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

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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


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

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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. 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’) in 1980, none of these concepts could have been within their contemplation. Even computer software’s significance, at the time, ‘was recognised by only a few farsighted individuals’.

Nevertheless, according to the business community, the future of commerce is digital. The following exchange between Gabriel Petrus (‘GP’) and Tim Conley (‘TC’) 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.

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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

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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.


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’. In addition, it is now widely accepted that electronic software constitutes ‘goods’ under the CISG, even if the exact contours of its application to software transactions remain unsettled. Software has indeed been the focus of existing analyses addressing intangibles trade under the CISG. Those analyses have been exercises in its interpretation.

But just as we find ourselves living in a post-truth era, 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. Persisting with software-focused analysis, today, is an exercise grounded in that 1980s world view. 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. Software is still very much a ‘big-league

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18 See generally Neumann (n 4).
19 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.
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.
31 ‘Maximising Value from Data’ (n 26) 0:05:50–0:06:16, 0:09:12–0:09:22.
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 law 34 (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

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36 Muñoz (n 4) 282 n 1.
37 Atanasovska (n 22) 322.
38 Sono (n 17) 512–13.
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

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44 Mistelis, ‘Article 1’ (n 43) 28 [25].
45 Eggen (n 11) 230–1.
46 Schroeter (n 14) 289.
48 Sorieul (n 14) 382, 387.
49 Green (n 27).
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 software\(^\text{52}\) (as does an analysis undertaken by Wulf in 2003).\(^\text{53}\) 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.\(^\text{54}\) 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.\(^\text{55}\) This work is limited, too: it focuses on personal data,\(^\text{56}\) and lacks a rigorous interpretative basis for treating the CISG’s scope as including data trade.\(^\text{57}\) Though the tide is changing, the limitations of this emerging body of CISG-data scholarship demonstrate that the tide has not yet reached its highwater 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.\(^\text{58}\) The overall concept of digital products is hard to define,\(^\text{59}\) and there is no closed list of the types of non-software data.\(^\text{60}\) 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.
\(^{60}\) 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’, 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’. In turn, data exchange is said to be ‘the lifeblood of the globalised society in which people live’. 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, 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’. 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.
as of June 2017. 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. And broader business digitalisation initiatives now create ‘vast amounts of data’ that ‘is valuable as a commodity’ and that may be sold ‘as a product to interested parties’. This data might be used, for example, for the purposes of targeted advertising.

Anecdotal evidence suggests that significant amounts of the data used by business tends to be obtained from third parties. 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. Despite its ‘substantial pedigree’, CISG-software analyses have fallen behind the times: they are ‘now part of a larger problem’ 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...
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. Media files and raw data, for example, require things to be done to them by software or by apps in order to be useful.

Taken alongside existing CISG-software scholarship, my analysis has the potential to act as a technology-neutral unifying theory. Any lingering doubts as to whether non-software data trade falls within the CISG’s scope 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’. One empirical study even found that there was a ‘consistent failure’ to specifically choose the CISG as a governing law for software transactions. 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’. Indeed, the ability to enforce rights and obligations is a key commercial consideration in relation to both physical and digital goods trade. The CISG’s harmonised rules seek to promote cross-border trade in traditional goods, 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.
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.
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.
88 CISG (n 3) Preamble para 3.
89 Asia Society Australia, ‘Part B’ (n 82) 0:19:03–0:20:03.
contracts against that background, based on their own particular needs. 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’. 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: 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. That the CISG presumptively captures ‘more than 80 per cent’ of the world’s traditional goods trade is indicative of its potential digital reach. At the time of writing, the CISG boasts 94 Contracting States, including Australia and nearly all of the world’s other major trading


95 Cox (n 4) 364.


This figure approaches half of the United Nations’ overall membership, and represents more than half of the take-up of the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (‘New York Convention’); itself ‘perhaps … the most effective instance of international legislation in the entire history of commercial law’, and the only commercial law treaty to have ‘bested’ the CISG. 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, as is evidenced by comparing accessions to the two instruments across ten-year blocks.

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’ was not achieved overnight. The CISG initially entered into force in just 11 States, its finalised text reflects decades of prior work, and estimates place its preparation costs at approximately USD6 million. While bespoke

99 The United Kingdom and India being notable exceptions: Kröll, Mistelis and Perales Viscasillas (n 97) 1 [1].
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.
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 Marie Cremona (eds), Foundations and Perspectives of International Trade Law (Sweet & Maxwell, 2001) 28, 33 [2–023]; 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, 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, as well as by the digital economy’s rapid pace of change. In the meantime, commercial actors have a genuine interest in supporting their trading activities via converging business and legal practices, 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). Services laws are also an inadequate substitute. There is currently no international services convention that is equivalent to the CISG. On the other hand, the CISG is capable of governing contracts that have both goods and services elements. 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. 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.


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


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

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119 Hayward, ‘CISG as the Applicable Law’ (n 118) 169 [10.03].
121 Muñoz (n 4) 282.
122 Primak (n 86) 197.
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, and which do not refer to software or data.

The CISG’s harmonising potential has been taken into account by scholarship addressing software and smart contracts. From a policy perspective, it is relevant that the CISG is ‘helpful law’. Some empirical evidence even discloses a tendency for commercial parties to exclude the CISG in contracts where it would not otherwise have actually applied. 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) 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.

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’. 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. States have rights and responsibilities, too, with respect to the CISG: it constitutes an instrument of public international law

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.
131 Meyer (n 120) 329–30.
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’, 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’.

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. It is these rules which provide for the CISG’s modernisation via interpretation. The argument that I advance here, and in ‘To Boldly Go, Part II’, thus respects the CISG’s dual private and public law characters.

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. 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, and teaching programs for merchants in developing countries.
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.
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

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.

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.
156 Ibid 110–12.
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. 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. 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.

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, goods ‘first of all’ are considered to comprise ‘moveable, tangible objects’. 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)’. 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’. What constitutes ‘a typical object of a commercial sale’ is assessed by reference to ‘the

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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’, a view consistent with the CISG’s description as being ‘entirely at the service of entrepreneurs’. As noted in Part III, the (previous) 2nd edition went even further, suggesting that the goods criterion should be read ‘as widely as possible’. 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.

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. On this view, the absence of any definition of goods in the CISG is itself suggestive of that criterion’s breadth. This analysis suggests that the CISG’s subject matter scope is flexible by design, and not just by accident.

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.

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)’. One recent analysis of numerous key CISG provisions conducted by Muñoz has shown, in detail, how this is so. 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’. 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.


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’. Tangibility has been an important consideration in existing CISG-software analyses. 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.

Like its application to software, the CISG’s more general application to trade in intangibles is not universally accepted. 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. 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. On the other hand, even electronic software is considered tangible by some authorities. Treating data as inherently tangible regardless of its medium is also considered by some to have a scientific basis.

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. 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) 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

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.
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 cars 191 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.
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. 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. 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.

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’. 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. If this nuance is disregarded, software and machines are both capable of being seen as ‘real and functional thing[s]’. On this view, the fact that software has the capacity to ‘easily be copied and duplicated’ is not antithetical to the CISG’s application. The CISG ‘does not


196 Cf Neumann (n 4) 123–4.

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


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,

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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 Svanesson, ‘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.


207 Jayme (n 206) 29 [1.5].


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. 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). 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). 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. These provisions, ‘taken together’, define the concept of sale as understood by CISG article 1(1). As with CISG article 1(1)’s goods criterion, the CISG’s sale requirement must be interpreted autonomously. Also like CISG article 1(1)’s goods criterion, policy factors support giving the

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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].

Hachem (n 50) 79 [2].


Kee (n 41) 934.


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

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

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216 Primak (n 86) 218.
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

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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 81) §2.01 [1.b.ii]; Wulf (n 4) 22–3; Schmitt (n 19) 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 routine\(^{237}\) 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

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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.


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).
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 elements\(^ {250}\) 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

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\(^{246}\) Green and Saidov (n 4) 173–4.


\(^{249}\) 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; assisting buyers in their analysis of raw data; and the provision of other technical services.

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. However, a more nuanced approach to CISG article 3 is now taken. 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. This principle is equally applicable to non-software data contracts. 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.

Even outside of the software context, ‘there are many problems’ with CISG article 3’s interpretation. 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. On this basis, ‘design specifications and similar instructions or plans’ are disregarded. In the inherently intangible
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.

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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.
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.
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].
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 common in the software-as-a-service market, are not appropriately regulated by sales law.

• Selling the intellectual property (‘IP’) underpinning data as distinct from selling data itself remains outside of the CISG’s scope. The sale of IP is a sale of rights, and not a sale of goods, there being no delivery in the sales law sense.

• 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].
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). These contracts may also be excluded from the CISG’s scope on the basis of providing mere ‘know-how’.

- CISG article 3(2) also excludes non-software data contracts where ongoing services obligations (e.g., providing security updates, ensuring ongoing hardware or operating system compatibility, and analysing data) are the real gist of the contract.

- Consumer data transactions are excluded pursuant to CISG article 2(a). This is a ‘significant’ limitation on the CISG’s digital application, 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. 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 or contracts for the mere provision of information, 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).

Even where my analysis supports the CISG’s application to non-software data trade, the CISG’s inherent ‘incompleteness’ must also be kept in mind. 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 law and relevant rules of private international law. Even where the CISG does govern non-software data contracts, it is not a comprehensive code.

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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.
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

304 Millstein, Neuberger 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

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305 ‘Digital Economy’ (n 303) 0:03:22–0:04:11.
306 Ibid 0:06:02–0:06:34.
308 Andersen, ‘A New Challenge’ (n 114) 911.
309 CISG (n 3) Preamble para 3.