

خلاصه گزارش مشورتی ابزارهای دیجیتال اسناد تجارت الکترونیک

کمیسیون حقوقی انگلستان و ولز، گزارشی از فرایند مشورتی انجام شده پیرامون اصلاح قانون پیشنهادی درباره به رسمیت شناختن مدارک و اسناد تجارت الکترونیکی را با هدف استفاده حقوقی همسان آنها با نسخ کاغذی، در تاریخ ۳۰ آوریل ۲۰۲۱ (برابر با ۱۰ اردیبهشت ۱۴۰۰) منتشر نمود.

چکیده گزارش تهیه شده توسط کمیسیون حقوقی مزبور، به پیوست است.

این امر به واسطه آن که، نمایی از آنچه دیگر مراجع قانونی پیرامون دستیابی به اهداف خود در حوزه دیجیتال سازی تجارت، اتخاذ می نمایند، دارای اهمیت است.


اسناد تجارت الکترونیک، برعکس اسناد تجارت کاغذی، غیر ملموس هستند. بنابراین نمی توان آنها را به صورت فیزیکی در اختیار داشت و تحت قوانین حقوقی جاری، استفاده قانونی محدودی دارند. در عصر دیجیتالی سازی، جایگاه کنونی قانون نامطلوب تلقی می شود؛ زیرا هم راستا با ایجاد تغییر در مبادلات تجاری و صنعت تامین مالی تجاری و همسو مبادلات غیر کاغذی نیست.

اصلاحات پیشنهادی در صورت رفع برخی الزامات و نیازها به منظور به رسمیت شناختن قانونی اسناد تجارت الکترونیک مطرح هستند. این اصلاحات می تواند در بخش های مختلف اسناد تجاری متمرکز بر موارد ذیل و نه فقط محدود به این موارد باشد:

- برات ها،
- سفته ها،
- و بارنامه ها.

اسناد تجارت الکترونیک به کمک فناوری دفترکل توزیع شده، می توانند به اندازه اسناد کاغذی کاربرد داشته و موارد مشابه منجمله: موجودیت مستقل، قابلیت واگذاری، قابلیت کنترل انحصاری را عملی سازند. همچنین داده های الکترونیکی قابل تملک خواهند شد و مشخصات مستندات نامشهود را به اشتراک می گذارند و در نهایت، تحول و گذر از مستندات کاغذی به الکترونیکی و دیجیتالی سازی تجارت را تسهیل می نمایند.

تجارت بین المللی سالانه ۴ تریلیون سند کاغذی را مصرف می نماید. دیجیتالی سازی تجارت و این اصلاحات می تواند هزینه های کمتری را به ذینفعان تجارت تحمیل نموده و همچنین، منتج به منافع زیست محیطی شود.



Digital assets: electronic trade documents








Summary of
consultation paper



**Law
Commission**
Reforming the law

Digital assets: electronic trade documents

Summary of consultation paper

What is this paper about? 	Documents such as bills of lading and bills of exchange, used in international trade, which under the current law have to be in paper rather than electronic form.
What are we doing? 	We are conducting a public consultation on provisional proposals to allow for electronic trade documents to have the same effect in law as their paper equivalents. As well as consulting on the underlying policy, we have prepared a draft Bill which would implement our provisional proposals and welcome views on it.
Where is the full consultation paper and draft Bill? 	The consultation paper and draft Bill are available on our website at https://www.lawcom.gov.uk/project/electronic-trade-documents/ .
Who do we want to hear from? 	We are keen to receive comments from as many stakeholders as possible, including international trade participants, tech companies, lawyers and academics.
How do I respond? 	<p>Please respond using the online response form at https://consult.justice.gov.uk/law-commission/electronic-trade-documents. If you are unable to use the online response form, comments may be sent:</p> <ol style="list-style-type: none">1. by email to electronictrade@lawcommission.gov.uk; or2. by post to Electronic Trade Documents, Law Commission, 1st Floor, Tower, 52 Queen Anne's Gate, London, SW1H 9AG.
What is the deadline? 	The consultation closes on 30 July 2021.
What happens next? 	We will analyse all responses received and produce a final report with formal recommendations for law reform. It will be for government to decide whether to implement the recommendations.

Introduction

International trade is worth £1.153 trillion annually to the UK, according to figures from the Department for International Trade. The process of moving goods across borders in order to get them from the seller to the buyer typically involves a multiplicity of actors including transportation, insurance, trade and/or supply chain finance and logistics service providers. A single transaction typically involves 20 entities and between 10 and 20 paper documents, totalling over 100 pages. It has been estimated that the industry generates four billion paper documents per year.

Despite the size and sophistication of this market, many of its processes (and the laws underlying them) are based on practices developed by merchants hundreds of years ago. A prime example of this is the continued use of paper documents, despite recent developments in technology which would allow for secure, reliable, and non-fungible electronic documents to have the same effect in practice as their paper equivalents.

The legal rules governing certain trade documents, including bills of lading, bills of exchange and warehouse receipts, are premised on the idea that they are paper documents which can be possessed in the eyes of the law, and physically transferred between parties. The current law of England and Wales does not recognise the possibility of possessing electronic documents. The law therefore does not facilitate a move to paperless processes.

We think that this legal position is archaic, inefficient, and wholly unsuited to an increasingly digitalised world. Allowing for electronic versions of trade documents could lead to significant cost savings and efficiencies, together with improvements

in information management and security. It could also make the sector more resilient to the type of restrictions on movement and human-to-human contact that were imposed in response to the COVID-19 pandemic. With the development of technologies such as distributed ledger technology over the past decade, this vision of paperless trade has become increasingly feasible. However, the law continues to lag behind.

This is a summary of a longer consultation paper. In that paper, we set out our provisional proposals for law reform to allow for electronic trade documents to have the same legal effects as their paper counterparts, provided that they meet certain requirements enabling their possession in a digital context. Accompanying the consultation paper is a draft Bill which would implement those proposals, as well as explanatory commentary. Throughout the paper, we ask consultees for their views.

This document explains, in brief, what the project is about, provides some context, and provides an overview of key issues discussed in the consultation paper. This document does not include the draft Bill or the consultation questions. Before responding to the consultation, you are encouraged to read our full consultation paper, or the relevant parts of it. You do not need to answer every question.

This work on electronic trade documents forms the first phase of our work on digital assets. Alongside the consultation paper, we have published a short call for evidence on digital assets in general, including cryptoassets. That paper can be accessed at <https://www.lawcom.gov.uk/project/digital-assets/>.

The nature of the problem

In Chapter 2 of the consultation paper, we outline the current law of possession, and explain why it acts as an impediment to the use of electronic trade documents. We consider contractual workarounds that have been developed by industry, and explain that the development of distributed ledger technology has enlivened the possibility of electronic trade documents that in practice work analogously to their paper counterparts.

The possession problem

If a person has possession of a tangible object, they are generally in physical control of it; for example, by holding it in their hand. For larger objects, such as goods in a warehouse, it is sufficient, for example, physically to control the key to the warehouse in order to possess everything inside. The recognition that something can be possessed determines the legal treatment that it subsequently receives, and affects the possessor's legal rights in relation to it.

Possession is not the same as ownership. A person can be in possession of an object that is owned by someone else. For example, if Alice hires a car from Bob, Alice is in possession of the car while Bob remains the owner. Possession is a matter of *fact*.

Historically, English law has divided personal property into things that are capable of being possessed (such as a bag of gold) and things that can only be enforced through a court action (such as a debt). The assumption in the law has been that tangible things comprise the former category, and intangible things the latter. Intangible things could not be possessed.

That assumption was affirmed as a rule of law by the House of Lords in 2007 in *OBG v Allan*. In that case, the House of Lords held (by a three to two majority) that an intangible asset could not be possessed. In the wake of that decision, the Court of Appeal considered (in *Your Response Ltd v Datateam Business Media Ltd*) whether an electronic database could be the subject of a lien (a form of security in which the secured party is in possession of the relevant property). The analysis therefore turned on whether the intangible electronic database could be possessed. Moore-Bick LJ held, following *OBG v Allan*, that it could not.

As a result, the current state of the law is that tangible things can be possessed but intangible things cannot. This reflects the traditional understanding of possession as a legally significant relationship between a person and a *tangible* item of property. Importantly, the category of intangibles includes electronic documents, which means that electronic documents cannot be possessed.

The relevance of this to our project is that many trade documents which are essential in international trade (such as bills of lading) are only able to achieve desired legal effects because they can be possessed. As English law (as well as the law of almost all other jurisdictions) does not recognise the possibility of possessing an electronic document, international trade and trade finance transactions are still largely documented on paper (there are some electronic workarounds, discussed below). The current law on possession is therefore the principal legal blocker to digitalisation of trade documents under the law of England and Wales.

Contract-based electronic documents

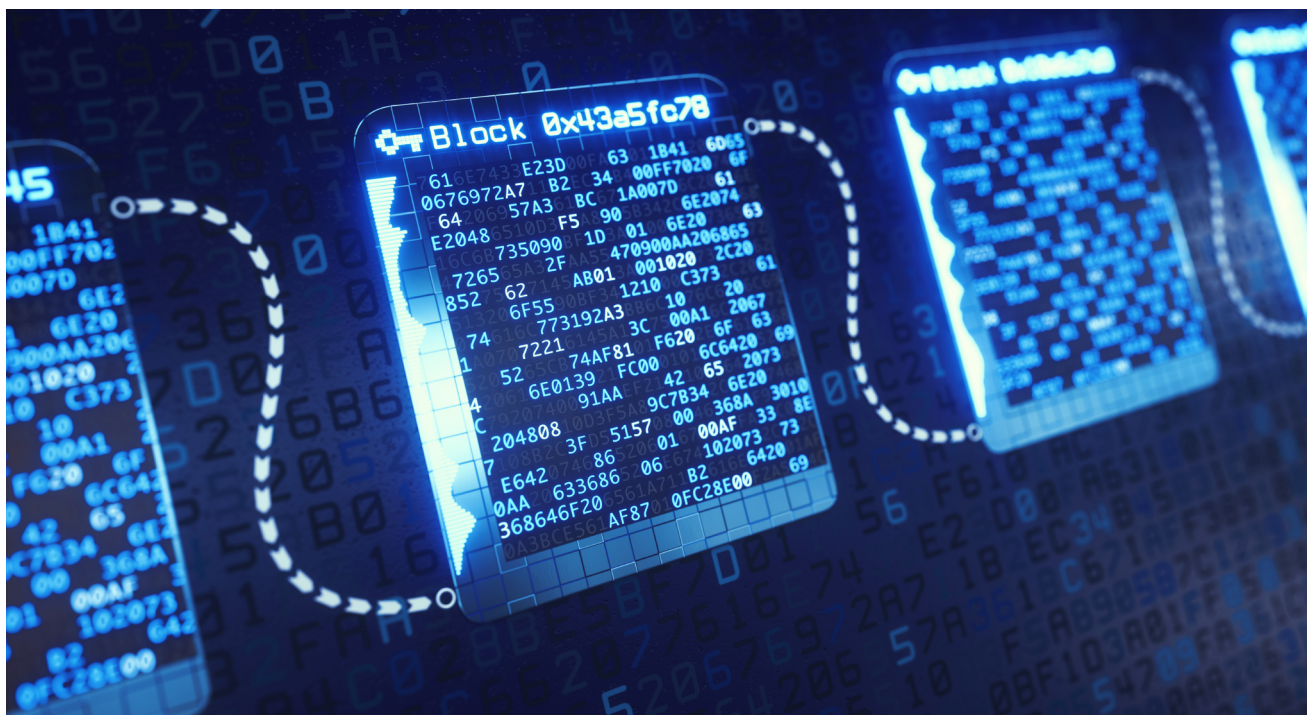
Given the significant benefits to be gained from electronic trade documentation, it is unsurprising that a number of workarounds to the possession problem have been developed by industry. These workarounds require parties to agree among themselves to recognise electronic documentation as having certain effects (examples include Bolero and essDOCS). The resulting multipartite agreements generate contractual rights that are broadly equivalent to the rights that follow from the possession of the relevant paper trade document.

Crucially, however, these contract-based electronic trade documents are only binding on those parties who have contracted with each other to determine who will be deemed to have possession throughout the transaction. In contrast, possession of a paper trade document can give rights which are enforceable against all the world. These rights are proprietary rights.

While such systems have existed for some time, their use has been limited. Ultimately, it is the proprietary rights generated by trade documents which parties involved in these transactions value most. In our paper, we ask consultees questions about the benefits and costs associated with these private contractual frameworks.

Advances in technology

The law's current view of possession made sense when it was not technologically possible to create electronic documents with the same relevant properties as physical pieces of paper (that is, sufficiently exclusive or uniquely connected to a particular party). However, digital technology has now reached a point where electronic documents can be created (primarily, at time of writing, through distributed ledger technology) which have these properties. The law has not kept up with these technological developments.



The law and practice of trade documents

In Chapter 3 of the consultation paper, we discuss the documents that fall within our provisional proposals, and explain why we include and exclude particular types of document. Our provisional proposals for reform focus on documents that are widely used in international trade and that perform certain key commercial functions. The common feature of these documents is that possession of them can generate proprietary rights in the obligations or goods described therein. Many of them fall into a category known as “documentary intangibles”.

Documentary intangibles

The general rule is that a legal right exists separately from any paper document that evidences it (such as a written contract). In handing over the piece of paper, a party does not thereby hand over the right of which it is evidence. An exception to this rule applies where an obligation is recorded in a “documentary intangible”. A documentary intangible is a paper document which actually embodies, rather than merely records, an obligation (such as an obligation to pay money). The lawful holder of the document (the person in possession of it) is recognised by law as having the right to claim performance of the obligation embodied in it. This right can be transferred by a physical transfer of the document.

This effect enables documentary intangibles to perform a variety of commercially useful functions.

1. Delivery (and, where necessary, a written indorsement from the transferor to the transferee) of a documentary intangible is sufficient to transfer the embodied obligation. There is no need for any additional step, such as a formal assignment or novation of the contract. This function promotes efficiency and convenience in commercial dealings.
2. A documentary intangible can be the subject of a bailment. A bailment is an arrangement in which one party has voluntary possession of goods belonging to another. Documentary intangibles are often bailed as part of a pledge, which means that the document is held as security.
3. Documentary intangibles are subject to different remedies for interference from other paper documents. For ordinary documents, the measure of damages for interference would be the nominal value of the paper, whereas for documentary intangibles the measure of damages is the value of the obligation or right embodied within the document.

The transfer of documentary intangibles involves the transfer of possession from one party to another. The legal and practical effectiveness of a documentary intangible is therefore premised on it being capable of being possessed.

Which trade documents are we considering?

In our consultation paper, we identify the documents which fall within our provisional proposals. These documents are united by a common characteristic: their functionality depends upon them being capable of possession, and therefore law reform is required in order for them to be legally effective in electronic form. They are as follows.

1. Bills of exchange
2. Promissory notes
3. Bills of lading
4. Ship's delivery orders
5. Warehouse receipts
6. Marine insurance policies
7. Cargo insurance certificates

Although united by a common characteristic (the relevance of possession), the documents that we wish to capture are not readily susceptible to a general definition. We use “trade documents” as a general label for the types of document outlined above. In the paper, we ask for views regarding our approach to terminology and definitions.

Our provisional proposals do not apply to sea waybills and air waybills as our understanding is that possession is not relevant to them. Nor do they cover bearer bonds or other documents of title not on the above list, as our understanding is that their use in practice is quite limited. In the paper, we ask consultees whether there are any documents that ought to be added to our list, or any documents that ought to be removed from it.



Alternative frameworks

In recent years there have been various initiatives to recognise the use of electronic documents as legally valid. In Chapter 4 of the consultation paper, we examine a number of international reform initiatives, focussing on the Rotterdam Rules, the Model Law on Electronic Transferable Records (“**MLETR**”), and amendments to the Uniform Commercial Code (“**UCC**”) in the United States. We describe and compare the ways in which each reform initiative has approached the legal validity and effect of electronic documents, and identify some overall themes which have informed the development of our proposals.

We focus on the MLETR in particular, because it is supported by stakeholders such as the International Chamber of Commerce as an international solution to the possession problem.

The Model Law on Electronic Transferable Records

The facilitation of electronic documents was the sole focus of the UNCITRAL Model Law on Electronic Transferable Records 2017. The MLETR employed the concept of exclusive factual control as a functional equivalent to possession. To be recognised as legally valid under the MLETR, an electronic document must, through a reliable method, be capable of being subject to an identifiable person’s exclusive control.

To date, the MLETR has been implemented in Bahrain, Singapore, and the Abu Dhabi Global Market. The recent developments in Singapore are of particular interest, given the similarities between Singaporean law and the law of England and Wales.

Other reform initiatives

Alongside the Rotterdam Rules, MLETR and the UCC, the consultation paper briefly considers a range of other reform attempts. We look at solutions that are less comprehensive (such as those implemented in Germany and Australia), court-led reform (as in Sweden), and state-backed registry systems (introduced in South Korea, China, and Japan). Whilst we have found it useful to consider how the possession problem has been approached in a variety of jurisdictions, we conclude that these other reform attempts are not as relevant to our work.

Emerging themes

We draw several lessons from this examination of other efforts to address the legal blocker to electronic trade documents.

1. **Harmonisation.** The law governing electronic trade documents should be as harmonised as possible among different jurisdictions given the international and multi-jurisdictional nature of trade.
2. **Technological neutrality.** There is an emerging consensus that in order for reforms to be future-proof, they should not be premised on any particular form of technology. We believe that this approach will foster innovation and allow more flexible commercial arrangements to be reached.
3. **Control.** The three major avenues of reform outlined in this summary (as well as others considered in the consultation paper) have settled on the concept of “control” of an electronic trade document as being in some way equivalent or analogous to possession of an equivalent paper trade document. This provided useful context for our provisional proposals for English law.

Possessing electronic trade documents

As explained above, in the past it was logical for the law to assume that only tangible things could be possessed. Recent advances in technology enable digital things to be given a unique identity and to be associated exclusively with one person, so it is easier to conceive of them as possessable in practice. From the legal perspective, this possibility prompts two key questions:

1. What are the salient properties of physical things which make them possessable in the eyes of the law?
2. How can those properties be extrapolated to the digital context?

Our approach has therefore been to revisit the case law on the nature of possession and to identify the salient properties that make something possessable. In Chapter 5 of the consultation paper, we consider the current case law on possession, and provisionally propose a set of criteria extrapolated from it which could accommodate electronic trade documents.

Several key cases suggest that tangibility is no more than a proxy for important characteristics that make something capable of being possessed. In our view, these important characteristics are that:

1. Possession is assessed relative to what is practically possible in relation to the particular thing in question. We think this means that there should be a way of possessing an electronic document, taking into account its electronic form.
2. The ability to control an asset is more important for possession than physical custody of it. We think we therefore need to focus on the ability to control an

electronic document, and the ability to prevent others from controlling it.

Taking these factors and applying them to a digital context, we have sought to identify the qualities that an electronic document would need to have before it could be said to be possessable as a matter of fact. To put it simply: what is the digital equivalent of holding something in your hand?

We provisionally propose that an electronic document should be capable of being possessed in the eyes of the law if all the following three criteria are met:

1. The electronic document has an existence independent of both persons and the legal system (that is, it is not a bare legal right such as a debt).
2. The electronic document is capable of exclusive control: the nature of the thing does not support concurrent assertions of occupation or use.
3. The electronic document must be fully divested on transfer. That is, if A transfers the electronic document to B, A must no longer be able to control the document.

Independent existence

An independent existence is a characteristic common to all those things that are currently amenable to possession; that is, they are more than bare legal rights such as debts or contractual claims. Although not currently capable of being possessed in law, all of the electronic trade documents which we have identified also have an existence which is not solely grounded in a legal right.

Capable of exclusive control or use

Throughout the cases we examined, it is clear that one of the important corollaries of being in possession of a thing is the ability exclusively to control or to use the thing in question. Extrapolating to electronic trade documents, it is clear that a person must be able exclusively to control or use that electronic document in order to be considered in possession of it.

We provisionally propose that this criterion should be governed by the concept of control, where control is defined as the ability to use, as well as to transfer or otherwise to dispose of, the electronic trade document. Under our proposals, the electronic trade document must be on a system that ensures that no more than one person (or group of persons, acting together) has control of the electronic document at any one time.

Necessarily divestible

The ability to transfer and dispose of something is key to the concept of possession. If Alice gains possession of a physical object from Bob, this necessarily involves Bob relinquishing possession (voluntarily or not) and being divested of the thing. Bob might still retain certain legal rights in the thing, but cannot logically remain in possession of it.

In order to be in keeping with this element of possession, therefore, electronic trade documents would also need to have this property. We therefore provisionally propose that, to be possessable, an electronic trade document must be on a system which dictates that the transferor no longer has control of the electronic document after transfer.

We have considered whether such a requirement is simply a subset or logical consequence of the requirement for exclusive control. However, our provisional view is that this property of divestibility may not be automatically true for any and all technological systems developed in the future. We therefore include it as a separate requirement, and ask consultees for their views.

The ability to retain an archive copy of the document after transfer (for example, for archival purposes) would not prevent the divestibility requirement from being satisfied.

What amounts to possession of an electronic trade document?

We provisionally propose that possession of an electronic trade document will work as follows:

1. the person who has control of an electronic trade document is the person in possession of it; and
2. possession is transferred from one person to another when the transferee gains control of that electronic trade document.

We consider our core provisional proposals to be compatible with the MLETR. While not identical, the substance and effect of the central provisions of our draft Bill and the MLETR are very similar. Any differences from the MLETR are prompted by the need to ensure that electronic trade documents can fit comfortably within the existing body of English law.

Using electronic trade documents

In Chapter 6, we consider how electronic trade documents would work in practice, and provisionally propose legislative provisions (where necessary) to address these practicalities.

Formalities and issue

The MLETR requires that a “reliable method” is used to retain the integrity of the electronic document, identify the electronic record, and render that record capable of being subject to control. These provisions are intended to provide evidence as to the document’s integrity and provenance, and ensure that any tampering or interference with an electronic document is immediately identifiable. We do not propose that electronic trade documents should be subject to statutory requirements for integrity and reliability, as we consider both issues to be existing requirements imposed by the general law in England and Wales.

All of the trade documents with which we are concerned are required to be in writing and signed. The law of England and Wales already recognises electronic documents as capable of satisfying a requirement for something to be “in writing”, and that electronic signatures are capable of satisfying a legal requirement for a signature. It is not therefore part of our provisional proposals to include an explicit provision covering electronic writing, electronic signatures, or the appearance of electronic documents in our draft Bill. In our view, such matters are already adequately catered for by general English law.

One particularly important process involving trade documents is indorsement. An indorsement is a signed annotation on a document (written on the back by convention) instructing that the obligation recorded therein be performed to the order of a named person, or simply “to order”. What constitutes the back of an electronic trade document is at best ambiguous, so we provisionally propose that the legislation should include a provision clarifying the meaning of indorsement in this context.

It is common practice for some trade documents to be issued in sets of three. However, as this practice is not required by legislation, we do not consider it necessary to require that electronic trade documents can be issued in sets. We ask consultees whether this practice would be relevant to electronic documents.

Transfer

In the consultation paper, we discuss the concepts of delivery, rejection, and amendment of an electronic trade document. We do not consider that any specific legislative provision needs to be made for these issues. In our view, these concepts are either sufficiently clear in the existing law or are a matter of functionality best determined by the relevant technology platforms.



Security interests

It is one of the guiding principles of our reform that electronic trade documents should be capable of being used in exactly the same way as paper trade documents. Our view is that as a consequence of our provisional proposed reforms, an electronic trade document should be capable of being the subject of possessory concepts. These include bailment, conversion, and possessory security interests such as pledges and liens which require physical possession of the asset. We provisionally propose a statutory modification to ensure this effect.

Surrender and accomplishment

Once paper trade documents have served their purpose, they are considered spent. Bills of lading, for example, are stamped as “accomplished” once the cargo is delivered. In much the same way as a paper document continues to exist physically after it is spent, it is likely that an electronic trade document will remain on the system after it is spent as a record or archive copy, but marked as “accomplished” or “discharged”.

We do not consider that anything explicit is required in legislation to provide for the discharge, surrender, or accomplishment of electronic trade documents; the existing provisions for paper documents will apply. We expect that these features will be provided for by the relevant technology platforms.

International issues

Trade documents are often used in cross-border transactions and must therefore be amenable to tender or presentation under contracts governed by different laws, as well as use in multiple jurisdictions.

As most other legal systems do not recognise the validity of electronic trade documents, we provisionally propose as part of the draft Bill to allow a change of medium for trade documents from electronic form to paper, or from paper to electronic form.

While we can only make recommendations for the law of England and Wales, we hope that the adoption of our provisional proposals here will help facilitate a broader global recognition of electronic trade documents.

We are aware that work is underway to create electronic documents that conform to particular international standards. Our provisional proposals do not make the legal effect of an electronic trade document contingent on it meeting any particular international standard, although we recognise that such initiatives will be important for promoting interoperability between different platforms.

We recognise that electronic documents, as with other digital assets, present difficulties when it comes to determining their geographical location. This suggests that conventional rules in private international law might not work well in this context; however, we cannot satisfactorily answer this question within the scope of this project or for the purposes of electronic documents alone. Such questions may be considered by the Law Commission in the future; we discuss a potential project on conflict of laws in the digital sphere in our consultation document for our next programme of law reform, available at <https://www.lawcom.gov.uk/14th-programme/>.

Form and application of the draft Bill

Our provisional proposals take the form of a standalone draft Bill. We are aware of suggestions that electronic trade documents could be accommodated by secondary rather than primary legislation; for example, using the power under section 8 of the Electronic Communications Act 2000.

However, we do not consider that this option is wide enough to allow for the reforms we are proposing, given that those powers relate only to amending existing legislation and not common law.

We propose that any reform should only affect electronic trade documents created or “issued” after the legislation is passed. It should have no effect on existing electronic trade documents used in private contractual agreements. We have provisionally used the language of “issue” as it is our understanding that it is a term commonly used to indicate the moment at which the document becomes legally effective.



The transactions we are considering involve mainly commercial data relating to corporations rather than personal data which is protected under data protection laws. However, we understand that it would not be unusual for elements of personal data to find their way into the transaction data. Regulatory matters, including the relevant data protection requirements, are beyond the scope of this project. We do not anticipate that our proposed reforms will have any impact on the application of data protection rules and requirements; that is, the same data protection laws will apply to electronic trade documents as apply to paper ones.

Impact of our provisional proposals

In Chapter 7 of the consultation paper we set out the potential costs and benefits of digitalisation of trade documentation. We seek stakeholders' views on these matters, and ask for any qualitative and quantitative insights which stakeholders may be in a position to provide.

On our estimate, as many as 28.5 billion paper documents might be generated by container shipping alone each year. We are interested to know stakeholders' views on what proportion of paper trade documents might be in electronic form by 2030, if the law is changed in line with our provisional proposals.

Among the potential benefits are:

1. **Lower operating costs**, as large-scale processing of paper documents may require significant resources compared to the processing of their electronic equivalents.
2. **Greater efficiencies in processes and labour**, as the movement of documents and payments can be accelerated in electronic form. It also removes ancillary administrative processes and allows more effective allocation of resources.
3. **Increased security and compliance**, as electronic documents offer greater transparency and traceability. Electronic documents are also likely to reduce instances of non-compliant documents commonly caused by human error.
4. **Environmental benefits**, due to the reduction of paper production and the knock-on effects of increased efficiency. For example, the wastage of perishable goods-in-transit that occurs as a result of



delays in the manual processing of paper trade documents could be dramatically reduced.

5. **Benefits for SMEs and customers**, due to the lower costs and increased efficiency in document-heavy processes.

Among the potential costs are:

1. **Transition costs**, potentially resulting from the need to train staff and the need to develop and refine new processes for electronic trade documents.
2. **Technological and market risks**, such as the interoperability of technological platforms and variation in technological integration across different ports and countries.
3. **Environmental costs**, such as the carbon emissions from energy consumption of distributed ledger platforms.

