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PLATFORM POWER AND CONTRACTUAL RISK ALLOCATION IN DIGITAL TRADE: ELECTRONIC BILL OF LADING PLATFORMS AS A CASE STUDY

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Platform power and contractual risk allocation in digital trade: Electronic bill of lading platforms as a case study

*Dr Xu Tengjiao **

ABSTRACT

As digital trade increasingly relies on supply-chain platforms, their role in enabling transactions deserves closer legal attention. Supply-chain platforms are often described primarily as technology providers. Why are they viewed in this way and how far is that description accurate? A closer examination shows that they are not merely technology providers, but may have power over digital trade. If so, does the existing allocation of risk reflect the power they actually have, and to what extent? Where risk allocation does reflect that power, there is little space to argue. Where it does not, what reasons can explain the mismatch? More broadly, examining these questions provides a deeper understanding of the role of supply-chain platforms in digital trade.

Existing research explains how eBL systems work and how platform rules organise participants, but not what power platforms have or how far contractual risk allocation reflects it. Drawing on the rulebooks, terms of use and operational materials of Bolero, WaveBL and CargoX, the paper examines platform power across status, intervention and continuity, and then compares that power with the contractual allocation of risk.

Keywords: Electronic bills of lading; supply-chain platforms; platform power; contractual risk allocation; reliable systems; digital trade

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1 Introduction

International trade increasingly relies on digital platforms that connect carriers, traders, banks, and other participants. Trade documents are central to payment, financing, and delivery, and as they become electronic, their circulation increasingly depends on digital platforms. The UNCITRAL Secretariat describes platforms that facilitate interaction among supply-chain participants, support the paperless circulation of trade documents, and aggregate supply-chain data as ‘supply-chain platforms’.¹ Their operators are generally not parties to the underlying transactions and often describe themselves as ‘technology providers’.² Yet even when users make the underlying commercial decisions, those decisions may not take effect if the platform suspends access, fails to update status or ceases service. This contrast raises the central question of this paper: does the technology-provider view fully describe the role of a supply-chain platform?

Electronic bill of lading (eBL) platforms are particularly well suited to examining this question. As legal recognition of eBLs expands, practical operation and interoperability become important questions.³ Users can now issue, transfer, present, and surrender eBLs through commercial platforms, and these operations affect how documentary rights are exercised. EBL platforms therefore provide a concrete and relatively mature setting in which to examine the role of supply-chain platforms and how that role relates to contractual risk allocation.

Several features support the technology-provider view of eBL platforms. The parties derive their underlying rights and obligations from the bill of lading, relevant contracts and applicable law, not from the platform. Users make the underlying commercial decisions, while the platform processes their instructions. Moreover, electronic trade document legislation

¹ United Nations Commission on International Trade Law, *Taxonomy of Legal Issues Related to the Digital Economy* (United Nations 2023) para 121.

² For descriptions of eBL platforms as technology providers, see eg WaveBL, ‘Ocean Network Express Taps WAVE BL to Advance eBL Operations and Scale Global Collaboration in Digital Trade’ (18 October 2021), describing WAVE BL as a ‘technology provider’; Alexander Whiteman, ‘Freight Booking Platform 45HC the First to Accept Cryptocurrency Payments’ (*The Loadstar*, 22 March 2018), quoting a CargoX spokesperson describing CargoX as a ‘neutral technology provider’.

³ Legal frameworks including the MLETR, Singapore’s Electronic Transactions Act, the UK ETDA, and China’s revised Maritime Law recognise that qualifying electronic records can perform the legal functions of traditional trade documents: UNCITRAL Model Law on Electronic Transferable Records (2017), arts 8–12; Electronic Transactions Act 2010 (Singapore), ss 16H–16O; Electronic Trade Documents Act 2023 (UK), ss 2–4; Maritime Law of the People’s Republic of China (revised 2025), arts 85–86.

generally sets out what a reliable method or system must achieve without giving the platform separate legal status. Platform contracts reinforce this view by describing the operator as providing access and system services, not as a principal in the underlying transaction. Overall, these features explain why eBL platforms are commonly viewed as technology providers. But that view may not fully capture the power they exercise within the eBL system.

Broader platform research supports this concern through three related lines of research. First, scholars have long questioned whether a platform's self-description accurately reflects its role.⁴ Gillespie, for example, shows how firms use the term 'platform' to present themselves as neutral intermediaries while distancing themselves from what happens on the platform.⁵ As platforms take on a greater role in governance and infrastructure, that simple description increasingly needs to be assessed against what they actually do.⁶ A second line of research shifts attention from labels to private ordering, showing that platforms may use terms of use and other private rules to determine who may participate, what conduct is permitted and how those rules are enforced.⁷

This governance role may also be embedded in technical design, access arrangements, and ongoing operation, which can affect platform-dependent activities.⁸ A third line of research in information systems and management brings these strands together, showing that platform architecture and governance often develop together.⁹ However, these studies mainly concern other types of platforms and do not directly establish that supply-chain

⁴ By the late 2000s, scholars had begun to question whether the label 'platform' accurately reflected the role actually performed by digital intermediaries. See, eg, José van Dijck, 'Users Like You? Theorizing Agency in User-Generated Content' (2009) 31 *Media, Culture & Society* 41, 41–44; Tarleton Gillespie, 'The Politics of "Platforms"' (2010) 12 *New Media & Society* 347, 348–50; 359.

⁵ Gillespie (n 4) 347–64.

⁶ Orly Lobel, 'The Law of the Platform' (2016) 101 *Minnesota LR* 87; Julie E Cohen, 'Law for the Platform Economy' (2017) 51 *UC Davis LR* 133; José van Dijck, Thomas Poell and Martijn de Waal, *The Platform Society: Public Values in a Connective World* (OUP 2018).

⁷ Luca Belli and Jamila Venturini, 'Private Ordering and the Rise of Terms of Service as Cyber-Regulation' (2016) 5(4) *Internet Policy Review*; Kate Klonick, 'The New Governors: The People, Rules, and Processes Governing Online Speech' (2018) 131 *Harvard LR* 1598; Robert Gorwa, 'What Is Platform Governance?' (2019) 22 *Information, Communication & Society* 854.

⁸ Cohen (n 6); Jean-Christophe Plantin, Carl Lagoze, Paul N Edwards and Christian Sandvig, 'Infrastructure Studies Meet Platform Studies in the Age of Google and Facebook' (2018) 20 *New Media & Society* 293.

⁹ Amrit Tiwana, Benn Konsynski and Ashley A Bush, 'Research Commentary—Platform Evolution: Coevolution of Platform Architecture, Governance, and Environmental Dynamics' (2010) 21 *Information Systems Research* 675; Marin Jovanovic, David Sjödin and Vinit Parida, 'Co-evolution of Platform Architecture, Platform Services, and Platform Governance: Expanding the Platform Value of Industrial Digital Platforms' (2022) 118 *Technovation* 102218.

platforms have the same power. Nevertheless, they show the importance of examining a platform's private rules, system architecture and actual functions when assessing its role.

Against this broader background, research on eBLs has developed along several lines. Goldby, Todd, Girvin and Ong, among others, have examined how electronic systems reproduce the functions of paper bills of lading and how arrangements such as central registries, closed systems, blockchain, singularity and control affect the operation of eBLs.¹⁰ Later work has considered how different technical structures fit with legal frameworks such as the MLETR and existing bill of lading law.¹¹ Other studies have focused more directly on the governance of eBL systems. Wang Feng argues that eBLs should not be governed by positive law alone and that industry self-regulation should also play a role, through measures such as platform membership requirements, terms of use and technical arrangements.¹² Ioannou examines how multipartite rulebooks organise digital trade networks, including providers' powers to amend platform rules, users' difficulties in switching platforms, and contractual limits on liability. He also proposes governance mechanisms to reduce opportunistic behaviour and support system adoption.¹³ These studies show that eBL platforms are shaped by both technical arrangements and private governance. However, they do not directly examine how power over specific eBL functions relates to the contractual allocation of risks arising from those functions.

This paper addresses that question by examining the relationship between platform power and contractual risk allocation. It uses the term 'platform power' to describe a platform's authority or practical ability to affect specific, significant steps in the operation of an eBL. This power is assessed in relation to particular parts of eBL operation, taking account of any

¹⁰ Miriam Goldby, 'Electronic Bills of Lading and Central Registries: What Is Holding Back Progress?' (2008) 17 Information & Communications Technology Law 125; Paul Todd, 'Electronic Bills of Lading, Blockchains and Smart Contracts' (2019) 27 Int'l J of Law & Information Technology 339; Stephen Girvin and Elson Ong, 'Electronic Bills of Lading, Blockchain and Distributed Ledger Technology' in Stephen Girvin and Vibe Ulfbeck (eds), *Maritime Organisation, Management and Liability: A Legal Analysis of New Challenges in the Maritime Industry* (Hart 2021) 195.

¹¹ Elson Ong, 'Blockchain Bills of Lading and the UNCITRAL Model Law on Electronic Transferable Records' [2020] JBL 202; Todd (n 10); Thomas Krebs, 'Electronic Bills of Lading, Transnational and English Law: Blocking the Blockchain?' (2023) 28 Uniform LR 323.

¹² Wang Feng, 'Blockchain Bills of Lading and Their Future Regulation' [2021] LMCLQ 504.

¹³ Ilias Ioannou, 'Relational Trade Networks' (2023) 82 CLJ 450, 453–64, 464–76, 476–81; see also Ilias Ioannou, 'Is the Electronic Trade Documents Act 2023 Sufficient to Promote the Uptake of Paperless Trading Systems?' (2026) 89 MLR 125, 126–29; 138–45.

decisions or cooperation still needed from users or other participants. The analysis then considers where power and risk allocation align or diverge, what reasons may support these allocations, and whether those reasons are sufficient to justify particular duties, exclusions and liability limits.

This paper uses Bolero, WaveBL and CargoX, three eBL platforms with different system designs, as examples.¹⁴ Drawing on their rulebooks, user terms and operational materials, it examines platform power across three areas: status, intervention and continuity. For each issue, it asks what the platform is allowed to do, what it can do in practice, and which steps require actions by users, carriers or other network participants. Relevant case law illustrates the legal significance of these findings.

This paper argues that the technology-provider view accurately describes the platform's position in the underlying transaction, but does not fully capture its power within the system. Although this power varies across the three platforms, their contracts share a common structure: they preserve traditional transaction responsibilities while adding only a limited layer of platform liability. Users therefore bear some losses from system functions managed by platforms, so contractual risk allocation reflects platform power only partially. There may be good commercial reasons for limiting platform liability, but whether particular exclusions and limits go too far depends on those commercial reasons, what platforms can do, and how the remaining risks are managed.

The discussion is in four parts. Part Two explains the basis of the technology-provider view and sets the starting point for assessing whether and where that view becomes incomplete. Part Three identifies platform power across status, intervention and continuity, showing why this view is incomplete. Part Four compares platform power with contractual risk allocation, explains how the mismatch arises, and examines how far these risk allocations and liability

¹⁴ Bolero uses a registry-based system in which its Title Registry records the current holder; WaveBL operates a decentralised peer-to-peer network without a central registry; and CargoX uses smart contracts on public blockchain networks, together with off-chain identity records. See Bolero, 'Rulebook and Title Registry'; WaveBL, 'International Group of P&I Clubs Authorizes WAVE BL as Approved Paperless Trading Solution' (1 January 2020); CargoX, 'Technology'.

limits can be justified. Part Five concludes what the findings reveal about digital trade platforms more generally.

2 The technology-provider view

The first reason for viewing eBL platforms as technology providers is practical. Their technical role operates at three levels. At the most basic level, the platform provides the system through which users issue, transfer, present and surrender eBLs.¹⁵ It also provides the means through which users access and connect to that system, whether directly or through the internal systems of carriers, banks or other participants.¹⁶ Beyond a single platform, exchanging eBLs between different systems depends on interoperability arrangements.¹⁷ At each level, the platform appears primarily as the technical infrastructure that enables users to carry out electronic trade transactions.

This practical view is reinforced by who makes the relevant decisions. Users normally make the underlying commercial decisions, while the platform processes their instructions and records the results. In WaveBL's published workflow, for example, participants initiate requests, transfers and surrenders.¹⁸ Bolero follows the same pattern: the holder initiates a surrender, while the Title Registry processes the user's instructions by updating the relevant status and sending confirmations or notifications.¹⁹

A second reason for the technology-provider view is legal. The relevant legal frameworks distinguish between the parties' underlying rights and obligations and the requirements to recognise the electronic form. The bill of lading, the relevant contract and applicable law determine, for example, how the carrier should carry and deliver the goods and whether a

¹⁵ For early discussions of central registries and eBL systems, see Goldby (n 10) 125–26; Nicholas Gaskell, 'Bills of Lading in an Electronic Age' [2010] LMCLQ 233, 260–61.

¹⁶ See Bolero, 'Connectivity', describing integration with corporate, bank and carrier systems through APIs and other connectivity tools; CargoX, 'CargoX Platform', section 'A simple web app, with API integration', describing access through a web browser and integration with corporate information systems.

¹⁷ Digital Container Shipping Association (DCSA), 'Five eBL Platforms Adopt DCSA Standard Annex v.2 with IGP&I Approval, Enabling Global, Cross-Platform eBL Exchange' (4 June 2026); DCSA, 'eBL Platform Interoperability', section 'How eBL Platform Interoperability works'.

¹⁸ WaveBL, 'The Next Steps to Your First eBL'; WaveBL, 'How to Send Possession to Consignee as a Shipper' (10 December 2024); WaveBL, 'How to Authorize Surrender' (10 December 2024).

¹⁹ Bolero, 'Electronic Bills of Lading'; Bolero, 'Rulebook and Title Registry' (n 14).

holder, consignee or financing bank may claim the cargo.²⁰ The MLETR expressly preserves this position: it allows transferable documents and instruments to be used electronically without changing their substantive law.²¹ Singapore's Electronic Transactions Act (ETA), the UK's Electronic Trade Documents Act (ETDA) and China's revised Maritime Law also preserve parties' rights and obligations when documents are converted between paper and electronic form.²² The platform enables the electronic use of trade documents without becoming the source of the parties' underlying rights and obligations.

Electronic trade document legislation reinforces this distinction. Under these frameworks, system reliability is a condition for legal recognition of electronic trade documents.²³ But the legislation does not give the platform a separate legal status merely because the document depends on its system. The MLETR, for example, requires a reliable method to identify the electronic transferable record, establish control over it and maintain its integrity.²⁴ Singapore's ETA broadly follows the same structure.²⁵ The UK ETDA adopts a different legislative approach but likewise requires a reliable system.²⁶ China's revised Maritime Law similarly requires a reliable method or transaction system to ensure the singularity and integrity of the electronic transport record and guarantee the holder's exclusive control.²⁷ These frameworks define what the electronic record and system must achieve, but do not fully define the platform's role in verifying users, maintaining records or processing instructions.

A third source of support comes from platform contracts themselves. These platforms commonly use rulebooks and terms of use to define the service and govern users' actions

²⁰ Miriam Goldby, *Electronic Documents in Maritime Trade: Law and Practice* (2nd edn, OUP 2019) ch 5; Stephen Girvin, *Carriage of Goods by Sea* (3rd edn, OUP 2022) ch 10.

²¹ UNCITRAL Model Law on Electronic Transferable Records (2017), art 1(2) and Explanatory Note.

²² Electronic Transactions Act 2010 (2020 rev ed) (Singapore), ss 16M(4) and 16N(5); Electronic Trade Documents Act 2023 (UK), c 38, s 4(2)(b); Maritime Law of the People's Republic of China (revised 2025), art 86.

²³ UNCITRAL Model Law on Electronic Transferable Records (2017), arts 10–12; Electronic Transactions Act 2010 (Singapore), ss 16H–16I and 16O; Electronic Trade Documents Act 2023 (UK), s 2(2), (5); Maritime Law of the People's Republic of China (revised 2025), art 85.

²⁴ UNCITRAL Model Law on Electronic Transferable Records (2017), arts 10–12.

²⁵ Electronic Transactions Act 2010 (Singapore), ss 16H, 16I and 16O.

²⁶ Electronic Trade Documents Act 2023 (UK), ss 2(2), 2(5).

²⁷ Maritime Law of the People's Republic of China (rev 2025), art 85.

within the system.²⁸ WaveBL's SaaS terms, for example, require its operator, OGY Docs Inc. (OGY), to operate and maintain the platform, give users access and provide security and support services.²⁹ Its Data Processing Addendum also states that the service provider does not become a principal in any user transaction merely by providing these services.³⁰

However, this support has an important limit. These reasons support the technology-provider view mainly in relation to the underlying transaction. To see whether that view fully captures the platform's role, it is also necessary to examine the rules that govern matters left open by the legal recognition framework. These matters are often governed through private ordering, principally through platform rulebooks, terms of use and operating procedures.³¹ This means that, in practice, participants must join the relevant system, accept its terms of use and use and transfer eBLs in accordance with those rules. These rules therefore define the conditions under which the system recognises and processes actions.

How those conditions operate in practice depends on the system's technical architecture. That architecture determines how the system identifies users and status, processes instructions, and records and confirms changes.³² Bolero's Title Registry, for example, updates the current holder and related status in response to user instructions, subject to its rules and processing mechanisms.³³ As Reidenberg explains, technical design can implement rules directly and constrain participants' behaviour.³⁴ Platform power therefore depends not only on the authority conferred by platform rules, but also on practical control over the technical functions through which those rules take effect.

So far, the discussion points to an important distinction. The technology-provider view and platform power concern different aspects of the platform's role. The former explains the

²⁸ OGY Docs Inc, *WAVE BL SaaS Platform Terms and Conditions*, cls 1.1–1.3, 2.1, 6.1–6.3 and 8.5; Bolero, 'The Bolero Rulebook'; Bolero, 'Rulebook and Title Registry'; see also Ioannou, 'Relational Trade Networks' (n 13) 457–58; Ioannou, 'Is the Electronic Trade Documents Act 2023 Sufficient to Promote the Uptake of Paperless Trading Systems?' (n 13) 132, 144–45.

²⁹ OGY Docs Inc, *WAVE BL SaaS Platform Terms and Conditions*, cls 1.1–1.2, 2.2.1 and 6.1–6.3.

³⁰ WaveBL, *Data Processing Addendum*, Annex 1.

³¹ OGY Docs Inc, *WAVE BL SaaS Platform Terms and Conditions*, cls 1.1–1.3, 2.1, 6.1–6.3 and 8.5; Bolero, 'The Bolero Rulebook'; Bolero, 'Rulebook and Title Registry'.

³² Ioannou, 'Relational Trade Networks' (n 13) 457–58.

³³ Bolero, 'Rulebook and Title Registry', sections 'Title Registry explained' and 'Electronic bills of lading'.

³⁴ Joel R Reidenberg, 'Lex Informatica: The Formulation of Information Policy Rules through Technology' (1998) 76 Texas LR 553, 568–69, 572–73.

platform's position in the underlying transaction, while the latter concerns the extent to which the platform can affect how an eBL operates within the system. The scope of this power depends on what the platform can do in practice, what the rules authorise it to do, and what still depends on decisions or cooperation from other parties. Part Three therefore examines where platform power lies and how far it extends.

3 Platform power in eBL systems

Part Three examines where platform power arises and how far it extends across three areas: status, intervention and continuity. Status concerns the creation, updating and proof of an eBL's status. Intervention concerns the platform's ability to suspend access, stop or reject an action, or alter an existing result. Continuity concerns whether the eBL can still be proved, transferred or used after system failure, system changes or service termination.

3.1 Status

Status refers to the position that an eBL system recognises a participant as holding at a particular time, such as holder, possessor or person with exclusive control. This position is created on issuance and may change through transfer, endorsement or surrender.³⁵ Bolero, WaveBL and CargoX use different terms and structures to identify this position, which determines who may take subsequent actions within the system.³⁶ The analysis here concerns this system-recognised status. Whether the participant is also a holder, possessor or person in exclusive control under the applicable law is a separate legal question.³⁷ The following analysis asks what the platform actually controls in creating, changing, attributing, and

³⁵ *WAVE BL Network Bylaws v 2.0* (approved 1 November 2023, effective 1 December 2023), cls 3.20–3.21, 3.23, 3.29 and 3.41.

³⁶ Bolero defines the 'Holder' as the System User with exclusive control of the Trade Document and requires the System Provider to maintain a reliable record of Actions from which the Holder can be identified: WiseTech Global, *Bolero Terms of Use 2025.1*, definitions of 'Holder' and 'System User', cl 5. WaveBL distinguishes between 'Possession', 'Possessor' and 'Titleholder'. 'Possession' means the unique and exclusive control of an Issued Document by a particular User; the 'Possessor' is the User having such Possession; and 'Titleholder' is determined separately by reference to matters including the type of bill of lading, the consignee, endorsement and Possession Transfer: *WAVE BL Network Bylaws v 2.0*, cls 3.28, 3.30 and 3.43; see also cls 3.23 and 3.29. CargoX defines 'Possession' as the state of being able to exercise 'Exclusive control' over an eBL and provides that only one User may have Possession or Exclusive control of an eBL at any one time: CargoX, *CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0* (May 2025), definitions of 'Exclusive control' and 'Possession', cl 6. See also CargoX, 'Technology', explaining how public-blockchain records and User-held private keys support this structure.

³⁷ UNCITRAL Model Law on Electronic Transferable Records (2017), art 1(2); Explanatory Note, paras 10–11.

proving that status. The analysis therefore proceeds in four steps: how status is created, how it changes, how it is attributed to a participant, and how it is proved.

The first step concerns how status is created on issuance. At this stage, the relevant user identifies who should initially be recognised as the holder, possessor or party with control. The system then gives effect to that instruction through the required issuance process. The three platforms implement this basic structure differently. In Bolero, when creating a Bolero Bill of Lading, the Carrier³⁸ must designate the Shipper and Holder in accordance with the Shipper's instructions.³⁹ Depending on how the bill is to circulate, the Carrier also designates a To Order Party or Consignee, or endorses the bill in blank. If no other instruction is given, the Shipper is designated as the Bearer Holder.⁴⁰ The Title Registry then records the initial roles, including the first Holder.⁴¹ In WaveBL, the Issuer applies a Blockchain Signature to Singularize the document, designates the Shipper, Consignee and Surrenderee, and transfers Possession to the nominated first Possessor.⁴² Once issuance is complete, the first Possessor has unique and exclusive control of the Issued Document, and the Chain of Possession then records later changes.⁴³ CargoX uses a token-based structure. The Originating User creates or uploads an eBL. Once the document is registered and tokenised on the blockchain, the token is placed in the relevant wallet, marking the initial possession and control.⁴⁴ These examples show that, across all three platforms, the user chooses who holds the initial status, while platform rules and system design determine how the system records and recognises that choice.

The second step concerns how the initial status changes after issuance. A user may initiate a transfer, endorsement or surrender, but the status changes only when the platform processes that action in the way required by its rules. In Bolero, constructive possession passes upon

³⁸ Capitalised terms follow the meanings given in the relevant platform rules.

³⁹ Bolero, *Bolero Rulebook* (September 1999), r 3.1(4).

⁴⁰ Bolero, *Default Rulebook*, r 3.1(4); see also r 3.2(2), (4) and (6).

⁴¹ Bolero, *Default Rulebook*, definitions of 'Bolero Bill of Lading', 'Holder', 'Holdership' and 'Title Registry Record', r 3.1(1) and (4); WiseTech Global, *Bolero Terms of Use 2025.1*, definitions of 'Holder' and 'System User' and cl 5.

⁴² *WAVE BL Network Bylaws v 2.0* (approved 1 November 2023, effective 1 December 2023), cls 3.5, 3.21–3.22 and 3.39.

⁴³ *Ibid*, cls 3.8; 3.21; 3.28–3.30; 3.39.

⁴⁴ CargoX, *CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0* (May 2025), definitions of 'Electronic Bill of Lading or eBL', 'Originating User', 'Possession' and 'Exclusive control' and cl 6; CargoX, 'CargoX Technology', sections 'Blockchain', 'Tokenisation' and 'Traceability and Audit Log'.

the designation of a new Holder, and the Title Registry records the resulting Holdership.⁴⁵ In WaveBL, the recipient of a Possession Transfer becomes the new Possessor upon receiving Network Confirmation. The same confirmation requirement applies to Named Endorsement and Surrender, although each involves its own prescribed user actions.⁴⁶ In CargoX, the current user authorises the transfer of the eBL using its private key, and the change is recorded on a public blockchain. The contract also appoints CargoX as the Carrier's agent to acknowledge that the Carrier holds the goods to the order of the transferee, giving the transfer corresponding effect as a transfer of constructive possession.⁴⁷ The user therefore decides the direction of the transfer, while the platform's rules and system architecture determine how and when the system recognises that decision as status.

The third step concerns how the system links a recognised status to a particular user. This requires the system to connect the account, wallet or key used to act with the recognised user and, where relevant, the natural or legal person behind that user.⁴⁸ Bolero's Title Registry identifies the System User that holds the relevant Holder status. Where that System User is an organisation, account and Representative arrangements identify the persons authorised to act on its behalf.⁴⁹ WaveBL uses the Identity File and Blockchain Signature to connect actions and Possession to a user's network identity.⁵⁰ CargoX separates these functions: the blockchain records token transfers authorised by private keys, while off-chain records link public keys to registered users.⁵¹ CargoX therefore still relies on off-chain records to link blockchain control to a particular registered user.

⁴⁵ Bolero International Ltd, *Bolero Rulebook* (September 1999), definitions of 'Holder', 'Holdership', 'Title Registry' and 'Title Registry Record' and r 3.4.1(1)–(2).

⁴⁶ *WAVE BL Network Bylaws v 2.0* (approved 1 November 2023, effective 1 December 2023), cls 3.20; 3.25; 3.29–3.30; 21.

⁴⁷ CargoX, *CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0* (May 2025), definitions of 'Possession' and 'Exclusive control' and cl 6; CargoX, 'CargoX Technology', sections 'On-chain Data', 'Tokenisation' and 'Traceability and Audit Log'.

⁴⁸ WiseTech Global, *Bolero Terms of Use 2025.1*, definitions of 'Holder', 'Representative', 'System User' and 'User'; *WAVE BL Network Bylaws v 2.0*, cls 3.4; 3.18; 3.28–3.30; CargoX, 'Technology', sections 'A combination of on-chain and off-chain data' and 'Tokenisation'.

⁴⁹ WiseTech Global, *Bolero Terms of Use 2025.1*, definitions of 'Holder', 'Representative', 'System User' and 'User', cls 4.4; 5.1; 7; 12.3.

⁵⁰ *WAVE BL Network Bylaws v 2.0* (approved 1 November 2023, effective 1 December 2023), cls 3.4 ('Blockchain Signature'); 3.18 ('Identity File'); 3.28–3.30 ('Possession', 'Possession Transfer' and 'Possessor').

⁵¹ CargoX, 'Technology', sections 'A combination of on-chain and off-chain data', 'Tokenisation' and 'We are GDPR compliant'.

The fourth and final step concerns how other participants can verify a recognised status. This means that other participants need some way to check who currently holds that status. Bolero's Title Registry identifies the current Holder and records relevant Actions and endorsements.⁵² WaveBL displays Possession and transfer status through its interface and allows users to generate a Certificate of Authenticity showing possession and relevant title signatures. The platform signs the certificate, which can be checked against its online record.⁵³ CargoX combines public blockchain records with a document audit trail, allowing transfers to be traced and verified.⁵⁴ Across the three systems, proof is produced in different ways, but in each case it depends on records or verification mechanisms that make the current status visible or checkable. The operator's role in proof therefore depends on which records, identity links and verification services it maintains.

Cases concerning access to documents provide useful analogies for assessing authority and practical ability. In *Lonrho Ltd v Shell Petroleum Co Ltd (No 1)*,⁵⁵ the court treated a 'presently enforceable legal right' to obtain documents without another party's consent as sufficient to establish power. The mere possibility of obtaining another party's voluntary cooperation was insufficient.⁵⁶ *Dirak Asia Pte Ltd v Chew Hua Kok*⁵⁷ shows that practical ability may also amount to power. The Court found power where the defendants had 'ready and easy access on a routine basis' to emails held on a third party's server.⁵⁸ But practical access may fall short of power where the third party still has the 'real say'.⁵⁹ *Natixis, Singapore Branch v Lim Oon Kuin*⁶⁰ also indicates that, even where a party does not have immediate access to the relevant material, practical means of restoring access may still be taken into account when assessing power. *Ardila Investments NV v ENRC NV*⁶¹ required an existing arrangement or

⁵² WiseTech Global, *Bolero Terms of Use 2025.1*, definition of 'Holder' and cl 5; Bolero, 'Rulebook and Title Registry', sections 'Title Registry explained' and 'Electronic bills of lading'; Bolero, 'Galileo Electronic Bills of Lading', section 'What is a Title Registry and how does it work?'.

⁵³ WaveBL, 'The eBL Possession Status' (updated 5 May 2025); WaveBL, 'What is Certificate of Authenticity (CoA)' (updated 21 August 2024).

⁵⁴ CargoX, 'Technology', sections 'Blockchain', 'Tokenisation' and 'Traceability and Audit Log'; CargoX, 'Transfer Documents', section 'Track & audit anytime'.

⁵⁵ [1980] 1 WLR 627 (HL), 635–36 (Lord Diplock).

⁵⁶ *Ibid.* Physical difficulties in exercising an existing right did not take the document outside the party's power.

⁵⁷ [2013] SGHCR 1.

⁵⁸ *Ibid.*, [38].

⁵⁹ *Ibid.*, [35]–[38].

⁶⁰ [2023] SGHC 301, [2024] 3 SLR 1502 [35]–[41], especially [35]–[36].

⁶¹ [2015] EWHC 3761 (Comm) [11], [13]–[14], [21].

understanding supporting access, while *Wuhu Ruyi Xinbo Investment Partnership v Shandong Ruyi Technology Group*⁶² accepted that clear evidence that a request would be met could establish control. These cases show that power may come from an existing legal right or from practical ability.

The scope of that power must also be assessed at the level of the particular step. *Tulip Trading Ltd v Van der Laan*⁶³ illustrates the distinction between control over a technical step and control over the final result. The claimant relied on the developers' access to source code and passwords as evidence of their ability to implement the relevant code change, while its effect on the network could still depend on miners and other participants.⁶⁴ The Court of Appeal held only that these arguments raised a serious issue to be tried and did not finally determine the extent of the developers' control or how other network participants would respond.⁶⁵

Applied to the three platforms, this approach identifies different forms of status power. Bolero has the most concentrated role in recording and confirming status. Bolero maintains the authoritative Title Registry and processes the records and confirmations through which Holdership is recognised. Its agency authority also allows it to acknowledge, on the carrier's behalf, that the goods are held for the new Holder. The transferor chooses the recipient, and the transferee decides whether to reject the designation.⁶⁶ WaveBL's power is more distributed. WaveBL's operator administers the network and provides services that display and certify status. These functions support recognition and proof, while transfers require user authorisation and Network Confirmation.⁶⁷ CargoX has the narrowest role in the status process. CargoX maintains the off-chain identity links that connect blockchain positions to

⁶² [2024] SGHC 308, [2025] 4 SLR 1262 [127]–[130], upheld on appeal in *Wuhu Ruyi Xinbo Investment Partnership (Ltd Partnership) v European Topsoho Sàrl* [2025] SGCA 32, [2025] 2 SLR 383 [29]–[31].

⁶³ [2023] EWCA Civ 83, [2023] 4 WLR 16.

⁶⁴ *Ibid*, [29]; [33]–[39]; [78]–[79].

⁶⁵ *Ibid*, [39]; [78]; [91].

⁶⁶ WiseTech Global, Bolero Terms of Use 2025.1, cl 5; Bolero International Ltd, Bolero Rulebook (1st edn, September 1999), rr 3.4.1(2); 3.4.2(a)–(b); 3.5.2(1).

⁶⁷ WAVE BL Network Bylaws v 2.0 (approved 1 November 2023, effective 1 December 2023), cls 3.10; 3.16; 3.18; 3.20; 3.25; 3.34; 4.3, 21; 29; WaveBL, 'The eBL Possession Status'; WaveBL, 'What is Certificate of Authenticity (CoA)'.

registered participants. It can also acknowledge constructive possession on the carrier's behalf, while transfers require the current user's private-key authorisation.⁶⁸

The comparison shows that the platform exercises status power through system steps that recognise, record, and prove status. Users generally determine the recipient, while the platform controls some of the processes that give effect to that choice. The scope of status power is limited to the steps within the platform's authority or practical ability and does not extend to an outcome that still depends on a user's decision or cooperation from users or other participants.

3.2 Intervention

Intervention concerns targeted measures that alter how a particular user, eBL or action would normally proceed. Intervention occurs at three levels. Access intervention affects a user's ability to access or use the system, an account, an interface or an API. Action intervention prevents, stops or changes an operation before it is completed. Result intervention affects a completed action, an existing record or the current status.

The most explicit intervention power relates to access. Bolero permits suspension or termination following a User's breach, subject to notice and an opportunity to remedy a remediable breach.⁶⁹ WaveBL permits immediate suspension for non-payment or specified contractual breaches.⁷⁰ OGY may also suspend access where it reasonably believes that use may cause harm, or reasonably determines that the customer's conduct violates applicable law or falls outside reasonable standards.⁷¹ A separate provision permits access restrictions where Customer Data infringes third-party rights.⁷² CargoX controls the accounts, verification, off-chain links between identity and public keys, GUI and API through which Users access its services.⁷³ Its ST&C allow CargoX to revoke a User's licence at any time, while its GT&C allow

⁶⁸ CargoX, 'Technology', sections 'A combination of on-chain and off-chain data', 'A verified global business directory', 'Blockchain', 'Tokenisation' and 'Traceability and Audit Log'; CargoX, *CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0* (May 2025), cls 5–6; CargoX, *Platform Developer Documentation*, 'Private keys'.

⁶⁹ WiseTech Global, *Bolero Terms of Use 2025.1*, cl 8.

⁷⁰ OGY Docs Inc, *WAVE BL SaaS Platform Terms and Conditions*, cl 5.3.

⁷¹ Ibid.

⁷² Ibid, cl 2.1.2.

⁷³ CargoX, *CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0* (May 2025), cl 3; CargoX, *General Terms and Conditions 4.0* (effective 6 July 2025), cls 3.4; 15.1–15.2; CargoX, 'Technology'.

CargoX to restrict, suspend or terminate access in cases involving system harm, material errors, unlawful use or User breach.⁷⁴ These provisions differ in their grounds, procedural safeguards and degree of discretion. Suspension may also trigger another process. For example, Bolero can require conversion to paper after access is suspended or terminated.⁷⁵ Section 3.3 examines that conversion route.

The second level concerns intervention in pending actions. Here, the question shifts from whether the platform can restrict access to whether it can stop or alter an action that has already been initiated. This depends on whether completion still requires a step within the platform's control. In Bolero, suspending access can prevent a user from sending further instructions needed to complete an action.⁷⁶ In WaveBL, completion requires Network Confirmation. Blocking further access does not establish an ability to stop an action already submitted for confirmation.⁷⁷ CargoX provides a distinct intervention point before blockchain submission: the user signs a message with their private key, and CargoX relays it to the smart contract. Restricting the relay service may interrupt submission through this route, even though CargoX cannot sign for the user.⁷⁸ The relevant question is whether the pending action still requires an instruction or processing step that the platform can block.

The third level concerns intervention after an action has been completed. At this stage, the question is no longer whether the platform can prevent completion, but whether it can reverse or alter the result afterwards. This requires separate examination of both legal authority and technical ability. The available materials do not show that any of the three platforms can reverse completed actions or redefine the current status. Bolero's duty to maintain reliable records does not itself authorise changes to an existing status outside the Rulebook.⁷⁹ WaveBL's Bylaws identify Network Confirmation as the point of completion but provide no general authority for OGY to reverse a completed action or reassign Possession

⁷⁴ CargoX, CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0 (May 2025), cl 3; CargoX, General Terms and Conditions 4.0 (effective 6 July 2025), cls 3.4; 15.1–15.2.

⁷⁵ WiseTech Global, Bolero Terms of Use 2025.1, cl 8.

⁷⁶ Ibid; Bolero International Ltd, Bolero Rulebook (1st edn, September 1999), rr 3.4–3.8.

⁷⁷ WAVE BL Network Bylaws v 2.0, definitions of 'Identity File', 'Issued Document Action' and 'Network Confirmation', cls 4.3; 21.

⁷⁸ CargoX, 'Introduction' (CargoX Platform Developer Documentation), sections 'What is the CargoX Platform' and 'Private keys'.

⁷⁹ WiseTech Global, Bolero Terms of Use 2025.1, cl 5; Bolero International Ltd, Bolero Rulebook (September 1999), rr 3.4–3.8.

unilaterally.⁸⁰ CargoX has no access to users' private keys and cannot use them to sign a reverse transfer. The available materials also do not establish another means by which it could unilaterally alter a completed on-chain result.⁸¹ Control over access alone establishes neither the authority nor the technical ability to reverse such a result.

Two cases involving trading platforms help to clarify these limits. *Ang v Reliantco Investments Ltd*⁸² illustrates the distinction between terminating user access and dealing with existing transactions. Reliantco terminated Ms Ang's account and cancelled her open Bitcoin positions.⁸³ The Court accepted that her breach of the access rules justified termination, but held that the agreement required Reliantco to close out the positions and pay the resulting balance, including the realised gains.⁸⁴ It did not permit cancellation that erased their accrued value.⁸⁵ Applied to eBLs, a power to suspend user access does not by itself include a power to stop a pending Action or alter a completed status. Each measure requires its own contractual, rulebook or legal basis.

*Quoine Pte Ltd v B2C2 Ltd*⁸⁶ distinguishes the technical capacity to reverse a completed result from the contractual authority to do so. In *Quoine*, the Platform automatically matched and settled the disputed trades. Quoine then cancelled them and reversed the corresponding account entries.⁸⁷ The Singapore Court of Appeal held that the Agreement gave Quoine no express or implied right to cancel the trades.⁸⁸ Instead, the Irreversible Action Clause provided that orders were irreversible once filled, so the cancellation was a breach of contract.⁸⁹ Applied to eBLs, a platform's ability to alter a registry entry or stop system processing establishes only its practical capacity. Whether it is entitled to change the current status must still be determined under the applicable rulebook, contract or other source of authority.

⁸⁰ *WAVE BL Network Bylaws v 2.0*, definitions of 'Issued Document Action' and 'Network Confirmation', cls 4.3 and 21.

⁸¹ CargoX, 'Introduction' (*CargoX Platform Developer Documentation*), section 'Private keys'.

⁸² [2020] EWHC 3242 (Comm) [79]; [85]–[90].

⁸³ *Ibid*, [11]; [26]; [86].

⁸⁴ *Ibid*, [84]–[87].

⁸⁵ *Ibid*, [84]–[90].

⁸⁶ [2020] SGCA(I) 2, [2020] 2 SLR 20 [2]–[3]; [7]; [59]–[77].

⁸⁷ *Ibid*, [2]–[3]; [27]–[30].

⁸⁸ *Ibid*, [59]–[77].

⁸⁹ *Ibid*, [7]; [59]–[77]. See especially [68]–[74]; [77].

Across the three platforms, contractual authority is clearest at the access level. Intervention in pending actions or completed results requires closer examination of the steps the platform can affect and the legal basis for each measure. Its scope varies with the stage of the operation and the system's design.

3.3 Continuity

Continuity concerns whether an eBL remains usable when system failures, changes to the system or its rules, or termination of access or service disrupt normal operation. It involves three questions. The first is whether existing records remain available to establish the current status. The second is whether the holder can continue or resume transfers, endorsements and surrender. The third is whether an alternative route, including conversion to paper, remains available when the original electronic route can no longer be used.

The first question concerns whether the relevant records remain available and can still prove the current status after an interruption. Bolero requires the System Provider to maintain a reliable record of Actions identifying the Holder.⁹⁰ WaveBL requires OGY to back up Customer Data and Customers to maintain their own day-to-day backups.⁹¹ These files and account details may need to be supplemented by evidence that Network Confirmation was obtained for the relevant Action.⁹² CargoX stores the relevant information across a public blockchain for document registration and possession transfers, IPFS for encrypted files, and an off-chain database linking user identities to public keys.⁹³ These different arrangements point to the same basic requirement: continuity depends on whether the necessary records remain accessible and can still link the document, its current status and the relevant user.

The second question is whether the eBL can still be used after the current status has been established. Even if the current holder can still be identified, the eBL may not remain usable. Continued use also depends on the maintenance of technical services and the treatment of existing eBLs when operating rules change. Bolero requires at least 30 days' notice of

⁹⁰ WiseTech Global, *Bolero Terms of Use 2025.1*, definition of 'Holder' and cl 5.

⁹¹ OGY Docs Inc, *WAVE BL SaaS Platform Terms and Conditions*, cls 6.2 and 7.1(i).

⁹² *WAVE BL Network Bylaws v 2.0*, definitions of 'Issued Document Action' and 'Network Confirmation'.

⁹³ CargoX, 'Technology', sections 'A combination of on-chain and off-chain data', 'InterPlanetary File System', 'Tokenisation' and 'Traceability and Audit Log'; CargoX, *Platform Developer Documentation*, section 'The platform infrastructure'.

amendments to its Terms or Rulebook and protects existing Trade Documents from those changes without the user's consent.⁹⁴ WaveBL provides support and maintenance under the customer's service package and SLA.⁹⁵ Its terms also require notice and documentation for API updates and allow termination following specified material reductions in platform functionality.⁹⁶ These provisions give customers an opportunity to respond to system changes. CargoX requires ongoing review of security measures and reasonable steps to mitigate disruption and restore performance following force majeure.⁹⁷ Amendments to its terms must also avoid prejudicing a specific transaction begun before notice of the change.⁹⁸ These arrangements can maintain or restore the conditions needed for an eBL to continue operating, but they cannot ensure completion of steps that still depend on users or the network.

The same question becomes more difficult when the service relationship itself changes or ends. The issue then is whether existing eBLs and ongoing transactions can continue. Under the BAL Service Contract, if BAL ceases to act as Registrar, its agency passes to BIL, or a third party appointed by BIL and notified to the user. That agency concerns entering into the Rulebook's multilateral contract and agreeing amendments on users' behalf.⁹⁹ On termination of a WaveBL agreement, the customer must cease using the Platform. OGY may retain Customer Data for up to 30 days to allow the customer to request a copy.¹⁰⁰ CargoX permits affected eBLs to continue to be processed after licence revocation until Switch to Paper or Accomplishment.¹⁰¹ These provisions help preserve continuity when the service relationship changes or ends. But if the eBL can no longer continue electronically, another route is needed.

⁹⁴ WiseTech Global, *Bolero Terms of Use 2025.1*, cl 12.4.

⁹⁵ OGY Docs Inc, *WAVE BL SaaS Platform Terms and Conditions*, cl 6.1.

⁹⁶ *Ibid*, cls 3.3, 6.1 and 6.3.

⁹⁷ CargoX, *CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0* (May 2025), sections 'Reliability and Compliance with Security Standards' and 'Force Majeure'.

⁹⁸ CargoX, *CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0* (May 2025), sections 'Reliability and Compliance with Security Standards', 'Force Majeure' and 'Changes to These ST&C's'.

⁹⁹ *BAL Service Contract*, cls 3(1)–(2); WiseTech Global, *Bolero Terms of Use 2025.1*, cl 11.1.

¹⁰⁰ OGY Docs Inc, *WAVE BL SaaS Platform Terms and Conditions*, cl 5.2.3(1) and (4).

¹⁰¹ CargoX, *CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0* (May 2025), sections 'The CargoX Licence' and 'Accomplishment'.

Conversion to paper provides another route for continuity. The first question is who may initiate it. Under the Bolero Rulebook, a User with the required Holder status may ask the carrier to issue a paper bill before delivery of the goods.¹⁰² The Bolero Terms also allow the System Provider to require immediate conversion after suspending or terminating access.¹⁰³ For a document subject to the Default Rules, where the current Holder or Carrier ceases enrolment, the System Provider may instruct the carrier to initiate conversion under the user's contractual authorisation.¹⁰⁴ On WaveBL, the Title Holder requests Switch to Paper from the carrier.¹⁰⁵ On CargoX, the request is made by the Subsequent User acting as current holder.¹⁰⁶ These provisions give Bolero an express initiating role in specified circumstances, while the WaveBL and CargoX procedures place the initiating decision with the relevant user.

The second question is who can complete the conversion. Under s 4 of the ETDA 2023, the converted document must state that conversion has taken place and satisfy any relevant contractual or other requirements.¹⁰⁷ Once those conditions are met, the original form ceases to have effect, and the relevant rights and obligations continue in the new form.¹⁰⁸ Bolero requires the Carrier to issue a paper bill containing the original document's contents and the prescribed information, including the chain of Users provided by Bolero International.¹⁰⁹ The eBL ceases to have effect when the paper bill is issued.¹¹⁰ Completion therefore depends on both the necessary records and the Carrier's issuance of the replacement. CargoX similarly requires the Originating User to receive the returned eBL, destroy it and issue a paper bill carrying over its contents.¹¹¹ If the holder loses the private key, CargoX cannot recover it or authorise the required transfer on the holder's behalf.¹¹² These examples show that conversion depends on a combination of platform processes, available records and actions by

¹⁰² Bolero International Ltd, *Bolero Rulebook* (1st edn, September 1999), r 3.7(1).

¹⁰³ WiseTech Global, *Bolero Terms of Use 2025.1*, cl 8.2.

¹⁰⁴ Bolero International Ltd, *Bolero Rulebook* (1st edn, September 1999), rr 2.4(2) and 3.7(1); WiseTech Global, *Bolero Terms of Use 2025.1*, cls 8.2 and 11.2(2).

¹⁰⁵ WaveBL, 'Request 'Switch to Paper' as the Consignee'.

¹⁰⁶ CargoX, *CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0* (May 2025), cl 9, 'Switch to Paper'.

¹⁰⁷ Electronic Trade Documents Act 2023, s 4(1).

¹⁰⁸ *Ibid*, s 4(2).

¹⁰⁹ Bolero International Ltd, *Bolero Rulebook* (September 1999), r 3.7(2)–(5).

¹¹⁰ *Ibid*.

¹¹¹ CargoX, *CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0* (May 2025), cl 9, 'Switch to Paper'.

¹¹² *Ibid*, cl 9 and the provisions under 'Compliance' concerning private keys; CargoX, *Platform Developer Documentation*, 'Private keys'.

other participants. Platform power over conversion is therefore limited to the steps the operator can initiate, support or process. Completion may still depend on user authorisation or carrier cooperation.

Two cases involving digital-asset platforms help illustrate what continuity may require when platform services cease. *Ruscoe v Cryptopia Ltd*¹¹³ illustrates the continuing value of records after trading services have ended. The exchange's internal SQL database recorded transactions and individual account balances. The Court relied on those records when assessing the certainty of the trust property and the interests of account holders.¹¹⁴ For eBLs, the analogous question is whether action records, holder records and identity mappings remain available to establish status after an interruption. At this stage, platform power lies in preserving, providing and verifying the records needed to establish that status.

The contractual arrangements examined in *Re Taylor*¹¹⁵ illustrate how an operator can shape the exit process. When Eqonex closed the Exchange, its contract allowed customers to access their accounts during a Closing Period set by Eqonex.¹¹⁶ The terms also allowed Eqonex to change that period, limit the functions available, and require customers to complete identity verification again.¹¹⁷ The High Court held that legal and beneficial title to the unclaimed cryptocurrency remained with the customers and required continued efforts to return their assets.¹¹⁸ For eBLs, this directs attention to the records, access and cooperation needed to give practical effect to a holder's continuing rights.

The facts recorded in *DVA v DVC*¹¹⁹ illustrate continuity through alternative access. The specialised wallets used credentials that included a key generated and held solely by the user. After the platform discontinued support for that product, users could still access their wallets for an extended period through an open-source tool using their own credentials.¹²⁰ This

¹¹³ [2020] NZHC 728, [2020] 2 NZLR 809.

¹¹⁴ Ibid, [34], [143]–[149]. See also *Parastate Labs Inc v Wang Li* [2026] SGHC 178 [96]–[97].

¹¹⁵ [2025] SGHC 104, [2025] 4 SLR 1207.

¹¹⁶ Ibid, [6]; [28]–[29].

¹¹⁷ Ibid, [28]–[29].

¹¹⁸ Ibid, [37]–[40].

¹¹⁹ [2026] SGHC(I) 4.

¹²⁰ Ibid, [7]–[13].

suggests how user-held credentials, combined with a usable independent tool, can reduce dependence on the original operator.

These examples help clarify the limits of continuity power. Across the three eBL platforms, they reveal an asymmetry in that power. An operator may be unable, acting alone, to ensure that status can still be proved or that an eBL can be processed or converted after an interruption. Yet control over a necessary step may allow it to prevent or delay those outcomes. Assessing this power requires examining the platform's ability to complete the process, whether the steps it controls are necessary for continued use, and whether workable alternatives are available. System architecture shapes where this power lies and how far it extends.

The analysis of status, intervention and continuity confirms the concern raised earlier: eBL platforms are not simply technology providers. They have real but limited power over specific parts of eBL operation. The next question is whether platform contracts reflect that power in the way they allocate risk.

4 Platform power and contractual risk allocation

Part Three has shown, through platform contracts, rulebooks and technical materials, what platforms can actually do in relation to status, intervention and continuity. This Part turns to the same platform contracts to examine who bears the losses around those powers. It then examines the reasons for those allocations and their implications for reasonableness review of contractual exclusions and liability limits, where applicable, and reliable-system assessment. It should be made clear at the outset that a mismatch between power and loss allocation does not make the allocation unreasonable.

4.1 Power and risk allocation

4.1.1 Status risks

Status risk arises when the system records the wrong current status, that status cannot be reliably proved, or it fails to support the expected next action. These problems may result from incorrect identity information, mistaken instructions or a failure to protect credentials

or private keys. They may also arise when the platform mishandles identity mapping, transaction processing or status records.¹²¹ The contracts generally allocate risks within users' control to users, while imposing duties on platforms for specified system functions. Where a platform mishandles a valid instruction, those duties must be considered alongside the relevant exclusions, causation requirements and liability caps.¹²²

In Bolero, the gap mainly concerns the losses recoverable once liability is established. The System Provider must maintain a reliable record of Actions identifying the Holder and ensure that the Holder has exclusive control of the Trade Document.¹²³ Clause 9 nevertheless excludes several categories of loss and caps the System Provider's total liability to each user at US\$10,000.¹²⁴ Even where breach and causation are established, the user may therefore bear excluded losses and any amount exceeding the cap.

WaveBL's special liability for System Failure is subject to restrictive conditions. Clause 38 of the Bylaws generally excludes the Service Provider's liability under the Bylaws, except for losses caused entirely by a System Failure.¹²⁵ This requires an act or omission by the provider that causes its software to fail to operate as intended. The failure must last more than 72 hours, affect the whole Wave Network and prevent issuance or a required endorsement, Possession Transfer or surrender.¹²⁶ A failure affecting only part of the Network, lasting 72 hours or less, or contributing to a loss alongside another cause may therefore fall outside this exception, even where the affected function is managed by OGY. Clause 11.4 of the SaaS Terms preserves System Failure liability under the Bylaws, so the general fee cap in clause 11.3 does not reduce that liability.¹²⁷ The System Failure provisions thus cover a narrow class of failures. The treatment of other losses depends on any applicable duties, remedies and limitations under the SaaS Agreement or SLA.

¹²¹ WiseTech Global, Bolero Terms of Use 2025.1, cls 5 and 6.3; WAVE BL Network Bylaws v 2.0, cls 33–38; OGY Docs Inc, WAVE BL SaaS Platform Terms and Conditions, cls 2.1.3; 2.1.7; 2.2.1; CargoX, CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0 (May 2025), cls 5–6; cl 17.

¹²² WAVE BL Network Bylaws v 2.0, cl 38(ii)–(iv); WiseTech Global, Bolero Terms of Use 2025.1, cl 9; CargoX, CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0 (May 2025), cls 14–15.

¹²³ WiseTech Global, Bolero Terms of Use 2025.1, cl 5.

¹²⁴ Ibid, cl 9.

¹²⁵ WAVE BL Network Bylaws v 2.0 (approved 1 November 2023, effective 1 December 2023), cl 38(ii)–(iv).

¹²⁶ Ibid, cl 38(iii)–(iv).

¹²⁷ OGY Docs Inc, WAVE BL SaaS Platform Terms and Conditions, cls 11.3–11.4.

CargoX ties liability for status risk more directly to the platform's control. The ST&C leave registration information, counterparty checks and private-key custody to the User, while requiring CargoX to use reasonable efforts to apply reliable methods for establishing exclusive control and identifying the person in control.¹²⁸ Clause 14.3 makes CargoX liable for loss, damage or delay directly caused by a failure of the Services within its reasonable control, subject to cl 14.2 and the liability limits in cl 15.¹²⁹ This creates a relatively direct link between liability and platform power. However, cl 14.1 excludes liability where any cause of the loss falls outside CargoX's reasonable control.¹³⁰ As a result, even where a function managed by CargoX contributes to the loss, mixed causes may still leave the whole loss with the User. Clause 15 also caps liability at €1 million per User per year and €5 million per year for all Users in aggregate, including interest and costs.¹³¹ CargoX therefore links liability more directly to the scope of its control than Bolero or WaveBL, but the mixed-cause exclusion and annual caps still create a mismatch.

The preceding analysis shows that risk allocation operates at two different stages: whether liability arises and how much can be recovered once liability is established. A contract may leave users bearing losses by excluding a class of failures from platform liability or by limiting compensation after liability is established. Both mechanisms can leave users exposed to losses arising from platform-controlled functions.

4.1.2 Intervention risks

Intervention risk concerns both the user conduct that may trigger a measure and the platform's decision to impose, maintain or lift it. Users control matters such as payment and compliance with the terms of use. Whether to suspend or terminate access, what measures to take and when to restore access are matters for the platform operator. Where an actual user breach triggers a contractually permitted measure, the resulting loss may reasonably be left with the user. A different question arises, however, where the loss results from a mistaken assessment, an excessive measure or a failure to restore access as required.

¹²⁸ CargoX, CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0 (May 2025), cls 4; 6; 17.

¹²⁹ Ibid, cl 14.3, subject to cl 14.2 and the limits in cl 15.

¹³⁰ Ibid, cl 14.1.

¹³¹ Ibid, cl 15.

WaveBL leaves the risk of mistaken intervention with the Customer (the SaaS Terms use 'Customer' as the defined term for the contracting party). Under cl 5.3 of the SaaS Terms, OGY may immediately suspend access where it reasonably considers that the Customer's use of the Platform may cause harm, violate applicable law or fail to meet reasonable standards.¹³² The clause also excludes liability for suspensions based on those grounds.¹³³ Suspension therefore does not always require proven misconduct by the Customer. OGY's assessment under the clause may trigger intervention. Even if that assessment later proves to be wrong, the Customer may still bear the consequences of temporarily losing access to the eBL, provided that OGY's decision met the contractual standard. The extent of this mismatch depends on whether OGY's assessment satisfies the clause and how the exclusion operates with the other liability provisions.

Bolero and CargoX allocate intervention risk in different ways. Bolero allows suspension or termination for User breach and, if the breach can be remedied, requires the System Provider to give the User reasonable notice and an opportunity to remedy the breach.¹³⁴ This limits the circumstances in which the System Provider may intervene. If it intervenes without satisfying those requirements, any compensation may still be subject to the exclusions and liability cap in cl 9, leaving the loss with the User.¹³⁵ CargoX takes a different approach. It may revoke a licence at any time without giving a reason, giving CargoX broad discretion to terminate access.¹³⁶ However, cl 3 allows existing eBLs affected by the revocation to continue to be processed until Switch to Paper or Accomplishment.¹³⁷ This does not preserve the User's general access, but may reduce the effect of licence revocation on existing eBLs.

The intervention power identified in Part Three mainly concerns user access and transaction processing, though it does not include a general power to reverse completed results. The analysis here therefore focuses on access and transaction processing. Where intervention is triggered by an actual user breach and carried out in accordance with the contract, leaving

¹³² OGY Docs Inc, WAVE BL SaaS Platform Terms and Conditions, cl 5.3.

¹³³ Ibid.

¹³⁴ WiseTech Global, Bolero Terms of Use 2025.1, cl 8.

¹³⁵ Ibid, cl 9.

¹³⁶ CargoX, CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0 (May 2025), cl 3, 'The CargoX Licence'.

¹³⁷ Ibid, cl 3.

the loss with the user generally matches the allocation of power. The real mismatch arises where the platform operator controls the assessment of the reasons for intervention, the measure taken and the restoration of access, but the contract still leaves some of the loss from a mistaken or improper intervention with the User.

4.1.3 Continuity risks

Continuity risk concerns whether an existing eBL can still be used after a user loses credentials, the system fails, or the platform stops service. Users manage their own credentials, private keys and backups, while platform operators manage platform access, identity mapping, processing and recovery. Moving the eBL to another system or switching to paper may also require the cooperation of the carrier, current holder or originating user.¹³⁸

Keeping records is only the first step. The current holder must still be identifiable, and the eBL must still be capable of being transferred or surrendered, either through the original process or an alternative one. Continuity risk therefore raises two questions: who bears the loss caused by an interruption, and whether the contract provides a workable way to recover or exit.

The three platform contracts generally leave users responsible for credentials, private keys, and backups. This allocation broadly reflects their control over those matters. For failures in functions managed by platform operators, the liability provisions examined in section 4.1.1 determine whether compensation is available and how much can be recovered.¹³⁹ Some interruption losses may therefore remain with the user even where restoring use depends on a step controlled by the platform.

The three platforms provide different forms of continuity protection after the service ends, as discussed in section 3.3. WaveBL provides only a limited opportunity to retrieve data, so a Customer may still be unable to continue using an existing eBL even after obtaining a copy of the data. Bolero and CargoX preserve a route for continued processing or Switch to Paper, but these routes still depend on the user, carrier or Originating User completing the necessary

¹³⁸ Originating User is the term used in the CargoX ST&C for the User that originally creates or uploads the eBL to the CargoX Platform.

¹³⁹ See section 4.1.1.

steps. These arrangements preserve different parts of the exit process, but they do not necessarily allow the user to continue using the eBL. A mismatch can arise when the platform controls a necessary step with no practical substitute, but the user still bears the loss from that step being unavailable.

Across the three categories, risks arising from matters controlled by users are generally allocated to them. For functions managed by operators, contractual duties coexist with exclusions, liability caps and arrangements intended to preserve existing transactions. An operator may therefore control a system function while the user bears some losses caused by its failure. The next section examines why these mismatches arise and whether the reasons justify the particular exclusions and limits adopted.

4.2 Why the mismatch exists

One explanation for the mismatches identified above lies in the structure of eBL contracts. All three contracts add a limited layer of platform liability to the existing responsibilities in the underlying transaction. This structure can be traced partly to the historical role of eBL contracts. Before eBLs gained wider legal recognition, multipartite agreements let participants replicate the rights and obligations of paper bills. IG approval likewise sought to ensure that using eBLs would not prejudice carriers' P&I cover.¹⁴⁰ The platform contracts were not designed to reallocate all responsibility based on the platform's new functions. This same approach can be seen in the terms. CargoX, cls 7–8, connect eBL with the rights and obligations of the paper bill, while WaveBL, cls 34–37, leave responsibility for the underlying transaction and its performance with users.¹⁴¹ Traditional transaction responsibility forms one layer, while platform liability for new risks the system creates forms another.

This two-layer structure matters especially for supply-chain platforms such as eBL platforms. The platform remains outside the underlying carriage or sale transaction, yet some key eBL functions depend on its system. A paper bill of lading traditionally performs three main functions: it is a receipt of goods, evidence of the contract of carriage, and a document of

¹⁴⁰ International Group of P&I Clubs, *Electronic Bills of Lading: FAQs*, Q6.

¹⁴¹ CargoX, *CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0* (May 2025), cls 7–8; WAVE BL Network Bylaws v 2.0, cls 34–37.

title.¹⁴² In the electronic environment, the document of title function depends especially on a reliable system to link it to the person in control and transfer that control.¹⁴³ This creates the tension behind the mismatch: how far its power over these necessary functions should translate into liability when those functions fail.

The original IG approval framework partly addressed this tension. System providers that do not qualify for the streamlined approach or deemed approval must still go through the original approval process. The IG requires those platforms to accept liability for system failure and maintain sufficient insurance to cover liability for system faults or failure.¹⁴⁴ This creates a separate liability route for losses caused by electronic system failure, alongside the responsibilities arising from the underlying transaction. However, since 20 February 2025, platforms that qualify for deemed approval no longer need to go through the original approval process.¹⁴⁵ Deemed approval mainly requires the platform to use legally recognised, compliant e-bills and demonstrate that its system is reliable, but it does not expressly require the operator to accept system-failure liability or maintain sufficient insurance.¹⁴⁶ The platform contract still determines what counts as a system failure, when liability arises, and how much can be recovered. Platform liability therefore does not correspond to all of the platform power. It covers only part of the risks.

Because platform liability covers only part of these risks, the mismatch identified in section 4.1 takes two forms. The first concerns when platform liability arises. Even where a platform fails, the failure may not satisfy the contractual failure category or causation requirements, so platform liability may not arise at all.¹⁴⁷ The second concerns how much can be recovered once platform liability has been established. Limits on recoverable loss and liability caps may

¹⁴² Goldby (n 20) para 2.47; Girvin (n 20) ch 10.

¹⁴³ UNCITRAL Model Law on Electronic Transferable Records with Explanatory Note (2017), arts 10–12 and Explanatory Note para 107; Law Commission, *Electronic Trade Documents: Report and Bill* (Law Com No 405, HC 1188, 2022) paras 2.106–2.109; 6.154–6.158; Electronic Trade Documents Act 2023, s 2(2); 2(5).

¹⁴⁴ International Group of P&I Clubs, ‘International Group Requirements for Electronic Trading System Providers’ (4 February 2025), introductory scope and requirements 6 and 10.

¹⁴⁵ International Group of P&I Clubs, ‘Electronic Bills of Lading: Notification of New Process’ (4 February 2025), paras 1; 6–8.

¹⁴⁶ Ibid, paras 6–8; see also International Group of P&I Clubs, ‘International Group Requirements for Electronic Trading System Providers’ (n 144), requirements 6 and 10.

¹⁴⁷ WAVE BL Network Bylaws v 2.0, cl 38(ii)–(iii); CargoX, CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0 (May 2025), cls 14.1; 14.3.

still leave part of the loss with the user.¹⁴⁸ This distinction matters because the two types of limitation require different justifications. Commercial predictability, insurance premiums and risk pricing may support liability caps, but they do not by themselves explain why a failure should fall outside liability altogether. The next step is to consider separately why the contracts limit when liability arises and why they limit the compensation available once liability is established.

The first question is why the contracts limit when platform liability arises. The contracts first decide which system problems should trigger platform liability without imposing liability for every failure. WaveBL sets this threshold through the duration and scope of the failure, the actions affected and causation.¹⁴⁹ CargoX focuses more directly on whether the failure was within its reasonable control and whether it directly caused the loss.¹⁵⁰ These limits help separate problems for which the platform should be responsible from those caused by other factors. But that only explains why some threshold is needed. It does not show that the particular threshold is appropriate, especially when it excludes a local or short-term failure.

The next question is why, even after establishing platform liability, some losses still fall to the user. If a user could reasonably have avoided the loss by switching to paper but failed to do so, there is a clear reason for leaving that avoidable loss with the user. But that reasoning does not justify WaveBL's exclusion of loss of profits or indirect or consequential loss, because the fact that a loss falls into one of those categories does not mean that the user could have avoided it. The liability caps used by Bolero and CargoX have a different commercial rationale. A single system incident may affect many users and eBLs, while service fees may bear little relation to the value of the goods or the potential transaction losses. Platforms may therefore need to limit their maximum exposure.¹⁵¹ But this does not explain why a particular cap is set at a particular level. CargoX's annual aggregate cap for all users also means that the amount available to one user may depend on claims made by others. Whether a particular cap is appropriate depends on factors such as service fees, reasonably foreseeable system losses,

¹⁴⁸ WiseTech Global, Bolero Terms of Use 2025.1, cl 9; WAVE BL Network Bylaws v 2.0, cl 38(iv); CargoX, CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0 (May 2025), cl 15.

¹⁴⁹ WAVE BL Network Bylaws v 2.0, cl 38(ii)–(iv).

¹⁵⁰ CargoX, CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0 (May 2025), cls 14.1; 14.3.

¹⁵¹ WAVE BL Network Bylaws v 2.0, cl 38(iv); WiseTech Global, Bolero Terms of Use 2025.1, cl 9; CargoX, CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0 (May 2025), cl 15.

insurance coverage, and the number of users and transactions covered. The fact that liability caps help with pricing and insurance does not justify the specific amount or the way the cap is shared.

Even if these limits are justified, users will ultimately bear some losses. To get a more complete picture, it is necessary to examine whether the contract provides other ways to minimise these losses, or whether alternative mechanisms can compensate for them. Two questions arise. First, are alternatives such as Switch to Paper or continued processing of existing eBLs actually available during the disruption? Secondly, are the residual losses that the user was unable to avoid covered by insurance? On the first question, whether Switch to Paper or continued processing can reduce the loss depends on whether those alternatives can actually be used. If the records, access or processing needed for Switch to Paper are affected by the same system failure, or if the carrier or users cannot cooperate in time, the user may be unable to complete the conversion even if it has the right to request it.¹⁵² In that situation, a requirement to mitigate does not show that the loss could have been avoided. Nor does the availability of Switch to Paper remove the user's dependence on the affected part of the system.

As to the second question, whether insurance covers losses that cannot be avoided depends on the policy. CargoX's commitment to insure its potential liability may increase the possibility that platform liability within the insured scope will actually be paid. But it does not mean that losses for which liability does not arise, losses that are excluded, or amounts above the liability cap are also insured.¹⁵³ To assess whether these arrangements actually address the risks left with the user, it is necessary to ask what practical steps the user can take to reduce the loss and whether insurance covers what remains. If the same failure blocks the alternative way and insurance does not cover the remaining loss, that risk is still left with the user.

With these alternative mechanisms in mind, the pattern becomes clearer: some mismatches have clear explanations. Control and causation can explain some allocations, particularly

¹⁵² WiseTech Global, Bolero Terms of Use 2025.1, cls 8.2 and 11.2; Bolero International Ltd, Bolero Rulebook (1st edn, September 1999), r 3.7; WaveBL, 'Request 'Switch to Paper' as the Consignee'; CargoX, CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0 (May 2025), cls 3 and 9.

¹⁵³ CargoX, *CargoX Electronic Bill of Lading Solutions Special Terms and Conditions 2.0* (May 2025), cl 15. CargoX undertakes to insure its potential liability under that clause.

when third parties cause losses. Others can be explained by mitigation, where the user could reasonably have avoided the loss. Pricing and insurance can also limit compensation. Two situations remain less clearly explained: where a failure occurs in a necessary function managed by the platform but does not trigger liability, and where liability is established but the user still bears losses it could not reasonably avoid. If Switch to Paper, continuity arrangements, and insurance also fail to address those risks, the user bears losses from functions it cannot control but must still rely on. The next section builds on these remaining gaps to consider what they mean for interpreting and assessing liability limits, and for reliable-system assessment.

4.3 Some legal implications

The previous sections identify the risks left with users and the reasons that may support that allocation. Power analysis has two further legal implications. Where applicable law requires review of the reasonableness of an exclusion or limitation, it helps identify relevant facts about control, dependence and the user's ability to address the risk. It also identifies the system functions on which the legal operation of eBLs depends, helping to focus the assessment of system reliability.

Where a review for reasonableness applies, power analysis can connect the legal standard to the particular risk allocation. Under UCTA 1977, the assessment concerns the circumstances known, or reasonably expected to have been known or contemplated, when the contract was made.¹⁵⁴ For monetary caps, particular attention must also be given to the resources the party could expect to have available to meet liability and its opportunity to obtain insurance.¹⁵⁵ The analysis in sections 4.1 and 4.2 helps assess the parties' expected ability to prevent or address the relevant failures. Responsibility for incorrect information or reasonably avoidable loss may support allocation to the user. A complete exclusion requires closer justification where failure occurs in a necessary function controlled by the operator and the user has no practical means of correction or substitution. For caps, pricing, cumulative exposure and insurance

¹⁵⁴ Unfair Contract Terms Act 1977, c 50, s 11(1). The Act is used here as an example of a statutory reasonableness review of exclusion and limitation clauses.

¹⁵⁵ Ibid, s 11(4).

must be related to the particular amount chosen. These considerations contribute to the assessment alongside the other relevant circumstances.

Power analysis also helps identify the arrangements relevant to system reliability. Platform liability allocates the economic consequences of failure, while reliability assessment concerns the system's ability to perform the functions required by law. Section 2 of the ETDA requires a reliable system to distinguish the document from copies, prevent unauthorised alteration, maintain exclusive control, allow the person in control to demonstrate that control, and ensure that transfer divests the transferor of control.¹⁵⁶ Relevant factors include system rules, information integrity, access and system security, independent audits and industry standards.¹⁵⁷ Where these functions depend on records, identity mapping or processing managed by the operator, the assessment should examine the supporting authentication, access controls and error-correction arrangements. Backup and restoration are also relevant where they support continued performance of those functions. Paper conversion and other exit arrangements address whether existing transactions can continue through another route after disruption. Power analysis therefore links reliability requirements to the specific system arrangements users depend on.

Part Four shows that some mismatches can be justified, while others remain less clearly explained. The coexistence of traditional trade liability and limited platform liability means the user still bears some system risks managed by the operator. This allocation may have commercial reasons, but different mismatches require different justifications. Where the problem arises in a system function, and the user has no practical way to correct or bypass it, the mismatch has greater legal significance. Such a mismatch may be relevant to a reasonableness review of exclusions and limitations of liability. Power analysis can also help identify the system arrangements on which the legal operation of an eBL depends and which should therefore form part of a reliable-system assessment.

¹⁵⁶ Electronic Trade Documents Act 2023, s 2(2).

¹⁵⁷ Ibid, s 2(5).

5 Conclusion

The development of eBLs may appear to reduce reliance on offline intermediaries, but digitalisation does not remove that dependence. It actually changes where this dependence lies. In other words, digitalisation does not change the source of the underlying rights, but it does change the infrastructure on which those rights operate in practice. Platform power may not come from control over the underlying rights or transaction decisions. It can also arise from control over particular parts of the system. The right unit of analysis is the specific function or process, not the overall identity of the platform. Power-risk mismatch may also have a structural source: existing transaction responsibilities remain in place, while limited platform liability is added on top. As a result, the platform may manage a wider range of system functions than the failures and losses covered by its liability. In other words, the fact that an electronic record can legally replace a paper document does not mean the risk allocation developed for the paper-based environment is sufficient to address the new risks created by digital systems.

This conclusion is not limited to eBLs. As digital trade increasingly depends on private platforms, technology-neutral legislation may specify the legal functions that electronic records must perform, but it cannot, on its own, determine who controls the conditions on which those functions depend. Platform contracts and system architecture further shape who can access the system, which actions are recognised, and whether existing transactions can continue after system failure or service termination. Therefore, legal analysis of digital trade platforms should go beyond asking whether the platform qualifies as merely a technology provider. It should go further and ask: which legally significant outcomes depend on conditions controlled by platforms, and how do contracts and reliable-system frameworks respond to that dependence? The legal significance of platform power ultimately comes from control over these operating conditions, not from the label the platform gives itself.