnolo and Drossos Stamboulakis, Submission to the Law Commission of England and Wales, *Call for Evidence on Smart Contracts* (29 March 2021) 12 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3822806>; Emir Bayramoğlu, 'A Legal

11 recognises freedom of form as a general rule, *CISG* article 13's understanding of 'writing' is 'flexible enough to ... include e-mail and other electronic means of communication'.¹⁶ In addition, it is now widely accepted that electronic software constitutes 'goods' under the *CISG*,¹⁷ even if the exact contours of its application to software transactions remain unsettled.¹⁸ Software has indeed been the focus of existing analyses addressing intangibles trade under the *CISG*.¹⁹ Those analyses have been exercises in its interpretation.²⁰

But just as we find ourselves living in a post-truth era,²¹ we now also live in a post-software world. Software emerged as an independent object of commerce following IBM's separation of hardware and software in the late 1980s.²² Persisting with software-focused analysis, today, is an exercise grounded in that 1980s world view.²³ The very word 'software' carries with it particular connotations derived from that period: it is suggestive of traditional desktop computer programs, represented by executable files.²⁴ Software is still very much a 'big-league

Analysis on *CISG*'s Scope of Application from Smart Contracts' Perspective', *Turkish Law Blog* (Blog Post, 20 January 2020) <<https://turkishlawblog.com/read/article/193/a-legal-analysis-on-cisg-s-scope-of-application-from-smart-contracts-perspective>>.

- 16 United Nations Commission on International Trade Law, *UNCITRAL Digest of Case Law on the United Nations Convention on Contracts for the International Sale of Goods* (2016) 76 [1] ('Digest'). See Cour de Cassation [Egyptian Court of Cassation], No 979 for Judicial Year 73, 11 April 2006 <<https://icclaw.pace.edu/cisg/case/egypt-april-11-2006-court-cassation>>. Note that free registration is required to access case law on the Pace Law Albert H Kritzer *CISG* Database. See also United Nations Commission on International Trade Law, *Report of the Working Group* (n 14) 23–4 [123]; Wulf (n 4) 135–42; Schroeter (n 14) 286–7; Sorieul (n 14) 383–5.
- 17 Ingeborg Schwenzer and Pascal Hachem, 'Article 1' in Ingeborg Schwenzer (ed), *Schlechtriem & Schwenzer: Commentary on the UN Convention on the International Sale of Goods (CISG)* (Oxford University Press, 4th ed, 2016) 27, 34–5 [18] ('Article 1'); Neumann (n 4) 110, 112, 127. See, eg, *Corporate Web Solutions v Dutch Company and Vendorlink BV*, Rechtbank Midden-Nederland [Central Netherlands Court], No C/16/364668, 25 March 2015 <https://www.uncitral.org/clout/clout/data/nld/clout_case_1586_250315.html>. Not all authorities agree: Clayton P Gillette and Steven D Walt, *The UN Convention on Contracts for the International Sale of Goods: Theory and Practice* (Cambridge University Press, 2nd ed, 2016) 49–55; Hiroo Sono, 'The Applicability of the *CISG* to Software Sales Transactions' in Camilla B Andersen and Ulrich G Schroeter (eds), *Sharing International Commercial Law across National Boundaries: Festschrift for Albert H Kritzer on the Occasion of His Eightieth Birthday* (Wildy, Simmonds & Hill Publishing, 2008) 512, 520–1. In response: Muñoz (n 4) 286–7.
- 18 See generally Neumann (n 4).
- 19 Eggen (n 11) 230. Literature addressing intangibles (including non-software data) more broadly has been the exception, rather than the rule: see, eg, Wulf (n 4) 37; Hansjörg Friedrich Schmitt, *Intangible Goods als Leistungsgegenstand internationaler Online-Kaufverträge* (Peter Lang, 2003) 1–2, 13–26.
- 20 Larson (n 10) 458.
- 21 Nick Enfield, 'We're in a Post-Truth World with Eroding Trust and Accountability: It Can't End Well', *The Guardian* (online, 17 November 2017) <<https://www.theguardian.com/commentisfree/2017/nov/17/were-in-a-post-truth-world-with-eroding-trust-and-accountability-it-cant-end-well>>.
- 22 Dushica Atanasovska, 'L'applicabilità della Convenzione di Vienna sulla Vendita Internazionale di Beni alle Transazioni aventi ad oggetto Software: Vendita o Licenza?' (2016) 5(2) *Ricerche Giuridiche* 321, 321.
- 23 See Benjamin Hayward, 'What's in a Name: Software, Digital Products, and the Sale of Goods' (2016) 38(4) *Sydney Law Review* 441, 452–4 ('What's in a Name?').
- 24 Ibid; *Australian Competition and Consumer Commission v Valve Corp* [No 3] (2016) 337 ALR 647, 676–7 [138]–[139], 679–80 [156] (Edelman J): regarding Australia's non-harmonised sales and consumer laws.

business'.²⁵ However, a range of other digital products (that might not be thought of as constituting software in this traditional sense) are now commonly traded in what is a 'relatively new market'.²⁶ including apps, firmware, digital music, and ebooks.²⁷ All of this trade is effected via the same digital unit: data. It is no longer the case that only tangible products, or only software in the intangible space, is traded online.²⁸ As long ago as 1994, it was noted that '[m]ore than perhaps any other commodity, data must be allowed to move without barriers in order to allow the world economy to grow in the most efficient manner possible'.²⁹ Cross-border data transactions raise challenging private law (contract law) issues, as well as the data protection and privacy issues that we are perhaps more familiar with from our everyday lives.³⁰ Contracts are 'the safest way to exploit data', given the limitations of intellectual property laws.³¹ Contract law is the focus of my analysis, which is relevant to Australia (as a *CISG* member)³² and each of the other 93 Contracting States that have adopted the *CISG*.³³

In this article, I assess the *CISG*'s potential application to international data trade. I propose a specific legal framework for determining whether the *CISG* is capable of governing such trade. This framework is missing from the emerging body of existing *CISG*-data scholarship. Nevertheless, developing such a framework is essential in order to properly test this aspect of the *CISG*'s subject matter scope.

25 Neumann (n 4) 110.

26 'Maximising Value from Data: Data Governance and Data Monetisation', *The Allen & Overy Podcast* (Allen & Overy, 28 January 2020) 0:13:43–0:13:46 <<https://allenoverypodbean.com/e/maximising-value-from-data-data-governance-and-data-monetisation/>> ('Maximising Value from Data').

27 Hayward, 'What's in a Name?' (n 23) 454. See also Sarah Green, 'Sales Law and Digitised Material' in Djakhongir Saidov (ed), *Research Handbook on International and Comparative Sale of Goods Law* (Edward Elgar Publishing, 2019) 78, 78–9.

28 Cf Melissa de Zwart, 'Electronic Commerce: Promises, Problems and Proposals' (1998) 21(2) *University of New South Wales Law Journal* 305, 306 ('Electronic Commerce').

29 Charles von Simson, 'Feist or Famine: American Database Copyright as an Economic Model for the European Union' (1994) 20(3) *Brooklyn Journal of International Law* 729, 768.

30 Leon Trakman, Robert Walters and Bruno Zeller, 'Trade in Personal Data: Extending International Legal Mechanisms to Facilitate Transnational Trade in Personal Data?' (2020) 6(2) *European Data Protection Law Review* 243, 244; Dan Jerker B Svantesson, 'The Regulation of Cross-Border Data Flows' (2011) 1(3) *International Data Privacy Law* 180, 180. Cf 'EP61 Catalyst: Exploring Opportunities', *Catalyst* (Herbert Smith Freehills, 23 September 2020) 0:45:32–0:46:08 <<https://www.herbertsmithfreehills.com/latest-thinking/catalyst-podcast-series/>> ('Exploring Opportunities').

31 'Maximising Value from Data' (n 26) 0:05:50–0:06:16, 0:09:12–0:09:22.

32 Australia acceded to the *CISG* on 17 March 1988: 'Status of Treaties: United Nations Convention on Contracts for the International Sale of Goods', *United Nations Treaty Collection* (Web Page, 28 July 2021) <https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=X-10&chapter=10&clang=en> ('Status of Convention on Contracts'). The *CISG* came into force in Australia on 1 April 1989: *CISG* (n 3) art 99(2). The *CISG* is given local legislative force via state and territory implementing Acts, and also via the *Australian Consumer Law: Sale of Goods (Vienna Convention) Act 1987* (ACT) s 5; *Sale of Goods (Vienna Convention) Act 1987* (NT) s 5; *Sale of Goods (Vienna Convention) Act 1986* (NSW) s 5; *Sale of Goods (Vienna Convention) Act 1987* (NT) s 5; *Sale of Goods (Vienna Convention) Act 1986* (Qld) s 5; *Sale of Goods (Vienna Convention) Act 1986* (SA) s 4; *Sale of Goods (Vienna Convention) Act 1987* (Tas) s 5; *Goods Act 1958* (Vic) s 86; *Sale of Goods (Vienna Convention) Act 1986* (WA) s 5; *Competition and Consumer Act 2010* (Cth) sch 2 s 68.

33 'Status of Convention on Contracts' (n 32).

In my counterpart article, ‘To Boldly Go, Part II’, I will then apply this framework. On the basis of a rigorous interpretation of the *CISG*’s text, and its application provisions in particular, it will be demonstrated that data trade is capable of being regulated by the *CISG*.

This article begins, in Part II, by critiquing the narrow focus of existing *CISG*-software analyses. Part II also identifies the limited extent to which existing scholarship addresses the *CISG*’s application to data trade. Part II’s analysis discloses the absence, in these authorities, of a specific analytic framework for assessing the *CISG*’s capacity to regulate data trade. This is the gap in the literature that this article seeks to fill.

Part III analyses why the *CISG*’s potential application to data trade is important, from both practical and policy perspectives. It asks the question: why *should* the *CISG* govern data trade? The significant legal and commercial issues at stake justify this article’s development of its specific legal framework. Parts IV–VII then establish this framework with reference to (and via careful interpretations of) *CISG* article 1(1)’s ‘goods’ criterion, *CISG* article 1(1)’s ‘sale’ criterion, and *CISG* article 3’s rules on mixed contracts. Part VIII then concludes, ahead of my framework being applied in ‘To Boldly Go, Part II’.

Collectively, this article and its counterpart conclude that the *CISG* can govern international data trade. This conclusion has not yet been properly justified, via a rigorous interpretation of the *CISG*’s text, in the limited *CISG*-data literature published to date. Data thus emerges as the *CISG*’s next (though probably not final) frontier: allowing it to boldly go where no existing case law³⁴ (but where much international trade) has gone before.³⁵ This fresh understanding of the *CISG*’s subject matter scope stands to benefit merchants, their trading activities, their advisers, and the broader economies within which they operate.

Before proceeding to my analysis, it is necessary to make a final introductory comment concerning my citation style. Since only limited existing scholarship addresses the *CISG*’s potential application to data trade, many of the authorities that I cite in this article are instead situated in the software context, or address the *CISG*’s interpretation in a more general sense. I would ordinarily acknowledge the different contexts of these sources in my footnotes via use of the ‘cf’ introductory signal, explanatory text (such as ‘in the software context’), or both. Given the large number of citations that would be affected by these qualifications, however, I have chosen not to do so as a matter of practicality.

34 At the time of writing, searching the *CISG*-online database’s case law collection for decisions involving ‘data’ in the ‘[g]oods as per contract’ field returns zero results: ‘Search for Cases’, *CISG-Online* (Web Page, 2021) <<http://www.cisg-online.org/search-for-cases>>.

35 Having borrowed these phrases from the iconic Star Trek science fiction franchise, I note the irony that Lieutenant Commander Data is one of its characters.

II THE PROBLEM STATED: THE *CISG*, SOFTWARE, AND DATA TRADE

Software has been the focus of existing analyses addressing the *CISG*'s application to intangibles. Given the commercial realities of contemporary data trade, that focus is now unnecessarily limiting.

At first glance, this issue might appear to be a mere matter of terminology. After all, isn't software made up of data? Some *CISG*-software scholarship takes this view, broadly defining its usage of the term 'software'. For example:

- Muñoz defines software as 'programs and other operating information used by a computer'.³⁶
- Atanasovska refers to software as comprising not only PC programs and operating systems, but also other 'digital information' including music, movies, and games.³⁷
- Sono also considers the term to include 'not only those computer programs which run on traditional personal computers, such as operating system (OS) software, application software (eg, word processors and spreadsheets), but also other "digital information" such as music, movies, and games recorded on CDs, DVDs or those traded online'.³⁸

Other scholarship takes an approach that is similar in substance, extending existing *CISG*-software analyses beyond software per se by analogy. Fakes, for example, adverts to the question of whether the *CISG* applies to database transactions, and suggests that this 'will depend on a variety of circumstances that are sometimes similar to those which are important to an analysis of the *Convention*'s application to software'.³⁹ Neumann similarly refers to artificial intelligence, blockchain applications, and digital platforms as examples of 'modern software'.⁴⁰

That this issue is not merely terminological, however, is confirmed by other literature which assumes that software constitutes executable computer programs only.⁴¹ A significant problem thus emerges in properly analysing the *CISG*'s

36 Muñoz (n 4) 282 n 1.

37 Atanasovska (n 22) 322.

38 Sono (n 17) 512–13.

39 Arthur Fakes, 'The Application of the *United Nations Convention on Contracts for the International Sale of Goods* to Computer, Software, and Database Transactions' (1990) 3(4) *Software Law Journal* 559, 586.

40 Neumann (n 4) 111–12.

41 See, eg, Green and Saidov (n 4) 161: defining software as 'collections of instructions and data (also referred to as programs), that allow computers to operate'; Larson (n 10) 457: employing the term 'virtual good', but only as a means of classifying software (referred to elsewhere in the article as programs); Frank Diedrich, 'Maintaining Uniformity in International Uniform Law via Autonomous Interpretation: Software Contracts and the *CISG*' (1996) 8(2) *Pace International Law Review* 303, 304 ('Maintaining Uniformity'); referring to problems deriving from 'transborder data exchanges', but treating software as constituting 'computer program[s]'. See also Gillette and Walt (n 17) 49, 51: referring at first to 'the sale of information technology, such as computer software' and 'software or internet transaction[s]', and then 'virtual goods', but addressing only software in substance; Christopher Kee, 'Rethinking the Common Law Definition of Goods' in Andrea Büchler and Markus Müller-Chen (eds), *Private Law: National – Global – Comparative* (Intersentia, 2011) 925, 930–1: differentiating ebooks from 'computer software'.

digital scope. At best, it can be said that determining whether or not digital assets other than traditional computer programs fall within the *CISG*'s scope is a matter requiring further analysis.⁴²

Although the authorities identified above treat the software concept as having various widths, they all still use that software label. If one seeks out literature moving beyond the software concept, only limited examples emerge. Commentary by Mistelis makes brief reference to 'digital goods', citing only one source: a German language article by Eggen, described by that commentary as a 'significant scholarly opinion'.⁴³ Mistelis' commentary suggests that the *CISG*'s application to 'digital goods' is a 'particular modern legal challenge', but does not seek to resolve it.⁴⁴ Eggen's work identifies image, text, music, and video files as examples of non-software digital goods, and describes the *CISG*'s application to these items as uncertain.⁴⁵ In a one-page (also German language) assessment, Schroeter differentiates 'digital content' (including apps) from software as traditionally understood: suggesting that the *CISG* may apply to digital content, but that it may not contain optimal rules.⁴⁶ In another brief review, a 2001 report of the United Nations Commission on International Trade Law's Working Group on Electronic Commerce suggested that the *CISG* may not apply to 'virtual goods', offering their intangibility as the reason for reaching this conclusion.⁴⁷ One year earlier, Sorieul had left that same question open.⁴⁸

The tide, however, appears to be slowly changing. Green has recently undertaken a detailed theoretical assessment of 'digitised material' and its fit within the scope of sales laws: though in a general sense, and not specifically in relation to the *CISG*.⁴⁹ The most recent (7th) edition of the German language Schlechtriem, Schwenzer and Schroeter commentary contains an annex to its *CISG* article 1 chapter, authored by Hachem, specifically addressing data trade.⁵⁰ That work is also limited: it does not define its understanding of data, it focuses in some instances on personal and raw data in particular,⁵¹ and it explicitly assumes that the *CISG*'s extension to data trade follows from its already-established application

42 Benjamin Hayward and Patricia Perlen, 'The *CISG* in Australia: The Jigsaw Puzzle That Doesn't Quite Fit' (2011) 15(1) *Vindobona Journal of International Commercial Law and Arbitration* 119, 142.

43 Loukas Mistelis, 'Article 1' in Stefan Kröll, Loukas Mistelis and Pilar Perales Viscasillas (eds), *UN Convention on Contracts for the International Sale of Goods (CISG): A Commentary* (CH Beck, 2nd ed, 2018) 21, 32 [38] ('Article 1'). See Eggen (n 11).

44 Mistelis, 'Article 1' (n 43) 28 [25].

45 Eggen (n 11) 230–1.

46 Schroeter (n 14) 289.

47 United Nations Commission on International Trade Law, *Report of the Working Group* (n 14) 4 [8], 22 [114]–[115].

48 Sorieul (n 14) 382, 387.

49 Green (n 27).

50 Pascal Hachem, 'Anhang zu Art. 1: *CISG* und Datenhandel' in Peter Schlechtriem, Ingeborg Schwenzer and Ulrich Schroeter (eds), *Kommentar Zum UN-Kaufrecht (CISG)* (CH Beck, 7th ed, 2019) 78. I understand that a corresponding annex will be added to the *Kommentar Zum UN-Kaufrecht (CISG)*'s next English language edition.

51 See, eg, *ibid* 81 [11], 82 [12], 82–3 [15], 85–6 [27]–[28], 86–7 [32]–[35], 88 [38]–[39]. Cf at 85 [25].

to software⁵² (as does an analysis undertaken by Wulf in 2003).⁵³ A relatively detailed analysis of the *CISG*'s application to intangible goods (including, but not limited to, software) was undertaken by Schmitt, also in 2003, and was grounded in grammatical, systematic, and historical interpretations of the *CISG*.⁵⁴ Most recently, Trakman, Walters and Zeller have addressed the *CISG*'s application to data as a mechanism to facilitate transnational trade in (and also as a means to protect) personal data.⁵⁵ This work is limited, too: it focuses on personal data,⁵⁶ and lacks a rigorous interpretative basis for treating the *CISG*'s scope as including data trade.⁵⁷ Though the tide is changing, the limitations of this emerging body of *CISG*-data scholarship demonstrate that the tide has not yet reached its high-water line. Given that there are important qualitative differences between software and other forms of data (a matter which will be explored in detail below), and given the inescapable need to ground the *CISG*'s application to any commercial subject matter in an interpretation of its text, the time is ripe for this article's fresh approach. A specific legal framework for assessing the *CISG*'s capacity to regulate data trade is required.

In order to reconcile my own analysis against existing *CISG*-software scholarship, I differentiate two types of trade in this article (and in 'To Boldly Go, Part II'): software trade, and trade in non-software data. In line with traditional understandings of the term, and consistently with its usage in some of the *CISG*-software scholarship referred to above, I define software as traditional executable computer programs only. For the purposes of my analysis, and acknowledging that this view is not universally accepted, I treat the *CISG*'s application to electronic software trade as being settled. Non-software data, the focus of this article, encompasses all types of digital products other than software: including, but not limited to, media files (audio, video, image, and document), apps, and raw data.⁵⁸ The overall concept of digital products is hard to define,⁵⁹ and there is no closed list of the types of non-software data.⁶⁰ This article will therefore analyse media files, apps, and raw data (including personal data) by way of example.

52 Ibid 81 [10]. See also at 83 [16], 88–9 [40].

53 Wulf (n 4) 42–55.

54 Schmitt (n 19) 28–41.

55 Trakman, Walters and Zeller (n 30).

56 Ibid 245.

57 Ibid 247, 249–51, 253–6. See especially at 258.

58 Itself including personal data, a significant subject matter in the digital economy: Morgan A Corley, 'The Need for an International Convention on Data Privacy: Taking a Cue from the *CISG*' (2016) 41(2) *Brooklyn Journal of International Law* 721, 721–2, 724.

59 Clarice Marinho Martins de Castro, Chris Reed and Ruy de Queiroz, 'Digital Content and Cloud-Based Contracts in Brazil and the European Union' (2016) 24(1) *International Journal of Law and Information Technology* 99, 103.

60 Hayward, 'What's in a Name?' (n 23) 454.

III THE IMPORTANCE OF THE *CISG*'S POTENTIAL APPLICATION TO DATA TRADE: PRACTICAL AND POLICY IMPLICATIONS

Part II explained that investigating the *CISG*'s capacity to regulate non-software data trade is not merely a matter of terminology. This Part will demonstrate that it is also not just an interesting academic exercise. This issue is important for both practical and policy reasons. Those reasons, going to the matter of whether non-software data trade *should* be captured by the *CISG*, are addressed in turn below.

A Practical Perspectives on the *CISG*'s Potential Application to Non-software Data Trade

Starting with matters of practicality, data trade's magnitude and its nuances, the legal implications of the *CISG*'s application to data, and the *CISG*'s status as an existing legal instrument are addressed here. The potential macro-level implications of the *CISG*'s extension to non-software data trade is also a relevant consideration.

1 The Magnitude of Data Trade

If software is 'big-league business',⁶¹ data trade is necessarily bigger business again. This follows from the definitions of software and non-software data that I have adopted in Part II above. While all software is data, not all data is software. Digital assets (adopting, for a moment, Green's terminology) are now 'hardly unusual, uncommon or of little value; in fact, quite the opposite is true'.⁶² In turn, data exchange is said to be 'the lifeblood of the globalised society in which people live'.⁶³ The magnitude of data trade demonstrates the importance of analysing the *CISG*'s potential application to non-software data.

Against a broader context where over 40 billion gigabytes of mobile traffic is generated every month,⁶⁴ taking even a small number of specific examples of data trade's magnitude firmly illustrates this point. Social media enterprises are renowned for using customer data 'to make money'.⁶⁵ The Apple App Store, a platform returned to in Part VI, had a cumulative total of 180 billion app downloads

61 Neumann (n 4) 110.

62 Green (n 27) 93–4. See also Hachem (n 50) 78 [1]; Trakman, Walters and Zeller (n 30) 246.

63 Svantesson, 'Data Trends' (n 1) 6.

64 'Helping In-House Counsel Master Digital: Internet of Things', *Straight Talking from Hogan Lovells* (Hogan Lovells, 17 July 2020) 0:01:20–0:01:25 <<https://hlstraighttalks.podbean.com/e/helping-in-house-counsel-master-digital-%E2%80%93-internet-of-things/>>.

65 'A Simple Guide to What's Going on at Cambridge Analytica', *BBC* (online, 5 April 2018) <<https://www.bbc.co.uk/newsround/43474502>>. See also Jeffrey Ritter and Anna Mayer, 'Regulating Data as Property: A New Construct for Moving Forward' (2017) 16(1) *Duke Law and Technology Review* 220, 222–3; Corley (n 58) 721–2, 724; Justice Michael Kirby, 'Legal Aspects of Transborder Data Flows' (1991) 11(2) *Computer/Law Journal* 233, 236.

as of June 2017.⁶⁶ In 2014, the music industry ‘derived the same proportion of revenues from digital channels (46%) as physical format sales (46%)’ for the first time in history.⁶⁷ And broader business digitalisation initiatives now create ‘vast amounts of data’⁶⁸ that ‘is valuable as a commodity’ and that may be sold ‘as a product to interested parties’.⁶⁹ This data might be used, for example, for the purposes of targeted advertising.⁷⁰

Anecdotal evidence suggests that significant amounts of the data used by business tends to be obtained from third parties.⁷¹ Putting to one side *CISG* article 2(a)’s consumer contracts exclusion, significant business-to-business commercial activity therefore surrounds non-software data: so much so that data is often referred to as the new oil.⁷² Despite its ‘substantial pedigree’,⁷³ *CISG*-software analyses have fallen behind the times: they are ‘now part of a larger problem’⁷⁴ which also encompasses the non-software data trade analysed in this article.

2 The Nuances of Data Trade

Persisting with existing *CISG*-software analyses also risks implying, either intentionally or unintentionally, that data other than traditional executable computer

66 ‘Cumulative Number of Apps Downloaded from the Apple App Store from July 2008 to June 2017 (in Billions)’, *Statista* (Web Page, 6 July 2021) <<https://www.statista.com/statistics/263794/number-of-downloads-from-the-apple-app-store/>>.

67 International Federation of the Phonographic Industry, ‘IFPI Digital Music Report 2015: Charting the Path to Sustainable Growth’ (Report, 2015) 6.

68 ‘EP40 COVID-19: Digitalise to Survive and Thrive (Australia)’, *Catalyst* (Herbert Smith Freehills, 3 June 2020) 0:06:44–0:06:54 <<https://www.herbertsmithfreehills.com/latest-thinking/catalyst-podcast-series/>>. See also ‘Maximising Value from Data’ (n 26) 0:01:07–0:01:53.

69 Trakman, Walters and Zeller (n 30) 244. See also ‘Government Access to Personal Data Held by the Private Sector: Statement by the OECD Committee on Digital Economy Policy’, *OECD* (Web Page) <<http://www.oecd.org/digital/trusted-government-access-personal-data-private-sector.htm>>; ‘Fintech in Focus: Digital Identity’, *The Freshfields Podcast* (Freshfields Bruckhaus Deringer, 23 September 2020) 0:04:17–0:04:43 <<https://www.freshfields.com/en-gb/our-thinking/campaigns/digital/digital-podcast-series/fintech-in-focus-digital-identity/>> (‘Digital Identity’); ‘Maximising Value from Data’ (n 26) 0:00:30–0:00:43.

70 ‘Branding’ (n 8) 0:16:31–0:20:20.

71 ‘Data Ethics: Navigating the Spirit of the Law’, *The Allen & Overy Podcast* (Allen & Overy, 9 October 2019) 0:14:14–0:14:35 <<https://allenoverypodbean.com/e/podcast-data-ethics-navigating-the-spirit-of-the-law/>>. See also ‘Maximising Value from Data’ (n 26) 0:03:22–0:03:36.

72 Ajay Agrawal, Joshua Gans and Avi Goldfarb, *Prediction Machines: The Simple Economics of Artificial Intelligence* (Harvard Business Review Press, 2018) 43; Trakman, Walters and Zeller (n 30) 243. See also ‘Exploring Opportunities’ (n 30) 0:44:56–0:46:08; ‘Digital Identity’ (n 69) 0:04:17–0:04:43; ‘The Impact of COVID-19 on Digital Transformation and the Importance of Continued Innovation’, *DLA Piper TechLaw Podcast Series* (DLA Piper, 22 September 2020) 0:06:28–0:07:08 <<https://soundcloud.com/user-70946062/the-impact-of-covid-19-on-digital-transformation-and-the-importance-of-continued-innovation>> (‘Continued Innovation’); ‘A Turning Point for Tech: Global Survey on Digital Regulation’, *Straight Talking from Hogan Lovells* (Hogan Lovells, 6 November 2019) 0:06:39–0:06:55 <<https://hlstraighttalks.podbean.com/e/a-turning-point-for-tech-global-survey-on-digital-regulation/>>. As GfK (a market research company) has described, data is its ‘widget’: ‘What’s Next? GfK and the Digitized Consumer Experience’, *Straight Talking from Hogan Lovells* (Hogan Lovells, 23 May 2018) 0:01:47–0:02:32 <<https://hlstraighttalks.podbean.com/e/whats-next-gfk-and-the-digitized-consumer-experience/>>. Cf Svantesson, ‘Data Trends’ (n 1) 13.

73 Green (n 27) 79.

74 Hayward, ‘What’s in a Name?’ (n 23) 443.

programs falls outside of its scope. Specifically assessing the *CISG*'s capacity to govern non-software data trade is therefore important, given the nuances of data trade.

Software and non-software data are two types of data, as identified above. They are both commonly commercially traded. Nevertheless, non-software data is qualitatively different to software. It does not consist of executable files. And in some cases, unlike software, non-software data is not functional in and of itself.⁷⁵ Media files and raw data, for example, require things to be *done to them* by software or by apps in order to be useful.⁷⁶

Taken alongside existing *CISG*-software scholarship, my analysis has the potential to act as a technology-neutral unifying theory.⁷⁷ Any lingering doubts as to whether non-software data trade falls within the *CISG*'s scope⁷⁸ stand to be removed.

3 The Legal Implications of the *CISG*'s Application to Non-software Data Trade

Anecdotal evidence suggests that the *CISG* is often excluded in the 'tech industry'.⁷⁹ One empirical study even found that there was a 'consistent failure' to specifically choose the *CISG* as a governing law for software transactions.⁸⁰ Notwithstanding such evidence, the legal implications of the *CISG*'s presumptive application to non-software data trade arguably stand to generate real practical benefits.

Identifying the law governing an international data transaction 'can radically change the remedies or viability of the parties' claims in a dispute'.⁸¹ Indeed, the ability to enforce rights and obligations is a key commercial consideration in relation to both physical and digital goods trade.⁸² The *CISG*'s harmonised rules seek to promote cross-border trade in traditional goods,⁸³ and they have that very same potential in the digital sphere. This is particularly important in the context of the 'relatively new market' for non-software data, where companies may be 'operating on unfamiliar ground, and often embarking on ... negotiations or

75 Wulf (n 4) 51; Schmitt (n 19) 19–20.

76 In this regard, raw data is similar to raw materials: Hachem (n 50) 82 [12].

77 Cf Castellani, 'Electronic *CISG*' (n 14) 44–5.

78 See, eg, Hayward and Perlen (n 42) 142.

79 Ana Coimbra Trigo, 'Choice of Law and Arbitration in International Contracts: A Roundtable with Stakeholders', *Kluwer Arbitration Blog* (Blog Post, 16 May 2019) <<http://arbitrationblog.kluwerarbitration.com/2019/05/16/choice-of-law-and-arbitration-in-international-contracts-a-roundtable-with-stakeholders/>>. See, eg, *Multiactive Software Inc v Advanced Service Solutions Inc* [2003] BCSC 643, [4] <http://www.cisg-online.org/files/cases/8268/fullTextFile/2353_21267522.pdf>.

80 John F Coyle, 'The Role of the *CISG* in US Contract Practice: An Empirical Study' (2016) 38(1) *University of Pennsylvania Journal of International Law* 195, 222–3 ('US Contract Practice'). See also at 223 n 86.

81 Richard Raysman et al, ALM, *Intellectual Property Licensing: Forms and Analysis* (online at 2020) §2.01 [1.b.i]. See also Gillette and Walt (n 17) 50; 'Maximising Value from Data' (n 26) 0:07:33–0:08:50.

82 Asia Society Australia, 'Leading the Way in Digital Trade: Part B' (YouTube, 20 November 2020) 0:33:42–0:34:53 <<https://www.youtube.com/watch?v=P3SwvrkIT4c>> ('Part B').

83 *CISG* (n 3) Preamble para 3.

preliminary discussions without a clear view of the value associated with data': the *CISG* could help these companies to instead be 'well prepared'.⁸⁴

While analysing the *CISG*'s potential application to smart contracts, Duke recently argued that 'without an international legal framework, legal ambiguities surrounding smart contracts may discourage entrepreneurs from developing this technology and thereby deter increasing trade flows and enhancing trade efficiency'.⁸⁵ In the software context, Primak went so far as to argue that the *CISG* 'should be applied wherever it may positively affect international commercial transactions and enhance the development of international commercial law as it applies to software'.⁸⁶ More generally, the existence of fragmentary rules addressing digital trade is recognised as not only adding to business costs, but also adversely affecting competition, innovation, and firm growth.⁸⁷ If a proper interpretation of the *CISG* supports its application to non-software data trade, that conclusion will 'contribute to the removal of legal barriers in international trade and promote the development of international trade'.⁸⁸ This would be particularly true for small and medium enterprises ('SMEs'), for whom digitalised trade presents particular challenges.⁸⁹ SMEs in particular are seen as standing to benefit from the *CISG* and its associated 'opportunity to perform international trade on already established grounds with already developed trade customs, but without the obstacles presented by the risk of having to deal with a different legal system, foreign litigation, increased costs, and lack of information'.⁹⁰

Should the *CISG* presumptively govern non-software data trade, *CISG* article 6 would preserve merchants' rights to opt-out, in favour of an otherwise applicable non-harmonised state law. Despite the bad reputation sometimes attached to *CISG* opt-outs, they are not objectionable in themselves, provided that they are not 'standardized'.⁹¹ Party autonomy is actually an essential component of the *CISG*'s regulatory framework, given its commercial law context.⁹² Should the *CISG* be confirmed as constituting a default legal regime for cross-border data trade, merchants would be able to make governing law decisions in their individual

84 'Maximising Value from Data' (n 26) 0:13:35–0:14:21.

85 Duke (n 4) 145.

86 L. Scott Primak, 'Computer Software: Should the *UN Convention on Contracts for the International Sale of Goods* Apply?' (1991) 11(2) *Computer/Law Journal* 197, 214.

87 Asia Society Australia, 'Leading the Way in Digital Trade: Part A' (YouTube, 19 November 2020) 0:31:14–0:32:03 <https://www.youtube.com/watch?v=Sp_TCCZXQfl> ('Part A').

88 *CISG* (n 3) Preamble para 3.

89 Asia Society Australia, 'Part B' (n 82) 0:19:03–0:20:03.

90 Silvia E Nikolova, 'UK's Ratification of the *CISG*: An Old Debate or a New Hope for the Economy of the UK on its Way Out of the Recession' (2012) 3(3) *Pace International Law Review Online Companion* 69, 79. See also Mark Walter, 'The *CISG* and Cross-Border Access to Commercial Justice' (2019) 38(1) *Journal of Law and Commerce* 155, 156; Petra Butler, 'The *CISG* as the Tool for Successful MSME Participation in Global Trade' (2019) 38(1) *Journal of Law and Commerce* 207, 237–8.

91 Ingeborg Schwenzer and Pascal Hachem, 'Article 6' in Ingeborg Schwenzer (ed), *Schlechtriem & Schwenzer: Commentary on the UN Convention on the International Sale of Goods (CISG)* (Oxford University Press, 4th ed, 2016) 101, 106 [11].

92 Luca G Castellani, 'Foreword' in Ingeborg Schwenzer and Lisa Spagnolo (eds), *State of Play: The 3rd Annual MAA Schlechtriem CISG Conference* (Eleven International Publishing, 2012) vii, ix ('Foreword').

contracts against that background, based on their own particular needs.⁹³ Expecting them to do so, and expecting them to exclude the *CISG* where they genuinely deem this to be appropriate, is not burdensome. The transaction costs of excluding the *CISG* are low as ‘the form required for an effective opt-out clause is generally well known’.⁹⁴ Opt-outs do not necessarily undermine uniformity, either. In some cases, the opposite might be true. Data suppliers may, for example, wish to select a consistent governing law for their commercial and consumer data sales:⁹⁵ the latter being excluded from the scope of the *CISG* by article 2(a).

4 The *CISG*’s Status as an Existing Legal Instrument

International data traders stand to benefit from the *CISG*’s ready-made and already-widely-adopted private law framework.⁹⁶ That the *CISG* presumptively captures ‘more than 80 per cent’ of the world’s traditional goods trade⁹⁷ is indicative of its potential digital reach. At the time of writing, the *CISG* boasts 94 Contracting States,⁹⁸ including Australia and nearly all of the world’s other major trading

93 Chief Justice Sundaresh Menon, ‘Roadmaps for the Transnational Convergence of Commercial Law: Lessons Learnt from the *CISG*’ (Speech, 35th Anniversary of the *Convention on Contracts for the International Sale of Goods*, 23 April 2015) 19–20 [21].

94 Lisa Spagnolo, *CISG Exclusion and Legal Efficiency* (Kluwer Law International, 2014) 98. Cf Harry M Flechtner, ‘The Past, Present and Future of the *CISG* (and Other Uniform Commercial Law Initiatives)’ (2019) 38(1) *Journal of Law and Commerce* 35, 38.

95 Cox (n 4) 364.

96 H Van Houtte, ‘The *Convention on the International Sale of Goods* (1980): 20 Years’ [2000] (3) *Business Law International* 357, 357–8. Cf Tribunal Cantonal du Valais [Cantonal Court of Valais], 21 October 1994 reported in [1994] 28 *Revue Valaisanne de Jurisprudence* 312, discussed in United Nations Commission on International Trade Law, *Case Law on UNCITRAL Texts (CLOUT)*, UN Doc A/CN.9/SER/C/ABSTRACTS/14 (30 January 1998) 8 <https://www.uncitral.org/clout/clout/data/che/clout_case_198_leg-1087.html>: declining to apply the *CISG*, in the software context, on the basis of its temporal application.

97 Ingeborg Schwenzer, ‘Introduction’ in Ingeborg Schwenzer (ed), *Schlechtriem & Schwenzer: Commentary on the UN Convention on the International Sale of Goods (CISG)* (Oxford University Press, 4th ed, 2016) 1, 1 (‘Introduction’). See also Stefan Kröll, Loukas Mistelis and Pilar Perales Viscasillas, ‘Introduction to the *CISG*’ in Stefan Kröll, Loukas Mistelis and Pilar Perales Viscasillas (eds), *UN Convention on Contracts for the International Sale of Goods (CISG): A Commentary* (CH Beck, 2nd ed, 2018) 1, 1 [1]. According to Ingeborg Schwenzer and Christopher Kee, ‘International Sales Law: The Actual Practice’ (2011) 29(3) *Penn State International Law Review* 425, 428 n 19, the 80% figure:

is arrived at by taking the contribution of the export values of *CISG* member states as a percentage of the world’s fifty leading exporters as reported by the WTO ... Typically conflicts-of-law rules lead to the application of the law of the seller’s place of business, and thus it is appropriate to specifically consider figures relating to exporters.

98 ‘Status of Convention on Contracts’ (n 32). This figure is subject to one caveat, concerning the United States’ and Israel’s positions regarding Palestine: Secretary-General, *United Nations Convention on Contracts for the International Sale of Goods: United States of America Communication*, Depositary Notification, UN Doc C.N.177.2018.TREATIES-X.10 (4 April 2018) <<https://treaties.un.org/doc/Publication/CN/2018/CN.177.2018-Eng.pdf>>; Secretary-General, *United Nations Convention on Contracts for the International Sale of Goods: Israel Communication*, Depositary Notification, UN Doc C.N.181.2018.TREATIES-X.10 (4 April 2018) <<https://treaties.un.org/doc/Publication/CN/2018/CN.181.2018-Eng.pdf>>.

nations.⁹⁹ This figure approaches half of the United Nations' overall membership,¹⁰⁰ and represents more than half of the take-up of the *Convention on the Recognition and Enforcement of Foreign Arbitral Awards* ('*New York Convention*'):¹⁰¹ itself 'perhaps ... the most effective instance of international legislation in the entire history of commercial law',¹⁰² and the only commercial law treaty to have 'bested' the *CISG*.¹⁰³ Even this statistic must be placed in its temporal context, however, given that the *CISG* postdates the *New York Convention*. The rate of the *CISG*'s uptake by States is impressive,¹⁰⁴ as is evidenced by comparing accessions to the two instruments across ten-year blocks.¹⁰⁵

The *CISG*'s geographic and economic reaches confirm the practical importance of assessing its application to non-software data trade. Importantly, the *CISG*'s 'worldwide acceptance'¹⁰⁶ was not achieved overnight.¹⁰⁷ The *CISG* initially entered into force in just 11 States,¹⁰⁸ its finalised text reflects decades of prior work,¹⁰⁹ and estimates place its preparation costs at approximately USD6 million.¹¹⁰ While bespoke

99 The United Kingdom and India being notable exceptions: Kröll, Mistelis and Perales Viscasillas (n 97) 1 [1].

100 Currently 193 States: 'Growth in United Nations Membership', *United Nations* (Web Page) <<https://www.un.org/en/about-us/growth-in-un-membership>>.

101 *Convention on the Recognition and Enforcement of Foreign Arbitral Awards*, opened for signature 10 June 1958, 330 UNTS 3 (entered into force 7 June 1959) ('*New York Convention*'). See 'Status of Treaties: *Convention on the Recognition and Enforcement of Foreign Arbitral Awards*', *United Nations Treaty Collection* (Web Page, 28 July 2021) <https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtsg_no=XXII-1&chapter=22&clang=en>.

102 Michael Mustill, 'Arbitration: History and Background' (1989) 6(2) *Journal of International Arbitration* 43, 49.

103 Michael Bridge, 'An Overview of the *CISG* and an Introduction to the Debate about the Future Convention' (2013) 58(4) *Villanova Law Review* 487, 487. See also Nikolova (n 90) 78.

104 João Ribeiro, 'Foreword' in Ingeborg Schwenzer and Lisa Spagnolo (eds), *Growing the CISG: 6th MAA Schlechtriem CISG Conference* (Eleven International Publishing, 2016) ix, x ('Foreword'). See also Trigo (n 79).

105 In the first 10 years after its conclusion, the *CISG* attracted 23 accessions; the second decade 33; the third 18; and the fourth 19. The *New York Convention*'s equivalent figures are 33, 18, 22, and 42. The *CISG* thus attracted significantly more accessions than the *New York Convention* their second respective decades, but vice versa in their fourth. See also Nikolova (n 90) 78.

106 Schwenzer, 'Introduction' (n 97) 1.

107 Michael Bridge, '*CISG* Advisory Council Declaration No 1: The *CISG* and Regional Harmonization' in Ingeborg Schwenzer (ed), *The CISG Advisory Council Opinions* (Eleven International Publishing, 2017) 671, 671–2 [1] ('Declaration 1').

108 Eric E Bergsten, 'Thirty-Five Years of the *United Nations Convention on Contracts for the International Sale of Goods*: Expectations and Deliveries' in United Nations Commission on International Trade Law (ed), *Thirty-Five Years of Uniform Sales Law: Trends and Perspectives* (United Nations, 2015) 7, 7.

109 Peter Schlechtriem, 'Requirements of Application and Sphere of Applicability of the *CISG*' (2005) 36(4) *Victoria University of Wellington Law Review* 781, 781 ('Requirements of Application'). The 'first step' is traceable back to 1928: Schwenzer, 'Introduction' (n 97) 1. See also Larson (n 10) 487.

110 Ribeiro, 'Foreword' (n 104) ix; Gerold Herrmann, 'The Role of UNCITRAL' in Ian Fletcher, Loukas Mistelis and Marise Cremona (eds), *Foundations and Perspectives of International Trade Law* (Sweet & Maxwell, 2001) 28, 33 [2–223]; Renaud Sorieul, Emma Hatcher and Cyril Emery, 'Possible Future Work by UNCITRAL in the Field of Contract Law: Preliminary Thoughts from the Secretariat' (2013) 58(4) *Villanova Law Review* 491, 499. It is understood that this estimate accounts for typical UNCITRAL meeting costs. On this basis, it would still not include States' own costs of participating in the treaty-making process, nor the costs of the antecedent activities (including prior UNIDROIT initiatives) upon which the *CISG* was built.

data trade regulation has its attractions,¹¹¹ developing an instrument specific to data but with equivalent standing to the *CISG* would take significant time, would involve significant costs, and may be hindered by a diversity of existing approaches,¹¹² as well as by the digital economy's rapid pace of change.¹¹³ In the meantime, commercial actors have a genuine interest in supporting their trading activities via converging business and legal practices,¹¹⁴ and digital trade is really just one aspect of the world's overall economic activity (rather than being a separate economy that necessarily requires its own separate rules).¹¹⁵ Services laws are also an inadequate substitute. There is currently no international services convention that is equivalent to the *CISG*.¹¹⁶ On the other hand, the *CISG* is capable of governing contracts that have both goods and services elements.¹¹⁷ This aspect of the *CISG*'s operation is analysed, in the non-software data context, in Part VII below.

5 The Potential Macro-Level Implications of the *CISG*'s Application to Non-software Data Trade

Interpreting the *CISG* as governing non-software data trade may drive practical benefits at the macro level, too. Innovative application of the *CISG* to what are now routine commercial data transactions may help promote its use (and its internationally-minded interpretation) in countries, like Australia, that currently have chequered *CISG* histories.¹¹⁸ Given *CISG* article 7(1)'s autonomous interpretation rule, and its directive to pursue uniformity in the *CISG*'s application,

111 Schroeter (n 14) 289; Sorieul (n 14) 382, 387. See also Green and Saidov (n 4) 181; Cox (n 4) 364; Larson (n 10) 487–8. Cf Lyria Bennett Moses, 'Adapting the Law to Technological Change: A Comparison of Common Law and Legislation' (2003) 26(2) *University of New South Wales Law Journal* 394, 401, 411.

112 Sorieul, Hatcher and Emery (n 110) 499; Van Houtte (n 96) 358. Interestingly, the process underpinning the *CISG*'s development has been proposed as a model for 'an international convention on the collection, transfer, and processing of personal data': Corley (n 58) 725. See generally at 766–79.

113 Asia Society Australia, 'Part A' (n 87) 0:05:41–0:06:05.

114 Camilla Baasch Andersen, 'A New Challenge for Commercial Practitioners: Making the Most of Shared Laws and Their "Jurisconsultorium"' (2015) 38(3) *University of New South Wales Law Journal* 911, 918 ('A New Challenge').

115 Asia Society Australia, 'Part A' (n 87) 0:33:51–0:34:46.

116 Calls have been made for the development of such an instrument: Tripodi (n 10) 141. See also United Nations Commission on International Trade Law Secretariat, *Possible Future Work in the Area of International Contract Law: Proposal by Switzerland on Possible Future Work by UNCITRAL in the Area of International Contract Law*, UN GAOR, 45th sess, UN Doc A/CN.9/758 (8 May 2012) annex [VI] ('Possible Future Work'); Bridge, 'Declaration 1' (n 107) 673 [6]; Ingeborg Schwenzer, 'Who Needs a Uniform Contract Law, and Why?' (2013) 58(4) *Villanova Law Review* 723, 728–30.

117 Ingeborg Schwenzer, Julian Ranetunge and Fernando Tafur, 'Service Contracts and the *CISG*' (2019) 10 *Indian Journal of International Economic Law* 172, 172–3.

118 See generally Andrea Anastasi, Benjamin Hayward and Stephanie Peta Brown, 'An Internationalist Approach to Interpreting Private International Law: Arbitration and Sales Law in Australia' (2020) 44(1) *Melbourne University Law Review* 1, 35–44; Benjamin Hayward, 'CISG as the Applicable Law: The Curious Case of Australia' in Poomintr Sooksripaisarnkit and Sai Ramani Garimella (eds), *Contracts for the International Sale of Goods: A Multidisciplinary Perspective* (Sweet & Maxwell, 2019) 167 ('CISG as the Applicable Law'); Lisa Spagnolo, 'The Last Outpost: Automatic *CISG* Opt Outs, Misapplications and the Costs of Ignoring the *Vienna Sales Convention* for Australian Lawyers' (2009) 10(1) *Melbourne Journal of International Law* 141.

all Contracting States benefit when *CISG* practices and jurisprudence improve in particular jurisdictions. For ‘better or worse’, Australia (and other States like it) ‘[help] shape the world’s overall track record of *CISG* successes and failures’.¹¹⁹

B Policy Perspectives on the *CISG*’s Potential Application to Non-software Data Trade

Applying the *CISG* to non-software data trade is also consistent with its underlying policy objectives. Here, considerations arise regarding the legitimacy of progressive *CISG* interpretations, the benefits of broadly interpreting *CISG* article 1(1)’s goods criterion, and the *CISG*’s overall evolution as an instrument of international commercial law.

This consistency with the *CISG*’s policy objectives does not in itself show that the *CISG* actually governs non-software data trade. Nor do the practical perspectives addressed in Part III(A) above. They do, however, provide important context for the decisive treaty interpretation exercise undertaken in Parts IV–VII below, and in ‘To Boldly Go, Part II’.

1 The Legitimacy of Progressive *CISG* Interpretations, and the Benefits of Broadly Interpreting *CISG* Article 1(1)’s Goods Criterion

Progressive *CISG* interpretations can threaten its uniform application, given the absence of an international-level final instance court of appeal for sales law disputes.¹²⁰ Nevertheless, as an instrument playing ‘an important role in governing international sales’, the *CISG* ‘is not exempted from the need to address new situations created by technology improvements’.¹²¹ As far back as 1991, it was observed that transnational software exchange ‘affects individuals, businesses, nation states and the world community as a whole’.¹²² This observation applies with even more force today, regarding non-software data trade.

As explored in Part V, scholarly analysis generally advocates a broad reading of *CISG* article 1(1)’s goods criterion. One commentator even advocates reading that term ‘as widely as possible’ in order to pay due deference to the *CISG*’s French language version, and to facilitate its application to ‘new developments such as the invention and creation of merchandise not yet known to the drafters’.¹²³ Broadly interpreting *CISG* article 1(1)’s goods criterion is considered to be consistent with the *CISG*’s ‘intentions and goals’, its ‘underlying concepts’, and the desirability of securing ‘legal certainty through uniform rules’.¹²⁴ It is also arguably consistent with

119 Hayward, ‘*CISG* as the Applicable Law’ (n 118) 169 [10.03].

120 Olaf Meyer, ‘Constructive Interpretation: Applying the *CISG* in the 21st Century’ in André Janssen and Olaf Meyer (eds), *CISG Methodology* (Sellier European Law Publishers, 2009) 319, 321.

121 Muñoz (n 4) 282.

122 Primak (n 86) 197.

123 Peter Schlechtriem, ‘Article 1’ in Peter Schlechtriem and Ingeborg Schwenzer (eds), *Commentary on the UN Convention on the International Sale of Goods (CISG)* (Oxford University Press, 2nd ed, 2005) 23, 28–9 [21] (‘Article 1’). Pursuant to the *CISG*’s witness clause, its Arabic, Chinese, English, French, Russian and Spanish texts ‘are equally authentic’.

124 Diedrich, ‘Revisited’ (n 4) 61–2. *Contra* Gillette and Walt (n 17) 52.

the limited exclusions contained in *CISG* article 2, which indirectly help define *CISG* article 1(1)'s goods criterion,¹²⁵ and which do not refer to software or data.

The *CISG*'s harmonising potential has been taken into account by scholarship addressing software¹²⁶ and smart contracts.¹²⁷ From a policy perspective, it is relevant that the *CISG* is 'helpful law'.¹²⁸ Some empirical evidence even discloses a tendency for commercial parties to exclude the *CISG* in contracts where it would not otherwise have actually applied.¹²⁹ While the *CISG*'s application to non-software data trade must ultimately be grounded in its interpretation, this evidence is suggestive (at least in some jurisdictions)¹³⁰ of a fluid commercial understanding of its scope.

Still, a contrary view grounded in public international law considerations also exists. According to Meyer, a more conservative approach should be taken to interpreting the *CISG*'s application provisions in particular:

To some extent, the provisions concerning the scope of the *CISG* (Art 1-6 *CISG*) also reflect international law. They do not directly regulate the rights and obligations of the parties to the contract but primarily determine the extent to which the states involved are prepared to forego the application of their national law on sales in favour of the uniform law. Art 1-6 *CISG* are therefore of fundamental importance because they ensure the lawfulness of the *Convention*'s application ... This suggests the need to be cautious when adopting a constructive interpretation in relation to the scope of the *Convention*. The [state] parties must be able to rely on the statements contained in Art 1-6 *CISG*. Any surprising application of the *Convention* (e.g. under the cover of a progressive development of the law) may contradict the reasonable expectations of the parties.¹³¹

Meyer goes on to argue that since 'the *Convention* is sufficiently flexible to cope with most new developments ... there is no need to adopt a particularly liberal interpretation of its wording'.¹³²

These cautions are a useful reminder that the reasonable expectations of both commercial parties and Contracting States must be kept in mind when interpreting the *CISG*'s application provisions.¹³³ States have rights and responsibilities, too, with respect to the *CISG*: it constitutes an instrument of public international law

125 Schwenzer and Hachem, 'Article 1' (n 17) 33–4 [16]; Ingeborg Schwenzer and Pascal Hachem, 'Article 2' in Ingeborg Schwenzer (ed), *Schlechtriem & Schwenzer: Commentary on the UN Convention on the International Sale of Goods (CISG)* (Oxford University Press, 4th ed, 2016) 47, 48 [3] ('Article 2').

126 Green and Saidov (n 4) 161–2; Cox (n 4) 362; Larson (n 10) 452; Diedrich, 'Maintaining Uniformity' (n 41) 304–5. Cf Michael D Scott, 'Contemporary Issues in Domestic Transactions for Computer Goods and Services' (1990) 3(4) *Software Law Journal* 615, 615–16, 634–5: curiously recommending exclusion of the *CISG*, whilst at the same time identifying the practical problems faced by computer goods/services traders dealing across markets and using a 'standard' contract tailored to a particular legal system. For a more cautious approach: see Sono (n 17) 525–6.

127 See Duke (n 4).

128 Fakes (n 39) 582.

129 Coyle, 'US Contract Practice' (n 80) 216–20. See, eg, *Traxys Europe SA v Balaji Coke Industry Pvt Ltd* [No 2] (2012) 201 FCR 535, 539 [14] (Foster J).

130 Cf John F Coyle, 'The Role of the *CISG* in Canadian Contract Practice: An Empirical Study' (2019) 38(1) *Journal of Law and Commerce* 65, 68.

131 Meyer (n 120) 329–30.

132 Ibid 342. See also Joseph Lookofsky, 'Not Running Wild with the *CISG*' (2011) 29(2) *Journal of Law and Commerce* 141, 144.

133 Sorieul, Hatcher and Emery (n 110) 491–2.

which binds them as a matter of international law. Still, my argument concerning non-software data is less of a ‘progressive development of the law’,¹³⁴ and more of an incremental (but still important) interpretative advance on the *CISG*’s existing accommodation of electronic software trade. My analysis is therefore consistent with giving the *CISG* ‘a cautious, responsible interpretation ... to prevent new legal dissipation because of shortsighted, nationalistic approaches’.¹³⁵

Although the proposition is endorsed by one authority, as noted above, my analysis does not rest on giving *CISG* article 1(1)’s goods criterion its *widest possible* interpretation. My analysis is, however, grounded in *CISG* articles 7(1) and 7(2)’s interpretation and gap-filling rules. These are provisions that States necessarily agree to, via their accession to the *CISG*.¹³⁶ It is these rules which provide for the *CISG*’s modernisation via interpretation.¹³⁷ The argument that I advance here, and in ‘To Boldly Go, Part II’, thus respects the *CISG*’s dual private and public law characters.¹³⁸

2 The *CISG*’s Overall Evolution

Interpreting the *CISG*’s scope as including non-software data trade is also consistent with the *CISG*’s overall evolution as an instrument of international commercial law.

The *CISG* requires goods to be fit for their purposes.¹³⁹ There is, therefore, a certain irony in the fact that the *CISG* has itself been repurposed in many different ways over the past 40 years. The *CISG* has been exposed to numerous mould-breaking usages: it has inspired domestic law reform, the development of other international instruments, contract drafting practices, expanded understandings of what now constitutes internationally accepted trade law,¹⁴⁰ and teaching programs for merchants in developing countries.¹⁴¹

134 Meyer (n 120) 330.

135 Diedrich, ‘Maintaining Uniformity’ (n 41) 338.

136 *CISG* (n 3) art 98.

137 Neumann (n 4) 113. These rules provide the foundation for the *CISG*’s dynamic interpretation: Ben Köhler, ‘For an Independent Development of the *CISG* beyond Article 7(2): A Stocktake and a Proposal’ in Zlatan Meškić et al (eds), *Balkan Yearbook of European and International Law 2020* (Springer, 2021) 3, 4, 6–12, 16–18; Michael P Van Alstine, ‘Dynamic Treaty Interpretation’ (1998) 146(3) *University of Pennsylvania Law Review* 687.

138 Cf Hayward and Perlen (n 42) 120–6.

139 *CISG* (n 3) arts 35(2)(a)–(b).

140 Camilla B Andersen, ‘Breaking the Mould of Scope: Unusual Usage of the *CISG*’ (2012) 16(2) *Vindobona Journal of International Commercial Law and Arbitration* 145, 147–59. See also Ingeborg Schwenzer, Pascal Hachem and Christopher Kee, *Global Sales and Contract Law* (Oxford University Press, 2012) 37–8 [3.21]; Nevena Jevremović, ‘*CISG* and Contracting Practice: Facilitating Negotiation of Contract Terms’ (2019) 38(1) *Journal of Law and Commerce* 189, 189–91; Marco Torsello, ‘Sales Law beyond Sales Contracts: Applicability and Applications of the *CISG* to Non-sales Transactions (the Case of Countertrade and Barter Transactions)’ (2019) 38(1) *Journal of Law and Commerce* 273, 293–4; Vjosa Osmani-Sadriu, ‘Domestication of the *CISG*: Examples from a Few Jurisdictions’ (2019) 38(1) *Journal of Law and Commerce* 387, 388–9; Petra Butler, ‘The Use of the *CISG* in Domestic Law’ (2011) 15(1) *Vindobona Journal of International Commercial Law and Arbitration* 15, 16–32.

141 United Nations Commission on International Trade Law Secretariat, *Possible Future Work* (n 116) annex [III]. See also Janet C Checkley, ‘The Role of the *CISG* and International Legal Education: A Model for

The *CISG* has evolved in significant interpretative respects, too. Many authorities now consider that the non-physical aspects of traditional goods (including their ethical dimensions) are capable of breaching the *CISG*'s conformity requirements.¹⁴² This position is particularly adaptive given that 'the *Convention* was designed decades before the movement that today is directed to contemplate ethical contractual standards'.¹⁴³ It is also notable, given this article's focus on non-software data, that the *CISG* has a particular affinity with arbitration.¹⁴⁴ Arbitration, in turn, is empirically confirmed as being an important dispute resolution mechanism in the technology, media, and telecoms fields.¹⁴⁵

While 'technical progress' does present challenges for the *CISG*'s application,¹⁴⁶ that progress also sets the scene for practical and policy-based opportunities concerning its subject matter scope, as this Part has demonstrated.

Future Promotion of the *CISG*' (2019) 38(1) *Journal of Law and Commerce* 407, 422–5.

142 Peter Huber and Alastair Mullis, *The CISG: A New Textbook for Students and Practitioners* (Sellier European Law Publishers, 2007) 132; Ingeborg Schwenzer, 'Article 35' in Ingeborg Schwenzer (ed), *Schlechtriem & Schwenzer: Commentary on the UN Convention on the International Sale of Goods (CISG)* (Oxford University Press, 4th ed, 2016) 591, 596–7 [9]–[10], 600–2 [15], 606–7 [21]; Stefan Kröll, 'Article 35' in Stefan Kröll, Loukas Mistelis and Pilar Perales Viscasillas (eds), *UN Convention on Contracts for the International Sale of Goods (CISG): A Commentary* (CH Beck, 2nd ed, 2018) 485, 489 [12], 492–3 [24]–[25], 501–2 [56], [59]–[61], 505 [76], 513 [103]; Paulo Nalin, 'International Fair Trade: Fair Trade in International Contracts and Ethical Standard' in Ingeborg Schwenzer (ed), *35 Years CISG and Beyond* (Eleven International Publishing, 2016) 317, 332–40; Ingeborg Schwenzer, 'Conformity of the Goods: Physical Features on the Wane?' in Ingeborg Schwenzer and Lisa Spagnolo (eds), *State of Play: The 3rd Annual MAA Schlechtriem CISG Conference* (Eleven International Publishing, 2012) 103, 105–8 ('Physical Features'); Ingeborg Schwenzer and Benjamin Leisinger, 'Ethical Values and International Sales Contracts' in Ross Cranston, Jan Ramberg and Jacob Ziegel (eds), *Commercial Law Challenges in the 21st Century: Jan Hellner in Memoriam* (Stockholm Centre for Commercial Law Juridiska Institutionen, 2007) 249, 266–8.

143 Nalin (n 142) 333. See also Schwenzer, 'Physical Features' (n 142) 103–5, 112.

144 Mistelis, 'Article 1' (n 43) 26 [18]; Loukas Mistelis, 'CISG and Arbitration' in André Janssen and Olaf Meyer (eds), *CISG Methodology* (Sellier European Law Publishers, 2009) 375, 386–91; CM Bianca, 'Article 35' in CM Bianca and MJ Bonell (eds), *Commentary on the International Sales Law: The 1980 Vienna Sales Convention* (Giuffrè, 1987) 268, 281–2 [3.1]; André Janssen and Matthias Spilker, 'The Application of the *CISG* in the World of International Commercial Arbitration' (2013) 77(1) *Rabel Journal of Comparative and International Private Law* 131; Schwenzer and Kee (n 97) 431–2, 437–8. But see Shiyuan Han, 'The Application of the *CISG* in International Commercial Arbitration in China' in Ingeborg Schwenzer (ed), *35 Years CISG and Beyond* (Eleven International Publishing, 2016) 91, 110–11; Jeffrey Waincymer, 'The *CISG* and International Commercial Arbitration: Promoting a Complimentary Relationship Between Substance and Procedure' in Camilla B Andersen and Ulrich G Schroeter (eds), *Sharing International Commercial Law across National Boundaries: Festschrift for Albert H Kritzer on the Occasion of His Eightieth Birthday* (Wildy, Simmonds & Hill Publishing, 2008) 582, 599; Petra Butler, 'CISG and International Arbitration: A Fruitful Marriage?' (2014) 17(1) *International Trade and Business Law Review* 322, 356–7.

145 School of International Arbitration, 'Pre-empting and Resolving Technology, Media and Telecoms Disputes: International Dispute Resolution Survey' (Research Report, 2016) 18–20.

146 Meyer (n 120) 324.

IV A SPECIFIC INTERPRETATIVE FRAMEWORK FOR ASSESSING THE *CISG*'S POTENTIAL APPLICATION TO NON-SOFTWARE DATA TRADE

Even if the *CISG*'s potential to govern non-software data trade is objectively desirable and is an important issue, it is a different thing altogether to conclude that its interpretation actually permits such application. In this Part, a specific legal framework is established through which this interpretative question can be tested and answered. Parts V–VII address my framework's three elements in detail.

As explained in Part II, an emerging (but limited) body of existing scholarship addresses the *CISG*'s digital application beyond software per se. This commentary, in addition to being limited in its volume, is limited in its scope. To summarise those limitations, which were previously identified in Part II, this existing *CISG*-data literature variously:

- assumes (incorrectly) that the *CISG*'s regulation of non-software data trade follows from its application to software transactions;
- fails to define its conception of data, sometimes focusing on particular types of non-software data; and
- fails to ground the *CISG*'s application to data trade in a rigorous examination of its interpretation.

The framework that I establish here addresses all of these shortcomings, though the final point on the list set out immediately above is perhaps the most important. Whilst the *CISG* is 'truly a law for merchants',¹⁴⁷ it is still *law*. As a result, determining the *CISG*'s sphere of application vis-à-vis non-software data trade is a legal question that must be answered by way of treaty interpretation.

Given the important qualitative differences between software and non-software data, introduced in Part III, it is not necessarily the case that the *CISG*'s application to software confirms its application to non-software data trade as well. As will be seen in Part V, applying *CISG* article 1(1)'s goods criterion to new commercial subject matters requires a consideration of the suitability of the *CISG*'s provisions for the type of trade in question. The conclusion that the *CISG* applies to non-software data trade can only be reached after independently analysing the application of the *CISG*'s provisions in the specific non-software data context. This is an exercise that existing *CISG*-data scholarship is yet to properly undertake.

This article's interpretative framework comprises three elements, derived from *CISG* articles 1(1) and 3. My analysis builds upon Eggen's work, which addressed those same provisions,¹⁴⁸ though not in enough detail to firmly conclude that the *CISG* can regulate trade in digital goods (adopting, for the moment, Eggen's terminology). Eggen's analysis did not identify the need to assess the suitability of the *CISG*'s provisions when applying *CISG* article 1(1)'s goods criterion, and provides only a brief review of the application of the *CISG*'s substantive

147 Jessica Viven-Wilksch, 'How Long is Too Long to Determine the Success of a Legal Transplant? International Doctrines and Contract Law in Oceania' in Vito Breda (ed), *Legal Transplants in East Asia and Oceania* (Cambridge University Press, 2019) 132, 138.

148 Eggen (n 11).

provisions to digital goods.¹⁴⁹ Essentially, Eggen's analysis treats the application of the *CISG*'s provisions as following after (and not as determining) the *CISG*'s initial application.¹⁵⁰ Returning to first principles of *CISG* interpretation, in this article, my analysis approaches these matters in the reverse (but correct) order.

CISG article 1(1) provides that the *CISG* 'applies to contracts of sale of goods', from which two relevant criteria can be identified: goods, addressed in Part V, and sale, addressed in Part VI. It was once said that software's classification was the 'key issue' concerning the *CISG*'s definition of goods;¹⁵¹ the same is now arguably true regarding non-software data instead. *CISG* article 3 addresses the *CISG*'s capacity to regulate mixed contracts involving both goods and services elements, and its rules are addressed in detail in Part VII. An appreciation of this provision's operation is essential in the non-software data context, where the line between goods and services contracts in their pure forms may very well be blurred.¹⁵²

Whilst *CISG* articles 1(1) and 3 are key to determining the *CISG*'s application in all cases, my analysis corrects the inattention that they have so far received in the non-software data context. As will be seen in Parts V–VII, *CISG* article 1(1)'s goods criterion fulfils a gatekeeping function: it determines whether or not non-software data trade is governed by the *CISG* as a matter of principle. *CISG* article 1(1)'s sale criterion and *CISG* article 3's rules relating to mixed contracts then determine whether *particular* data contracts fall within the *CISG*'s scope, on a case-by-case basis.

Before moving on to address *CISG* article 1(1)'s goods criterion, as my framework's first element, it is necessary to note that an alternative analytic framework has recently been proposed by Neumann in the software context: the dominant control test. According to Neumann, the dominant control test can be used to assess when the *CISG* governs particular software transactions.¹⁵³ It operates as an analytic simplification overlaying the *CISG*'s application provisions.¹⁵⁴ While the dominant control test may have real utility in the software context, it does not assist in resolving the key question addressed in this article: how the *CISG*'s potential regulation of non-software data trade is to be assessed. The dominant control test proceeds from an initial assumption that software trade is within the *CISG*'s scope.¹⁵⁵ Although Neumann's own conception of 'modern software' is a broad one,¹⁵⁶ there is no such existing assumption regarding non-software data, as identified in Part II. Determining whether or not the *CISG* can govern non-software data trade requires, in the first place, interpretation of its text: an exercise that my analysis undertakes. It is only after this analysis is undertaken that simplifications might be sought out by future scholarship in this field.

149 Ibid 233–4.

150 Ibid.

151 Jacob Ziegel, 'The Scope of the *Convention*: Reaching Out to Article One and Beyond' (2005) 25(1) *Journal of Law and Commerce* 59, 61. See also Neumann (n 4) 112.

152 Larson (n 10) 488. See, eg, Hachem (n 50) 82 [12].

153 Neumann (n 4) 123–7.

154 Ibid 123–4.

155 Ibid 110, 112, 127.

156 Ibid 110–12.

V CISG ARTICLE 1(1)'S GOODS CRITERION AS THE FIRST FRAMEWORK ELEMENT

Whether or not non-software data constitutes goods, within the meaning of *CISG* article 1(1), determines the *CISG*'s capacity to regulate non-software data trade as a matter of principle.

Several interpretative propositions are relevant to the resolution of this question. Those principles are identified and examined here, for this article's purposes of establishing a specific legal framework for assessing the *CISG*'s capacity to regulate non-software data trade. They are then applied to non-software data in 'To Boldly Go, Part II', demonstrating the *CISG*'s capacity to regulate non-software data trade as a matter of fact.

First, *CISG* article 7(1) requires this interpretative question to be resolved autonomously.¹⁵⁷ This requirement is easily understood in the software context, where parallel debates as to software's classification as goods (or otherwise) have taken place under both the *CISG* and non-harmonised state sales laws.¹⁵⁸ Similar parallel debates are not evident in the non-software data context: this article is assessing the *CISG*'s capacity to boldly go where no existing case law has gone before. Nevertheless, the principle of autonomous interpretation remains just as relevant. It confirms, for example, that the position taken by particular non-harmonised state sales laws as to whether goods must or needn't be tangible has no bearing on this article's analysis of the *CISG*.¹⁵⁹

Secondly, applying this principle of autonomous interpretation, the *CISG*'s understanding of goods is a broad one. Taking as a starting point the absence of any definition in the treaty itself,¹⁶⁰ goods 'first of all' are considered to comprise 'moveable, tangible objects'.¹⁶¹ Nevertheless, according to the Schlechtriem and Schwenzer commentary, the 'decisive criterion' is actually 'the suitability of the rules on non-conformity (Article 35 *et seq*)'.¹⁶² Confirming that this 'allows for a broad understanding' of the goods criterion, the commentary explains that this test covers 'all objects ... which form the subject-matter of commercial sales contracts and those which the drafters of the *Convention* could not have foreseen'.¹⁶³ What constitutes 'a typical object of a commercial sale' is assessed by reference to 'the

157 Schwenzer, Hachem and Kee (n 140) 98 [7.05]; Schwenzer and Hachem, 'Article 1' (n 17) 33–4 [16]; Mistelis, 'Article 1' (n 43) 31 [36]; Pilar Perales Viscasillas, 'Article 7' in Stefan Kröll, Loukas Mistelis and Pilar Perales Viscasillas (eds), *UN Convention on Contracts for the International Sale of Goods (CISG): A Commentary* (CH Beck, 2nd ed, 2018) 112, 116 [12] ('Article 7').

158 Ziegel (n 151) 61.

159 Muñoz (n 4) 285. See also Kee (n 41) 934–5. Cf Gillette and Walt (n 17) 52. This follows from the 'negative obligation' created by *CISG* (n 3) art 7(1): João Ribeiro-Bidaoui, 'The International Obligation of the Uniform and Autonomous Interpretation of Private Law Conventions: Consequences for Domestic Courts and International Organisations' (2020) 67(1) *Netherlands International Law Review* 139, 146–8, 163–4.

160 Schwenzer and Hachem, 'Article 2' (n 125) 48 [3].

161 Schwenzer and Hachem, 'Article 1' (n 17) 33 [16].

162 Ibid. See also Schwenzer, Hachem and Kee (n 140) 98 [7.05], 103 [7.23]; Muñoz (n 4) 285–6.

163 Schwenzer and Hachem, 'Article 1' (n 17) 33 [16].

decisive prevalent view in commercial circles',¹⁶⁴ a view consistent with the *CISG*'s description as being 'entirely at the service of entrepreneurs'.¹⁶⁵ As noted in Part III, the (previous) 2nd edition went even further, suggesting that the goods criterion should be read 'as widely as possible'.¹⁶⁶ For the reasons set out in that Part, my analysis does not rely upon this more extreme proposition.

The rationale for widely interpreting *CISG* article 1(1)'s goods criterion is not clearly stated in the Schlechtriem and Schwenzer commentary's current English edition. Its 2nd edition, however, explained its own (even wider) reading as acknowledging the *CISG*'s French language text, and accommodating the 'invention' of new merchandise: offering *CISG* article 7(1) as an interpretative justification.¹⁶⁷ Muñoz supports this view, hypothesising that an inability to foresee 'the new type of goods that were to be sold just a few years ahead in *CISG* contracts' might be 'a reason why [the drafters] may have wilfully avoided a definition of goods'.¹⁶⁸ On this view, the absence of any definition of goods in the *CISG* is itself suggestive of that criterion's breadth.¹⁶⁹ This analysis suggests that the *CISG*'s subject matter scope is flexible by design, and not just by accident.¹⁷⁰ From this point, taking inspiration from the *CISG*'s French and Spanish language texts where the relevant terms (*marchandises* and *mercaderías* respectively) 'have a trade connotation of things susceptible to be transacted, carried, and delivered', the conclusion that goods are defined 'by taking into account the suitability and adequacy of the *CISG*'s solutions for the merchandise in question' can be reached.¹⁷¹

Thirdly, while not all authorities agree, this test is widely considered to be satisfied in the software context: 'the core provisions on rights and remedies can be applied, if necessary with appropriate accommodation in the light of the directive for the *Convention*'s interpretation in Article 7(1)'.¹⁷² One recent analysis of numerous key *CISG* provisions conducted by Muñoz has shown, in detail, how this is so.¹⁷³ Gillette and Walt point to the 'concession' that the *CISG*'s provisions 'must be modified' in some cases as evidencing that 'some of the *CISG*'s defaults are not optimal for online software sales'.¹⁷⁴ Nevertheless, the accommodation Schlechtriem refers to follows from the application of *CISG* article 7(1), and is therefore entirely consistent with the *CISG*'s text.

164 *Market Research Study Case*, Oberlandesgericht Köln [Cologne Court of Appeal], 19 U 282/93, 26 August 1994 [tr Ruth M Janal and Camilla Baasch Andersen] <http://www.cisg-online.org/files/cases/6110/translationFile/132_99259773.pdf>: deciding in that case that only standard software constitutes goods under the *CISG* (and classifying custom software as a service).

165 Castellani, 'Foreword' (n 92) ix.

166 Schlechtriem, 'Article 1' (n 123) 28 [21].

167 Ibid 28–30 [20]–[21].

168 Muñoz (n 4) 282. Cf Larson (n 10) 451–2.

169 Fairlie (n 5) 43. Cf Gillette and Walt (n 17) 52.

170 See also Tripodi (n 10) 34; Kee (n 41) 929; Cox (n 4) 363.

171 Muñoz (n 4) 285.

172 Schlechtriem, 'Article 1' (n 123) 28–30 [21]. See also Schwenzer and Hachem, 'Article 1' (n 17) 33 n 48, 34–5 [18]; Mistelis, 'Article 1' (n 43) 32–3 [40].

173 Muñoz (n 4) 284–90, 293–301.

174 Gillette and Walt (n 17) 53.

Fourthly, interpreting the goods criterion broadly leads to ‘the arguable conclusion that the *CISG* may apply also to intangible goods’.¹⁷⁵ Tangibility has been an important consideration in existing *CISG*-software analyses.¹⁷⁶ However, as Green argues in a recent theoretical analysis addressing sales laws in general, focusing on tangibility is misguided: whilst tangibility describes things that were traditionally considered goods, it does not necessarily define the concept, with the real question being whether there is a particular interest in something that is being exchanged against money.¹⁷⁷

Like its application to software, the *CISG*’s more general application to trade in intangibles is not universally accepted.¹⁷⁸ Even amongst those who agree on the matter, there remains room for debate over the precise boundaries of the *CISG*’s application to software trade.¹⁷⁹ Some analysis supporting that application is conceptually flawed: for example, comparing beer sold from the tap to beer in a bottle ignores beer’s tangibility in both cases.¹⁸⁰ On the other hand, even electronic software is considered tangible by some authorities.¹⁸¹ Treating data as inherently tangible regardless of its medium is also considered by some to have a scientific basis.¹⁸²

If non-software data were to be treated as inherently tangible, its classification as goods for the purposes of *CISG* article 1(1) would be self-evident.¹⁸³ Without expressing an opinion on this question, which would necessarily need to be informed by scientific analysis, I will assume for the purposes of this article (and also for the purposes of ‘To Boldly Go, Part II’) that it is not. As ‘To Boldly Go, Part II’ will demonstrate, however, non-software data is still goods for the purposes of *CISG* article 1(1) even when proceeding from this assumption. My analysis of non-software data’s classification as goods therefore satisfies the highest possible interpretative hurdle.

Fifthly, although (like Neumann)¹⁸⁴ I take it as given that software falls within the *CISG*’s scope, accepting this premise does not automatically establish that non-software data does too. Software and non-software data are two categories of data, but there are important qualitative differences between them. Those qualitative differences stand to affect the application of the *CISG*’s provisions, which is the decisive test for *CISG* article 1(1)’s goods criterion. While software refers to ‘[p]rograms designed to enable a computer to perform a particular task or series

175 Mistelis, ‘Article 1’ (n 43) 32 [39]. See also Oberlandesgericht Koblenz [Koblenz Higher Regional Court], 2 U 1230/91, 17 September 1993 reported in [1993] *Recht der Internationalen Wirtschaft* 934 <https://www.uncitral.org/clout/clout/data/deu/clout_case_281_leg-1504.html>; United Nations Commission on International Trade Law, *Digest* (n 16) 7 [28]; Trakman, Walters and Zeller (n 30) 254.

176 Atanasovska (n 22) 323.

177 Green (n 27) 79–82. See also Kee (n 41) 929, 933, 935: in the United Kingdom sales law context.

178 Muñoz (n 4) 284–5. See, eg, *Market Research Study Case*, Oberlandesgericht Köln [Cologne Court of Appeal], 19 U 282/93, 26 August 1994 [tr Ruth M Janal and Camilla Baasch Andersen] <http://www.cisg-online.org/files/cases/6110/translationFile/132_99259773.pdf>; Gillette and Walt (n 17) 51–3.

179 See generally Neumann (n 4).

180 Sono (n 17) 520–1; Diedrich, ‘Revisited’ (n 4) 64.

181 Wulf (n 4) 48; Kee (n 41) 935; Neumann (n 4) 126–7; Green and Saidov (n 4) 165–9.

182 Ritter and Mayer (n 65) 255–60.

183 Fairlie (n 5) 44–5.

184 Neumann (n 4) 110, 112, 127.

of tasks’,¹⁸⁵ data is more broadly defined: ‘[q]uantities, characters, or symbols on which operations are performed by a computer, considered collectively’, ‘information in digital form’,¹⁸⁶ and also ‘[i]nformation, in any form, on which computer programs operate’.¹⁸⁷ The difference between ‘program[s] (instructions) and data is a fundamental one in computing’.¹⁸⁸ These dictionary definitions, although not having a direct bearing on the *CISG*’s interpretation, reinforce the concerns I identified earlier in this article: that *CISG*-software analyses are liable to be understood as referring to traditional, executable, computer programs only; and that, unlike software, non-software data does not comprise executable files and is not necessarily functional in and of itself.

Apps, like software, are functional: but they do not constitute traditional executable files. All four types of media files considered in this article are not inherently functional, but instead are accessed (and thus made useful) via software or apps: including audiovisual software, image viewers or editors, and word processors. Raw data, including personal data, similarly requires analysis with the assistance of software or apps in order to be understood. To take one example, analysis of heart rate data can facilitate predictions as to whether or not someone’s health is at risk due to an abnormal heart rhythm.¹⁸⁹ It is this prediction (the result of raw data’s analysis), rather than the raw data itself, which is useful. Raw data is also an important input for the proper functioning of commercial Internet of Things devices,¹⁹⁰ and for the training of self-driving cars¹⁹¹ and other artificial intelligence systems,¹⁹² to give just three more examples. When analysis is applied to raw data, via software or apps, that data ‘enables more insightful judgments; it allows you to serve your customers and your clients better, and to run your business better’.¹⁹³

Since non-software data can be non-functional, it is capable of including two variations of software, as that concept has traditionally been understood. These are non-operative (ie, incomplete) software, and legacy (ie, outdated)

185 *Oxford English Dictionary* (online at 1 June 2021) ‘software’ (def 2(b)).

186 *Oxford English Dictionary* (online at 1 June 2021) ‘data’ (def 2(b)).

187 *A Dictionary of Computer Science* (online at 1 June 2021) ‘data’ (def 1).

188 *Ibid.* Original Harvard computing architecture, which is no longer in use, actually had separate memory banks for storing programs and data respectively: Nihal Kularatna, *Modern Component Families and Circuit Block Design* (Newnes, 2000) 209.

189 Agrawal, Gans and Goldfarb (n 72) 44–5.

190 ‘Internet of Things: Key Legal Issues’, *The Allen & Overy Podcast* (Allen & Overy, 22 May 2020) 0:00:59–0:01:40 <<https://allenoverypodbean.com/e/internet-of-things-%E2%80%93-key-legal-issues/>>.

191 ‘The “Seeing” and “Thinking” of Self-Driving Cars’, *The Allen & Overy Podcast* (Allen & Overy, 30 October 2020) 0:07:53–0:10:28 <<https://allenoverypodbean.com/e/the-seeing-and-thinking-of-self-driving-cars/>>.

192 ‘How Tech is Shaping the Future of Retail’, *DLA Piper TechLaw Podcast* (DLA Piper, 23 April 2019) 0:19:39–0:20:08 <<https://soundcloud.com/user-70946062/techlaw-podcast-how-tech-is-shaping-the-future-of-retail>>; ‘The Opportunities and Challenges of Digital Transformation in the Private/Public Sectors: Part 2’, *DLA Piper TechLaw Podcast* (DLA Piper, 2 April 2019) 0:01:25–0:01:49 <<https://podcasts.apple.com/ie/podcast/opportunities-challenges-digital-transformation-in/id1314999575?i=1000433950006>>.

193 ‘EP38 COVID-19: Predictions for the New Normal’, *Catalyst* (Herbert Smith Freehills, 27 May 2020) 0:08:05–0:08:12 <<https://www.herbertsmithfreehills.com/latest-thinking/catalyst-podcast-series>> (‘New Normal’).

software. While these variations of the software concept are not functional in the same way that contemporary executable computer programs are, their inclusion within this alternative category of non-software data is commercially important, as markets still exist for both. Incomplete software might be purchased with the intention of destroying it, in order to remove a source of potential competition from the market.¹⁹⁴ Legacy software may remain in commercial use, despite being superseded, where undertaking the hardware upgrades required for an organisation to run contemporary equivalents is not economically feasible.¹⁹⁵ The *CISG*'s capacity to govern transactions involving these particular types of software can be answered via an application of the framework that I propose in this article.¹⁹⁶

Sixthly, the practical equivalence of software to traditional (physical) goods has been offered by some existing commentaries as one justification for classifying software as goods pursuant to *CISG* article 1(1). Software sales have been described as 'comparable to the sale of a machine, where the seller retains the intellectual property rights necessary for [its] designing, developing, manufacturing, and operating'.¹⁹⁷ This analogy, however, incorrectly assumes that all traditional goods are functional. As this article has already identified, this is not so with respect to certain types of non-software data, it is not so for incomplete software, and this is also not true for traditional goods. Examples include commodities, other raw materials, and obsolete or broken goods.¹⁹⁸ If this nuance is disregarded, software and machines are both capable of being seen as 'real and functional thing[s]'.¹⁹⁹ On this view, the fact that software has the capacity to 'easily be copied and duplicated'²⁰⁰ is not antithetical to the *CISG*'s application.²⁰¹ The *CISG* 'does not

194 Neumann (n 4) 124. Acknowledging that intellectual property is not goods, this scenario is similar to General Electric's purchase of fluorescent light patents, motivated by a desire to avoid that product's competition with its existing incandescent lights: 'How Do LEDs Work?', *Daniel and Jorge Explain the Universe* (iHeartRadio, 7 May 2020) 0:09:00–0:10:27 <<https://www.iheart.com/podcast/105-daniel-and-jorge-explain-t-29862087/episode/how-do-leds-work-62177584/>>. See also 'Essential Antitrust #8: Nascent Competition – Crystal Ball Gazing or a Principled Approach to Regulatory Oversight?', *The Freshfields Podcast* (Freshfields Bruckhaus Deringer, 17 December 2020) <<https://www.freshfields.com/en-gb/our-thinking/our-podcasts/transactions/essential-antitrust-8--nascent-competition-crystal-ball-gazing-or-a-principled-approach-to-regulatory-oversight/>>; 'Tech Transactions in the Spotlight', *The Freshfields Podcast* (Freshfields Bruckhaus Deringer, 10 December 2020) 0:07:25–0:08:12 <<https://www.freshfields.com/en-gb/our-thinking/our-podcasts/transactions/tech-transactions-in-the-spotlight/>> in the mergers and acquisitions context.

195 'What is a Legacy System, and Why do Companies Keep Using Them?', *Freeport Metrics* (Blog Post, 24 January 2019) <<https://freeportmetrics.com/blog/what-is-a-legacy-system-and-why-do-companies-keep-using-them/>>.

196 Cf Neumann (n 4) 123–4.

197 Schwenzer and Hachem, 'Article 1' (n 17) 34 [18].

198 For example, a broken-down car may be sold for scrapping, or for display in a museum: see Fritz Enderlein and Dietrich Maskow, *International Sales Law: United Nations Convention on Contracts for the International Sale of Goods* (Oceana Publications, 1992) 144 [8]; Peter Schlechtriem, 'The Seller's Obligations under the *United Nations Convention on Contracts for the International Sale of Goods*' in Nina M Galston and Hans Smit (eds), *International Sales: The United Nations Convention on Contracts for the International Sale of Goods* (Matthew Bender, 1984) 6-1, 6-20.

199 Neumann (n 4) 116.

200 Sono (n 17) 516.

201 Wulf (n 4) 27, 160.

exclude goods or transactions on this basis', and to the contrary, reproduction actually constitutes 'one of the pillars of mass production' in relation to traditional goods trade.²⁰²

Given the problematic nature of this justification, however, it cannot be a definitive test for determining whether or not non-software data is goods for the purposes of *CISG* article 1(1). Instead, as explained above, it is necessary to ask whether the *CISG*'s provisions can be applied and adapted to non-software data trade. This analysis is grounded in an application of *CISG* articles 7(1) and 7(2), and is informed by existing *CISG*-software analyses, but is necessarily independent of them given the qualitative differences between software and non-software data. I apply this test to non-software data in 'To Boldly Go, Part II'. For present purposes, it is sufficient to identify this as the test sitting behind my first framework element: *CISG* article 1(1)'s goods criterion.

Before moving on to address *CISG* article 1(1)'s separate sale criterion, my framework's second element, some additional observations can be made here regarding data localisation laws,²⁰³ and associated practicalities of data trade. By restricting non-software data's capacity to flow across borders, data localisation laws might shape the contours of a commercial data transaction. From a practical perspective, there may also be good commercial reasons for sellers to retain data on their own servers, or at some other place external to the buyer. In both cases, transactions might involve (for example) web-based data access: where no data, or perhaps only incidental login or help data, is actually downloaded by the buyer.²⁰⁴ These factors do not affect the capacity of non-software data to satisfy *CISG* article 1(1)'s goods criterion: a conclusion consistent with the more general observation that data localisation laws are not supposed to inhibit trade.²⁰⁵

Provided that *CISG* article 1(1)'s goods criterion is satisfied according to the test outlined above, the *CISG* does not require that the goods themselves cross state borders.²⁰⁶ Though one might ordinarily expect this to be the case,²⁰⁷ *CISG* article 1(1)'s internationality rule only requires that the parties have their 'places of business ... in different States'. The *CISG* applies where buyers and sellers are in different states but traditional goods don't move,²⁰⁸ and it also applies where goods move between third and fourth states.²⁰⁹ If data localisation laws,

202 Muñoz (n 4) 287. See also Green (n 27) 83. On the other hand, it might also be observed that 'there are no "originals"' in the software context: Julian Millstein, Jeffrey Neuburger and Jeffrey Weingart, *Doing Business on the Internet: Forms and Analysis* (Law Journal Press, 2020) 8-15 [8.04(2)(b)(i)]. Cf Schmitt (n 19) 11.

203 See generally Svantesson, 'Data Trends' (n 1) 8-23.

204 *Goldiwood Pty Ltd v ADL (Aust) Pty Ltd* [2014] QCAT 238, [27], n 8.

205 Asia Society Australia, 'Part B' (n 82) 0:27:38-0:27:51.

206 Wulf (n 4) 55; Mistelis, 'Article 1' (n 43) 34 [44]; E Jayme, 'Article 1' in CM Bianca and MJ Bonell (eds), *Commentary on the International Sales Law: The 1980 Vienna Sales Convention* (Giuffrè, 1987) 27, 28 [1.3].

207 Jayme (n 206) 29 [1.5].

208 Benjamin Hayward, 'The *CISG* in Australia: The Jigsaw Puzzle Missing a Piece' (2010) 14(2) *Vindobona Journal of International Commercial Law and Arbitration* 193, 197.

209 See, eg, *Luo v Windy Hills Australian Game Meats Pty Ltd [No 3]* [2019] NSWSC 862. In this case, contracts were entered into by an Australian seller and a Chinese buyer, with the goods to be transported

commercial convenience, or both lead to a situation where non-software data does not move, that data can still be goods: its location and movement are irrelevant in this regard.²¹⁰ However, in these circumstances, *CISG* article 1(1)'s separate sale criterion might not be satisfied, and the *CISG* still might not apply on *this* distinct basis. In Part VI, attention is now turned to this second element of my framework.

VI *CISG* ARTICLE 1(1)'S SALE CRITERION AS THE SECOND FRAMEWORK ELEMENT

CISG article 1(1)'s goods criterion determines whether or not non-software data trade falls within the *CISG*'s scope, as a matter of principle. However, having goods for the purposes of *CISG* article 1(1) is not 'good enough' in order to conclude that the *CISG* applies to a *particular* contract. It is also necessary to separately consider the impact of *CISG* article 1(1)'s sale criterion (addressed here), and *CISG* article 3's rules relating to mixed contracts (addressed in Part VII below).²¹¹

Authority does exist which treats these criteria as overlapping to some extent. Kee, for example, suggests that a permanent transfer of goods (going to this Part's sale criterion) is indicative of the *CISG*'s conformity rules being suitable for a transaction (which is relevant to *CISG* article 1(1)'s goods test).²¹² I do not take this approach, instead focusing on non-software data's actual characteristics when applying *CISG* article 1(1)'s goods criterion in 'To Boldly Go, Part II'. For the purposes of this article's analysis, *CISG* article 1(1)'s goods and sale criteria are treated as separate elements of my framework. Both must be satisfied in order for the *CISG* to apply.

CISG articles 30 and 53 are counterpart provisions, which set out the obligations of sellers and buyers respectively.²¹³ These provisions, 'taken together', define the concept of sale as understood by *CISG* article 1(1).²¹⁴ As with *CISG* article 1(1)'s goods criterion, the *CISG*'s sale requirement must be interpreted autonomously.²¹⁵ Also like *CISG* article 1(1)'s goods criterion, policy factors support giving the

from Pakistan to Vietnam. The Court correctly identified that the *CISG* was applicable, though did not go on to apply its provisions (resorting, incorrectly, to non-harmonised Australian law instead): at [77].

210 Hachem (n 50) 79 [2].

211 Gillette and Walt (n 17) 43, 49; Schmitt (n 19) 50–1; 'The *CISG* and Comparative Law: Prof. Alejandro Garro', *Café Comparatum* (International Academy of Comparative Law, 18 November 2020) 0:03:34–0:03:43 <<https://cafecomparatum.podbean.com/e/episode-2-the-cisg-and-comparative-law-%E2%80%94-prof-alejandro-garro/>>.

212 Kee (n 41) 934.

213 Burghard Piltz, 'Article 30' in Stefan Kröll, Loukas Mistelis and Pilar Perales Viscasillas (eds), *UN Convention on Contracts for the International Sale of Goods (CISG): A Commentary* (CH Beck, 2nd ed, 2018) 393, 393–4 [1].

214 Enderlein and Maskow (n 198) 27 [1]. Cf Wulf (n 4) 21.

215 *SO M AGRI sas di Ardina Alessandro & C v Erzeugerorganisation Marchfeldgemüse GmbH & Co KG*, Tribunale di Padova [Padova District Court], 40552, 25 February 2004 reported in (2004) *Giurisprudenza di merito* 867–73 <https://cisg-online.org/files/cases/6745/fullTextFile/819_46177708.pdf>; Perales Viscasillas, 'Article 7' (n 157) 116 [12].

sale criterion a broad interpretation. For example, giving the term a literal reading ‘would lead to the creation of new and unnecessary laws’.²¹⁶

In the software context, *CISG* article 1(1)’s sale criterion is considered satisfied where ‘software is permanently transferred to the other party in all respects except for the copyright and restrictions to its use by third parties and becoming part of the other party’s property – as opposed to mere agreements on temporary use against payment of royalties’.²¹⁷ This is so regardless of whether a transaction is labelled as a licence by the parties. In this regard, *CISG* article 8 leads to the parties’ intent (reflected in the substance of their transaction) prevailing over the label that they have given to their contract.²¹⁸

This test can be applied to non-software data trade.²¹⁹ How, then, would it actually work? First and foremost, it confirms that whether or not data transactions involve the transfer of copyright is not determinative for the purposes of *CISG* article 1(1)’s sale criterion. Secondly, it is important to keep in mind that this second framework element determines whether *particular* non-software data contracts fall within the *CISG*’s scope. Unlike the goods criterion, addressed in Part V, the satisfaction of *CISG* article 1(1)’s sale criterion will depend upon the terms of any particular contract, and must therefore be assessed on a case-by-case basis.

In analysing a contract’s terms, and whether they provide for the permanent transfer of goods against a price (rather than their mere temporary use against royalties), restrictions against the onward sale of non-software data are not determinative.²²⁰ This reinforces the observations made relating to copyright, in the paragraph immediately above. As Green explains, ‘there is more to disposal than onward sale’, including a buyer’s right to destroy the data that they have acquired.²²¹ Part V referred to the commercially-realistic example of a buyer purchasing and then destroying incomplete software, with the intention of removing a potential source of competition from the market. This example is a useful reminder, now in the context of *CISG* article 1(1)’s sale criterion, of the sale concept’s flexibility.

Since the application of *CISG* article 1(1)’s sale criterion will depend upon the facts of any given case,²²² it is difficult to make generalisations here beyond identifying the test that is to be applied. However, in this Part, app purchases from the Apple App Store are examined by way of example. Determining whether

216 Primak (n 86) 218.

217 Schwenzer and Hachem, ‘Article 1’ (n 17) 34 [18]. See also Muñoz (n 4) 286. See, eg, *Corporate Web Solutions v Dutch Company and Vendorlink BV*, Rechtbank Midden-Nederland [Central Netherlands Court], No C/16/364668, 25 March 2015 <https://www.uncitral.org/clout/clout/data/nld/clout_case_1586_250315.html>; Oberster Gerichtshof [Austrian Supreme Court], 5 Ob 45/05m, 21 June 2005 [tr Jan Henning Berg] <http://www.cisg-online.org/files/cases/6971/translationFile/1047_56439963.pdf>.

218 *Corporate Web Solutions v Dutch Company and Vendorlink BV*, Rechtbank Midden-Nederland [Central Netherlands Court], No C/16/364668, 25 March 2015 <https://www.uncitral.org/clout/clout/data/nld/clout_case_1586_250315.html>.

219 Schmitt (n 19) 44; Hachem (n 50) 80 [7], 82 [13].

220 Green (n 27) 82–3, 85–6; Hachem (n 50) 81 [8]–[9].

221 Green (n 27) 86. See also Hachem (n 50) 81 [9]. Cf Gillette and Walt (n 17) 50–1.

222 Fakes (n 39) 586.

Apple App Store purchases involve a *CISG* article 1(1) sale requires analysis of the ‘Apple Media Services Terms and Conditions’.²²³ According to those terms:

- Apps ‘are licensed, not sold’ to the user.
- Content is made available ‘for personal, noncommercial purposes’ only, with an exception being made for Apple App Store content.
- Provision is made for in-app purchases (commonly known as microtransactions), whereby ‘[a]pps may offer content, services or functionality for use within such [a]pps’ in return for an additional payment or payments.
- Provision is also made for redownloading previously-acquired content, though such content ‘may not be available for [r]edownload if [it is] no longer offered on our Services’.

The fact that apps are ‘licensed, not sold’ in the Apple App Store does not disqualify their purchase from constituting *CISG* article 1(1) sales. Licensing is a common feature of the software market, as the industry ‘is compelled to protect the value of ... software by controlling its use’.²²⁴ Those same market forces apply in relation to apps. As explained above, the key question is not the description given to a transaction, or whether it involves the transfer of copyright, but rather whether a given licence is ‘equivalent’ to a sale as a matter of substance.²²⁵ This will be the case if a transaction has the ‘overriding characteristics of a sales transaction’.²²⁶ This does not require a buyer to acquire unrestricted rights in relation to non-software data.²²⁷ Where *CISG* article 1(1)’s sale test is otherwise satisfied, a licence will suffice.

Where an app is purchased via the Apple App Store for a one-off payment, and that app is downloaded onto a user’s device, a *CISG* article 1(1) sale will have occurred. The permanent-transfer-for-a-price test is satisfied in these circumstances. On the other hand, this test would not be satisfied where an app’s pricing structure involves periodic payments, even if the app is otherwise downloaded onto a user’s device. Free apps, whilst satisfying *CISG* article 1(1)’s goods criterion, do not fall within the *CISG*’s scope.²²⁸ There is no sale, as there is no price. While the *CISG* does not require consideration for the purposes of modifying or terminating contracts,²²⁹ *CISG* article 14(1) still requires the specification of a price (a sum of money)²³⁰ as part of the contract formation process.²³¹ On the other hand, installing

223 ‘Apple Media Services Terms and Conditions’, *Apple* (Web Page, 16 September 2020) <<https://www.apple.com/au/legal/internet-services/itunes/au/terms.html>> (‘Terms’). In this article, it is the Australian version of these terms (current as at 16 September 2020) that is being considered. For the avoidance of any doubt, this analysis is undertaken as an academic exercise only, and does not constitute legal advice.

224 Primak (n 86) 217. See also Millstein, Neuburger and Weingart (n 202) 8–14–8–15 [8.04(2)(b)(i)]; Raysman et al (n 81) §2.01 [1.b.ii]; Wulf (n 4) 22–3; Schmitt (n 19) 58; Sono (n 17) 517; Larson (n 10) 464–5; Thomas L Lockhart and Richard J McKenna, ‘Software License Agreements in Light of the *UCC* and the *Convention on the International Sale of Goods*’ (1991) 70(7) *Michigan Bar Journal* 646, 646.

225 Primak (n 86) 218.

226 Fakes (n 39) 584.

227 Hachem (n 50) 81 [8].

228 Schmitt (n 19) 67–8; Eggen (n 11) 232.

229 Schlechtriem, ‘Requirements of Application’ (n 109) 791. See *CISG* (n 3) art 29(1).

230 This baseline understanding of price emerges from scholarship addressing the *CISG*’s potential application to barter contracts: Schwenzer and Hachem, ‘Article 1’ (n 17) 31–2 [11].

231 Cf *CISG* (n 3) art 55.

free updates where apps were initially paid for might, in some circumstances, constitute the modification of *CISG* contracts by ‘mere agreement’ pursuant to *CISG* article 29(1).

As is evident from this analysis, determining whether or not apps acquired via the Apple App Store are sold for the purposes of *CISG* article 1(1) does not involve a simple yes or no answer that applies uniformly in all cases. Microtransactions add a further layer of complexity to this analysis. Payments for in-app purchases are different to royalties; whilst royalties are paid periodically and out of legal obligation, microtransactions offer app users the possibility of accessing *optional* additional features.²³² The opportunity to make in-app purchases, therefore, does not negate satisfaction of the ‘one time license fee’²³³ test in and of itself. The better view is that purchasing an app for an upfront price is a *CISG* article 1(1) sale, and microtransactions entered into within such apps involve their own separate sales, relating specifically to the microtransaction’s additional non-software data. That the non-software data supplied via microtransactions is integrated into a larger app does not deny that data’s character as goods, either: microtransaction data is analogous to physical component goods. Where microtransactions are available within apps that are otherwise supplied for free,²³⁴ the app’s initial acquisition would not satisfy *CISG* article 1(1)’s sale criterion, but the microtransactions themselves would.

The Apple App Store’s redownload rules add complexity to this analysis as well, regarding the *CISG* article 1(1) sale criterion’s permanent transfer requirement. In the software context, the *CISG* does not apply where software is able to be used for a certain period of time only, and where that use ‘can be revoked’.²³⁵ It is only ‘perpetual’ licence terms that involve a ‘strong’ analogy with sales.²³⁶ Transactions for the temporary provision of software, which are becoming increasingly routine²³⁷ via the software-as-a-service market,²³⁸ thus fall outside of the *CISG*’s scope.²³⁹ Where an Apple App Store user downloads an app onto their device, there is arguably a permanent transfer of non-software data with respect to that device, satisfying this aspect of the *CISG* article 1(1) sale criterion.²⁴⁰ The permanence of an

232 ‘Choosing a Business Model’, *Apple Developer* (Web Page, 2021) <<https://developer.apple.com/app-store/business-models/>> (‘Business Model’).

233 Primak (n 86) 221.

234 ‘Business Model’ (n 232).

235 Schlechtriem, ‘Requirements of Application’ (n 109) 786. See also Schlechtriem, ‘Article 1’ (n 123) 29 [21].

236 Primak (n 86) 219. See also Schlechtriem, ‘Requirements of Application’ (n 109) 786.

237 Eggen (n 11) 232; Dan Jerker B Svantesson, ‘A Call for Judicial Activism: Rapid Technological Developments and Slow Legal Developments’ (2011) 36(1) *Alternative Law Journal* 33, 34–5 (‘A Call’). See also ‘New Normal’ (n 193) 0:11:34–0:12:21. For an investment perspective, see Claude Walker, ‘Software Week: 5 Software Stocks We Like’, *A Rich Life* (Blog Post, 10 May 2020) <<https://arichlife.com.au/software-week-5-software-stocks-we-like/>>.

238 *A Dictionary of Computer Science* (online at 1 June 2021) ‘SaaS (Software as a Service)’ (‘SaaS’). For example, subscribing to Microsoft 365 Personal on a monthly or yearly basis: ‘Microsoft 365 Personal’, *Microsoft* (Web Page, 2021) <<https://www.microsoft.com/en-au/microsoft-365/p/microsoft-365-personal/cfq7ttc0k5bf?activetab=pivot:overviewtab>>.

239 Eggen (n 11) 234, 237.

240 Hachem (n 50) 82 [13].

app transfer may be called into doubt by the Apple App Store's ability to withdraw content, making it unavailable for later redownload to the same (or to a different) device. This observation is particularly important, from a practical perspective, given that hardware upgrades are a staple of contemporary commercial life. This situation is similar to an example, arising in a slightly different context, described by Hachem: involving the provision of personal data, where data subjects may revoke permission for that data's use which was previously granted to the seller.²⁴¹ Nevertheless, app downloads would constitute permanent transfers with respect to their original device, which seems to be sufficient for the purposes of *CISG* article 1(1)'s sale criterion.²⁴² That apps may not be available for later redownload does not put them in any different position, practically speaking, to traditional physical goods which are destroyed by the buyer after taking possession and thus permanently lost.

On the basis of this Part's analysis, it can be concluded that the supply of apps via the Apple App Store can satisfy *CISG* article 1(1)'s sale criterion in certain circumstances: keeping in mind this is just one application of a criterion determining whether *particular* contracts fall within the *CISG*'s scope. A final point of interest regarding this example, however, is the governing law clause contained in the 'Apple Media Services Terms and Conditions'. That clause '[s]pecifically' excludes 'that law known as the *United Nations Convention on the International Sale of Goods*'.²⁴³ Notwithstanding the *CISG*'s slight misnaming, this clause expresses a sufficiently clear opt-out intention pursuant to *CISG* article 6.²⁴⁴ As Part III identified, merchants do sometimes opt-out of the *CISG* in contracts to which it would not otherwise apply. The existence of this clause is therefore not conclusive evidence that the *CISG* would otherwise have applied to Apple App Store purchases. Nevertheless, it is at least suggestive of Apple's subjective belief that it can.²⁴⁵ This lends commercial credibility to my argument that the *CISG* is capable of regulating non-software data trade.

Before moving on to address *CISG* article 3's rules on mixed contracts, my framework's third and final element, it is useful to revisit the web-based data access example that was discussed at the conclusion of Part V. As Part V notes, such data satisfies *CISG* article 1(1)'s goods criterion, but may not satisfy that same provision's separate sale requirement. The fact that data is web-based may indicate the absence of a permanent transfer, though the terms of the contract would need to be considered in their entirety in order to reach a firm conclusion on this point. Where incidental data (such as login or help files) are downloaded,

241 Ibid 82–3 [15].

242 Ibid 82 [13].

243 'Terms' (n 223).

244 Cf *Olivaylle Pty Ltd v Flottweg AG* [No 4] (2009) 255 ALR 632, 642–3 [28] (Logan J): 'Australian law applicable under exclusion of UNCITRAL law' was held to constitute an effective *CISG* opt-out. See also Lisa Spagnolo, 'CISG Advisory Council Opinion No 16: Exclusion of the *CISG* under Article 6' in Ingeborg Schwenzer (ed), *The CISG Advisory Council Opinions* (Eleven International Publishing, 2017) 523, 528 [3], 529 [3.4], 531 [4].

245 Cf Schmitt (n 19) 161.

there may be a *CISG* article 1(1) sale in relation to that particular data only.²⁴⁶ *CISG* article 8 would need to be applied in order to determine whether this is so, just as that provision can be applied to determine whether a mixed goods and services transaction is one or two contracts for the purposes of *CISG* article 3(2).²⁴⁷ In such a case, the *CISG*'s application would be limited to that incidental data only. *CISG* article 35's conformity requirements, for example, would apply to those logins or help files, but not to the web-based data that they facilitate access to.

VII *CISG* ARTICLE 3'S RULES ON MIXED CONTRACTS AS THE THIRD FRAMEWORK ELEMENT

Like *CISG* article 1(1)'s sale criterion, *CISG* article 3's rules on mixed contracts (that is, contracts involving 'some act in addition to the supply of goods')²⁴⁸ help to determine whether *particular* contracts fall within the *CISG*'s scope.²⁴⁹ This provision constitutes my third framework element for determining whether non-software data contracts can be governed by the *CISG*.

CISG article 3 has proved problematic in the software context, where transactions commonly combine goods and services elements²⁵⁰ and involve a blurred line between these types of contracts' pure forms.²⁵¹ As with software trade, and as is the case with traditional goods, various service obligations might be attached to non-software data contracts.²⁵² Market research, programming, and testing work might sit behind the creation of apps and media files. Methodologies might need to be developed for the collection of raw data, that collection might need to be carried out, and raw data might otherwise require compilation or presentation in a particular way. Post-delivery service obligations might include data processing, data maintenance, and external storage,²⁵³ providing app updates

246 Green and Saidov (n 4) 173–4.

247 Pilar Perales Viscasillas, '*CISG* Advisory Council Opinion No 4: Contracts for the Sale of Goods to be Manufactured or Produced and Mixed Contracts (Article 3 *CISG*)' in Ingeborg Schwenzer (ed), *The CISG Advisory Council Opinions* (Eleven International Publishing, 2017) 81, 83 [7] ('Opinion 4'); Ingeborg Schwenzer and Pascal Hachem, 'Article 3' in Ingeborg Schwenzer (ed), *Schlechtriem & Schwenzer: Commentary on the UN Convention on the International Sale of Goods (CISG)* (Oxford University Press, 4th ed, 2016) 60, 67 [12] ('Article 3'). Cf the commentary on *CISG* (n 3) article 3 by the United Nations Commission on International Trade Law Secretariat: *Commentary on the Draft Convention on Contracts for the International Sale of Goods, Prepared by the Secretariat*, UN Doc A/CONF.97/5 (14 March 1979) 16–17 in *United Nations Conference on Contracts for the International Sale of Goods, Vienna, 10 March – 11 April 1980, Official Records: Documents of the Conference and Summary Records of the Plenary Meetings and of the Meetings of the Main Committees*, UN Doc A/CONF.97/19 (1991) 16–17 [3] ('Commentary on the Draft Convention').

248 See commentary on *CISG* (n 3) article 3: 'Commentary on the Draft Convention' (n 247) 16 [1]. See also W Khoo, 'Article 3' in CM Bianca and MJ Bonell (eds), *Commentary on the International Sales Law: The 1980 Vienna Sales Convention* (Giuffrè, 1987) 41, 42 [2.1]–[2.2].

249 Muñoz (n 4) 286, 289–90; Diedrich, 'Revisited' (n 4) 66–7; Larson (n 10) 452.

250 Raysman et al (n 81) §2.01 [1.b.i]; Larson (n 10) 450, 452–3.

251 Larson (n 10) 488.

252 'Maximising Value from Data' (n 26) 0:17:08–0:17:15.

253 Eggen (n 11) 234–5.

over a particular period of time, perhaps on the basis of experience gained from the app's ongoing use;²⁵⁴ assisting buyers in their analysis of raw data; and the provision of other technical services.²⁵⁵

On the basis of either *CISG* article 3(1) or article 3(2), it used to be said that only standard (and not custom) software could be governed by the *CISG*.²⁵⁶ However, a more nuanced approach to *CISG* article 3 is now taken.²⁵⁷ The antecedent labour and work sitting behind a software product is now treated as irrelevant, regardless of whether that software is standard or custom: the work is treated as being akin to the manufacturing process sitting behind traditional goods.²⁵⁸ This principle is equally applicable to non-software data contracts.²⁵⁹ It does not, however, make *CISG* article 3 irrelevant in this context. As with software sales, *CISG* article 3 may still exclude the *CISG*'s application to non-software data contracts where other service obligations arise which are of the requisite importance.²⁶⁰

Even outside of the software context, 'there are many problems' with *CISG* article 3's interpretation.²⁶¹ One of these concerns determining when service obligations are of this requisite importance. *CISG* article 3(1) precludes the *CISG*'s application to contracts for 'goods to be manufactured or produced' if the buyer 'undertakes to supply a substantial part of the materials necessary for such manufacture or production'. *CISG* article 3(2) excludes mixed contracts where the 'preponderant part' of a seller's obligations 'consists in the supply of labour or other services'. What is a substantial part, what are the relevant materials, and what is a preponderant part? These are all pertinent questions when applying *CISG* article 3 to non-software data trade.

In the traditional goods context, the materials relevant for *CISG* article 3(1) are physical (and not non-physical) contributions.²⁶² On this basis, 'design specifications and similar instructions or plans' are disregarded.²⁶³ In the inherently intangible

254 Cf Agrawal, Gans and Goldfarb (n 72) 46–7.

255 See, eg, *Evolution Online Systems, Inc v Koninklijke Ptt Nederland NV*, 145 F 3d 505 (2nd Cir, 1998); *Chateau des Charmes Wines Ltd v Sabate USA Inc*, 328 F 3d 528, 530 (9th Cir, 2003).

256 Sono (n 17) 517–23; Mowbray (n 10) 127–9; Fakes (n 39) 582–3; *Market Research Study Case*, Oberlandesgericht Köln [Cologne Court of Appeal], 19 U 282/93, 26 August 1994 [tr Ruth M Janal and Camilla Baasch Andersen] <http://www.cisg-online.org/files/cases/6110/translationFile/132_99259773.pdf>. See also United Nations Commission on International Trade Law, *Digest* (n 16) 7 [29]; Gillette and Walt (n 17) 54–5; Wulf (n 4) 28; Eggen (n 11) 231; Atanasovska (n 22) 326–9; Green and Saidov (n 4) 171–2; Schlechtriem, 'Requirements of Application' (n 109) 786; Diedrich, 'Revisited' (n 4) 56, 64–7.

257 Hachem (n 50) 80 [6].

258 Schwenzer, Hachem and Kee (n 140) 105 [7.29]; Schwenzer and Hachem, 'Article 3' (n 247) 61–2 [3]; Hachem (n 50) 80 [6]; Perales Viscasillas, 'Opinion 4' (n 247) 97 [4.3]; Eggen (n 11) 233. Cf Gillette and Walt (n 17) 55.

259 Eggen (n 11) 234. See also Trakman, Walters and Zeller (n 30) 253.

260 Muñoz (n 4) 289–90.

261 Schlechtriem, 'Requirements of Application' (n 109) 787. See also Schwenzer and Hachem, 'Article 3' (n 247) 61 [2].

262 Wulf (n 4) 30; Schwenzer and Hachem, 'Article 3' (n 247) 65–6 [8]; Loukas Mistelis and Anjanette Raymond, 'Article 3' in Stefan Kröll, Loukas Mistelis and Pilar Perales Viscasillas (eds), *UN Convention on Contracts for the International Sale of Goods (CISG): A Commentary* (CH Beck, 2nd ed, 2018) 54, 55–6 [5], 58 [14].

263 Mistelis and Raymond (n 262) 58 [14]. Cf Perales Viscasillas, 'Opinion 4' (n 247) 90–1 [2.12]–[2.13].

non-software data context, this principle can be adapted (via the application of *CISG* article 7(2)) to allow for the consideration of intangible contributions which are actually reflected in the final product: such as a buyer's provision of code,²⁶⁴ data that the seller is to convert into a different format,²⁶⁵ or data that is to be used by a seller to create a 'modified compilation' by way of a database.²⁶⁶ Though these contributions are non-physical, they are analogous to the supply of component goods²⁶⁷ or raw materials,²⁶⁸ and taking them into consideration remains consistent with the exclusion of mere specifications and other similar instructions. Taking them into account is also practically important, given the tendency in some commercial transactions for both parties to contribute data to a project.²⁶⁹ This interpretation of *CISG* article 3(1) avoids a difficult conceptual inconsistency that would otherwise arise as between traditional and digital goods trade.²⁷⁰ It can therefore be grounded in the *CISG*'s general principles of party equality and neutrality,²⁷¹ or justified on the basis of applying *CISG* article 3(1) by analogy,²⁷² particularly given that intellectual property rights are considered to be within the scope of that provision's reference to buyer-supplied materials.²⁷³

CISG article 3(1)'s 'substantial part' test starts from a comparison of the economic values of the materials that the parties contribute.²⁷⁴ Those contributions' volumes and their functional importance may also be taken into account.²⁷⁵ This provides for some flexibility in *CISG* article 3(1)'s application to non-software data contracts, where (as with physical electronics) there may be great variability in the value of data's various components.²⁷⁶ A particular component of a machine might be so essential for its functioning that it constitutes a substantial part, even though the remaining components cost more.²⁷⁷ Similarly, in the case of a database compilation, the data initially provided by a buyer may be more important than the database that a seller later arranges it into.

264 Hachem (n 50) 80 [6].

265 Ibid 81 [11]. Hachem suggests that where the entire business model of a buyer is based on providing data for processing, in cases of doubt, the data's initial value should be considered greater than the value of the converted data.

266 Sandra Gosnell, 'Database Protection Down Under: Would a "Sweaty" Australia be Better Off with a Northerly Change?' (2003) 26(3) *University of New South Wales Law Journal* 639, 639.

267 Schwenzer and Hachem, 'Article 3' (n 247) 65–6 [8].

268 Perales Viscasillas, 'Opinion 4' (n 247) 89–90 [2.11].

269 'Maximising Value from Data' (n 26) 0:08:01–0:08:21.

270 Eggen (n 11) 232.

271 Ingeborg Schwenzer and Pascal Hachem, 'Article 7' in Ingeborg Schwenzer (ed), *Schlechtriem & Schwenzer: Commentary on the UN Convention on the International Sale of Goods (CISG)* (Oxford University Press, 4th ed, 2016) 119, 135–6 [34].

272 Ibid 134 [31]. See also Köhler (n 137) 15.

273 Perales Viscasillas, 'Opinion 4' (n 247) 92 [2.15].

274 Schwenzer, Hachem and Kee (n 140) 117–18 [8.38]; Schwenzer and Hachem, 'Article 3' (n 247) 63–5 [6]–[7]; *ibid* 87 [2.6].

275 Schwenzer and Hachem, 'Article 3' (n 247) 63–5 [6]–[7]; *Market Research Study Case*, Oberlandesgericht Köln [Cologne Higher Regional Court], 19 U 282/93, 26 August 1994 [tr Ruth M Janal and Camilla Baasch Andersen] <http://www.cisg-online.org/files/cases/6110/translationFile/132_99259773.pdf>.

276 Mistelis and Raymond (n 262) 56–7 [8].

277 Schwenzer and Hachem, 'Article 3' (n 247) 65 [7].

Under *CISG* article 3(2), services constitute a preponderant part of the seller's obligations if they represent more than 50% of a contract's overall value.²⁷⁸ Again, this is not a hard-and-fast rule. An illustrative (if entirely hypothetical) example given in the literature involves a car being painted in gold: 'this does not become a sale because the paint to be supplied by the painter is more expensive than the paint job'.²⁷⁹ Analogous (but very practical) examples exist in the non-software data context. A contract may require the production of electronic documentation, such as a document file, containing the results of a market research study. This file may have high strategic value, and may constitute a commercially-valuable asset once complete. As a type of media file, the document file would constitute goods pursuant to *CISG* article 1(1), like the car's gold paint in the hypothetical example outlined above. Nevertheless, the services rendered in the course of the file's creation (corresponding to the painting of the car) may well be considered the real point of the contract.²⁸⁰ Notwithstanding suggestions to the contrary,²⁸¹ however, *CISG* article 3(2) would probably not exclude non-software data contracts on the basis that licensing constitutes the preponderant part of a seller's obligations. This conclusion is based on the observation that licensing obligations are not service obligations, the latter being the obligations that the text of *CISG* article 3(2) refers to.²⁸² This conclusion reinforces the need, identified in Part VI above, to consider all three of *CISG* articles 1(1) and 3's framework elements separately when determining whether the *CISG* is capable of governing non-software data trade.

VIII CONCLUSION

According to the business community, the future of commerce is digital. In this article, I have established a specific legal framework for assessing the *CISG*'s potential application to non-software data trade. Existing literature dealing with intangibles and the *CISG* tends to address software in particular. While this narrow focus might have been appropriate in times gone past, we now live in a post-software world. A wide range of digital products not constituting software as traditionally understood are commonly (and ever-increasingly) traded. Non-software data is qualitatively different to software. The *CISG*'s potential application to non-software data trade therefore requires its own independent analysis, grounded in a careful interpretation of the *CISG*'s text (and its application provisions in particular).

The small body of existing scholarship addressing the *CISG*'s digital application beyond software has so far lacked precision and has not been

278 Ibid 69–71 [18]–[20]; Mistelis and Raymond (n 262) 59 [18]. Cf Perales Viscasillas, 'Opinion 4' (n 247) 93–5 [3.3]–[3.4].

279 Schwenzer and Hachem, 'Article 3' (n 247) 70 [19].

280 *Market Research Study Case*, Oberlandesgericht Köln [Cologne Higher Regional Court], 19 U 282/93, 26 August 1994 [tr Ruth M Janal and Camilla Baasch Andersen] <http://www.cisg-online.org/files/cases/6110/translationFile/132_99259773.pdf>: though with reference to *CISG* (n 3) art 3(1). See also ibid 68 [14]; Mistelis, 'Article 1' (n 43) 31–2 [38]; Hachem (n 50) 82 [12].

281 Sono (n 17) 519; Atanasovska (n 22) 331.

282 Cf Schwenzer and Hachem, 'Article 3' (n 247) 71 [22].

sufficiently comprehensive so as to allow firm conclusions to be drawn. It assumes (incorrectly) that the *CISG*'s regulation of non-software data trade follows from its application to software transactions. It fails to define its conception of data, and in some cases focuses on particular types of non-software data only. It also fails to ground the *CISG*'s potential application in a rigorous interpretation of its text. This article has addressed these deficiencies by proposing a specific legal framework for assessing the *CISG*'s capacity to govern non-software data trade. That framework comprises three elements: *CISG* article 1(1)'s goods criterion, *CISG* article 1(1)'s sale criterion, and *CISG* article 3's rules relating to mixed contracts. The first of these determines the *CISG*'s capacity to regulate non-software data trade as a matter of principle. The second and third elements determine whether *particular* non-software data contracts fall within the *CISG*'s scope. The application of these second and third elements depend upon the facts in any given case.

In my counterpart article, 'To Boldly Go, Part II', I will extend this article's analysis by addressing the question posed in Part V, concerning *CISG* article 1(1)'s goods criterion: can the *CISG*'s provisions be adapted and applied to non-software data trade? As will be shown in that article, the answer to this question is yes. Applying this article's framework, in conjunction with that analysis, it will be seen that non-software data trade can be governed by the *CISG*. While this conclusion might seem far-reaching at first glance, my analysis is really an incremental (but still important) interpretative advance on existing *CISG*-software scholarship. It therefore respects the 'cautious' approach to interpreting the *CISG*'s scope that is advocated by Meyer.²⁸³ Importantly, my framework's three elements (taken together) ensure that the *CISG* only governs data contracts for which it is properly suited. Numerous limitations remain on the *CISG*'s applicability in the non-software data context, as summarised below:

- *CISG* article 1(1)'s sale criterion excludes contracts granting temporary data access rights. Such contracts, increasingly common²⁸⁴ in the software-as-a-service market,²⁸⁵ are not appropriately regulated by sales law.
- Selling the intellectual property ('IP') underpinning data,²⁸⁶ as distinct from selling data itself,²⁸⁷ remains outside of the *CISG*'s scope.²⁸⁸ The sale of IP is a sale of rights, and not a sale of goods,²⁸⁹ there being no delivery in the sales law sense.²⁹⁰
- Some transactions colloquially referred to as 'data contracts' are actually services contracts: for example, contracts with data carriers such as Internet service providers and mobile networks. These contracts are outside of the

283 Meyer (n 120) 329–30. Cf Eggen (n 11) 231.

284 Eggen (n 11) 232.

285 Svantesson, 'A Call' (n 237) 34–5; 'SaaS' (n 238).

286 Atanasovska (n 22) 324.

287 Schmitt (n 19) 57; Green and Saidov (n 4) 176; Cox (n 4) 359.

288 United Nations Commission on International Trade Law, *Digest* (n 16) 7 [28].

289 Schwenzer and Hachem, 'Article 1' (n 17) 36 [22]; Schlechtriem, 'Requirements of Application' (n 109) 786. See also United Nations Commission on International Trade Law, *Report of the Working Group* (n 14) 22 [114]; Gillette and Walt (n 17) 50.

290 Mistelis, 'Article 1' (n 43) 31–2 [38]; Atanasovska (n 22) 325.

CISG's scope for this reason, although separate data sales concluded with third parties via their medium may still be governed by the *CISG*.

- *CISG* article 3(2) excludes contracts involving the delivery of non-software data (such as document files) where the contract's real purpose is the provision of services (such as market research activities).²⁹¹ These contracts may also be excluded from the *CISG*'s scope on the basis of providing mere 'know-how'.²⁹²
- *CISG* article 3(2) also excludes non-software data contracts where ongoing services obligations (eg, providing security updates, ensuring ongoing hardware or operating system compatibility, and analysing data) are the real gist of the contract.²⁹³
- Consumer data transactions are excluded pursuant to *CISG* article 2(a). This is a 'significant' limitation on the *CISG*'s digital application,²⁹⁴ removing apps, music, TV shows, movies, and ebooks purchased for personal use from the *CISG*'s scope.
- Contracts granting access rights to databases, of the kind entered into by law firms, professional services firms, universities, research institutes, and libraries, remain outside of the *CISG*'s scope.²⁹⁵ They fail to satisfy *CISG* article 1(1)'s sale criterion, as they involve periodic subscriptions. They may (in addition) be excluded on the basis of constituting services contracts,²⁹⁶ or contracts for the mere provision of information,²⁹⁷ although they are probably not excluded (as is argued by some) on the basis of being akin to electricity sales for the purposes of *CISG* article 2(f).²⁹⁸

Even where my analysis supports the *CISG*'s application to non-software data trade, the *CISG*'s inherent 'incompleteness'²⁹⁹ must also be kept in mind.³⁰⁰ Pursuant to *CISG* article 4, the *CISG* addresses contract formation and the rights and obligations of contracting parties only. It embodies an eclectic model of regulation, necessarily operating in conjunction with an otherwise-applicable state law³⁰¹ and relevant rules of private international law.³⁰² Even where the *CISG* does govern non-software data contracts, it is not a comprehensive code.

291 Hachem (n 50) 82 [12].

292 Schwenzer and Hachem, 'Article 1' (n 17) 35 [19].

293 Eggen (n 11) 234–5.

294 Mowbray (n 10) 133. See also Schmitt (n 19) 75.

295 Wulf (n 4) 32–7.

296 But see Larson (n 10) 468.

297 Fakes (n 39) 588.

298 Contra Larson (n 10) 468–70; *ibid* 586–8. The *CISG* (n 3) article 2 exclusions are exceptions to the *CISG*'s application, and for this reason, they are to be read narrowly and are not to be given analogous application: Schwenzer and Hachem, 'Article 2' (n 125) 48 [3], 50 [7]; Frank Spohnheimer, 'Article 2' in Stefan Kröll, Loukas Mistelis and Pilar Perales Viscasillas (eds), *UN Convention on Contracts for the International Sale of Goods (CISG): A Commentary* (CH Beck, 2nd ed, 2018) 39, 40 [4], 48 [31]. See also Mowbray (n 10) 130; Cox (n 4) 363.

299 Schwenzer, Hachem and Kee (n 140) 37 [3.20].

300 Gillette and Walt (n 17) 43.

301 See generally Filip De Ly, 'Sources of International Sales Law: An Eclectic Model' (2005) 25(1) *Journal of Law and Commerce* 1.

302 Franco Ferrari, 'PIL and *CISG*: Friends or Foes?' (2013) 31 *Journal of Law and Commerce* 45, 49.

Nevertheless, this article (and ‘To Boldly Go, Part II’) collectively demonstrate that the *CISG* is capable of going where no existing case law (but where much international trade) has gone before. Following widespread acceptance of the *CISG*’s capacity to regulate software sales, trade in non-software data is the *CISG*’s next frontier. It is probably not the *CISG*’s final frontier, however, given that the *CISG* has enjoyed a history of successful adaptation to the many commercial and technological changes that have occurred between 1980 and today.

Part I identified the *CISG*’s various adaptations to these changing circumstances, and Part III of this article explored the importance of considering the *CISG*’s application to non-software data trade. The COVID-19 pandemic, and its associated acceleration of the business digitalisation phenomenon, neatly illustrates how these points collide, and is a useful place at which to conclude this article’s analysis. Returning to the ICC’s *Trading Thoughts* podcast, referred to in Part I, the following comments were offered by Carlos Lopez-Blanco, Chair of the ICC’s Commission on the Digital Economy:

This has been new for all of us. This is something unexpected, and is something that in certain way this topic serves. This is a new reality that we need to understand ... And let me start by saying that for my perspective ... the pandemic has shown us the importance of digitalisation today. There is a very simple question: could anyone imagine this crisis in a pure [analogue] world? A world without electronic commerce, a world in which it was not possible to telework ... or a world without online education? I think that the consequences of our situation ... will have been different and will have been by far much worse. I think that at this time ... we have been in the middle of an unprecedented social experiment ... What would happen for high-risk people in this pandemic without electronic commerce? ... [W]e have this experience that in all the countries will have take[n] not months but years: in three months. So I think that this experience will be very very important for understanding this process and the consequences of digitalisation.³⁰³

As Part III of this article explained, examining the *CISG*’s application to non-software data trade is important for numerous practical and policy reasons. And as the framework established in Parts IV–VII shows, the proposition that the *CISG* can govern such trade must be grounded in a rigorous interpretation of the *CISG*’s application provisions. Establishing this framework, and applying it in ‘To Boldly Go, Part II’, is a timely exercise. While data trade was already economically significant pre-pandemic,³⁰⁴ COVID-19’s effects on business have surely removed any lingering doubt. Immediately following the *Trading Thoughts* comments quoted above, Carlos Lopez-Blanco went on to say:

There are many people saying that nothing will be the same after the pandemic. For me, it’s not clear. I think that a lot of things will change, but not everything will change, and not everything will be different. But for me there is something that will be different before and after the pandemic, and [that] is the digitalisation of the economy and the society. Because [the] pandemic on one side has accelerated

303 ‘ICC Trading Thoughts with Carlos Lopez Blanco [sic], Chair of ICC Commission on the Digital Economy’, *Trading Thoughts* (International Chamber of Commerce, 17 October 2020) 0:01:00–0:03:22 <<https://soundcloud.com/iccwbo/icc-trading-thoughts-with-carlos-lopez-banco-chair-of-icc-commission-on-the-digital-economy>> (‘Digital Economy’). See also ‘Continued Innovation’ (n 72) 0:04:37–0:04:52.

304 Millstein, Neuburger and Weingart (n 202) 8–11 [8.04]; Hachem (n 50) 78 [1].

the process of digitalisation ... And at the same time, and this is for me very very important, the awareness in relation with digitalisation is much higher today.³⁰⁵

Business digitalisation is a challenge affecting all industries, including traditional industries, and businesses of all shapes and sizes.³⁰⁶ The framework that I have established in this article, for assessing the *CISG*'s capacity to regulate international data trade, shows that the *CISG* stands ready, willing, and able to assist: to the extent that the application of this framework permits. The *CISG*, as a widely accepted international sales law treaty, has an important role to play in facilitating commercial data trade.³⁰⁷ As a 'shared' law, it can help 'ensure greater global consistency and predictability'³⁰⁸ in this area of commercial activity: just as it has always sought to do in relation to traditional, physical, goods trade.³⁰⁹

305 'Digital Economy' (n 303) 0:03:22–0:04:11.

306 Ibid 0:06:02–0:06:34.

307 Cf Melissa de Zwart, 'Contractual Communities: Effective Governance of Virtual Worlds' (2010) 33(2) *University of New South Wales Law Journal* 605, 626; de Zwart, 'Electronic Commerce' (n 28) 305–6.

308 Andersen, 'A New Challenge' (n 114) 911.

309 *CISG* (n 3) Preamble para 3.