

De Minimis Assessment: Self-Certification Template



Department for
Digital, Culture
Media & Sport

Title of regulatory proposal	Electronic Trade Documents Bill
Stage	Final
Lead Department/Agency	DCMS
Expected date of implementation	2023
Origin	Domestic
Date	18/07/2022
Lead Departmental Contact	International Analysis Team [iat-publication@dcms.gov.uk]
Departmental Triage Assessment	Equivalent Annual Cost to Business (EANDCB: 2019 prices) = £0

Call in criteria checklist

Significant distributional impacts (e.g. significant transfers between different businesses or sectors)	No
Disproportionate burdens on small businesses	No
Significant gross effects despite small net impacts	No
Significant wider social, environmental, financial, or economic impacts	No
Significant, novel, or contentious elements	No
Primary or secondary legislation	Primary

BRU (CAT) sign-off:



Date: 18 July 2022

Policy sign-off:



Date: 18 July 2022

Spoke analyst sign-off:



Date: 18 July 2022

SUMMARY

Rationale for government intervention

What is the problem under consideration? Why is government action or intervention necessary?

- The operation of many documents important to international trade, including bills of lading and bills of exchange, is premised on their possession. The person in possession of the relevant document can claim performance of the obligation recorded in the document, and can transfer the right to claim performance of that obligation by transferring (physical) possession of the document.
- There are deficiencies in the current legal position which prevent the move to electronic versions of these documents. English law — like many other trade jurisdictions around the world — does not currently recognise intangible things as being amenable to possession. This means that electronic forms of trade documentation, which are considered to be intangible, cannot be possessed and cannot therefore be used in the same way as their paper equivalents.
- This was not an issue when technology did not exist to make electronic documents with the same relevant properties. However, technology has now developed which can provide an electronic equivalent of a paper trade document. The legal system has not kept pace with this technological development.
- The proposed legislation will correct this problem, allowing electronic trade documents to have the same legal effects as their paper equivalents.
- Without legislative change, trade will continue to be paper-based and therefore more costly, complex, and time-consuming than it otherwise could be.

What are the policy objectives of the action or intervention and the intended effects?

- The objective of the policy is to facilitate the digitalisation of international trade documents to achieve increased efficiency and increased trade.
- The desired effect is for firms to be able to use electronic trade documents or paper trade documents as they see fit.
- As a result, we expect increased trade due to the removal of trade barriers. Success will be indicated by increased trade participation; lower trade costs; decreased trade transaction times; increased administrative efficiency; greater transparency and security; increased access to trade finance for UK Small to Medium Enterprises (SME); and a reduction in documentation errors.

Policy options

Option 0: do nothing

- Doing nothing would yield no additional benefits. Businesses would have to continue to deal with unnecessary costs, complexity and time delays (all of which have been exacerbated by the pandemic). Inaction could also diminish the primacy of English and Welsh Law as the governing law for international trade transactions, as traders may instead switch to using US or Singaporean laws to underpin their transactions.

Option 1: introduce primary legislation to recognise electronic trade documents on an equal footing to physical trade documents (preferred option)

- The chosen approach is to introduce primary legislation to recognise electronic trade documents on an equal legal footing to physical trade documents. This allows for take-up according to the preference of firms and technology coordination across industries. Benefits include increased growth through improved trade efficiency. Only those businesses that see benefits as outweighing the costs will switch to using electronic trade documents. It is expected that once larger businesses and organisations make the switch, then smaller firms will soon follow.
- There is no associated secondary legislation. A robust assessment of the impacts of the whole policy have been provided at the primary legislation stage (in line with scenario 1a of the RPC's primary legislation guidance)¹.

As this is a problem resulting from out of date law, there is no alternative to the legislative reform set out in Option 1.

Summary of business impact /rationale for DMA rating

The summary of the economic analysis, showing the rationale for the DMA rating, can be seen in the summary below.

The net benefit, or present value, is £249.8m in the low scenario, £2,049.7m in the high scenario, and £1,137.0 as the best-estimate.

The EANDCB is £0, which is below the £5 million threshold for an impact assessment, therefore a de minimis assessment has been written.

¹ [RPC \(2019\), RPC case histories: assessment and scoring of primary legislation measures \(page 3\)](#)

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Summary: analysis and evidence

Description: FULL ECONOMIC ASSESSMENT - Policy Option 1

Price base year 2019	PV base year 2020	Time period 10 years	Net benefit (present value (PV)) (£m)		
			Low: 249.8	High: 2,049.7	Best-estimate: 1,137.0

Description and scale of key monetised net benefits by 'main affected groups'

The monetised net benefits are those faced by businesses that shift from paper-based to electronic trade document systems.

The monetised net benefits include the total costs saved by businesses that shift to electronic trade document systems. These will occur because the businesses will no longer have to incur the costs and time associated with producing and handling these documents, or experience issues such as paper documents being lost or information being re-keyed incorrectly — which have until now been a significant cost to business.

The monetised net benefits also include the costs incurred by businesses because of their transition to electronic trade document systems. This includes initial transition costs, for example developing new internal processes, purchasing the required technological capabilities and training staff to use the new system. It also includes familiarisation costs incurred by businesses, whether they ultimately adopt electronic systems or not. There are ongoing costs associated with operating the electronic trade document systems, including continuous staff training and technology maintenance/upgrades.

The monetised net benefits are dependent on the adoption rate of electronic documents by businesses.

Explanation of monetising net benefits, and not monetising benefits and costs separately

The analysis uses evidence from industry stakeholders to calculate the net benefits of this legislation. The evidence available focuses on the net benefits of the proposal, rather than the benefits and costs as separate components.

This is because the key impacts of this proposal are related to costs faced by business: there will be a reduction in trade costs faced by businesses due to electronic documents reducing the time and cost involved with producing and handling these documents, whilst businesses will incur a cost in transitioning to and maintaining these electronic systems, as well as familiarising themselves with the legislation. Evidence from industry therefore focuses on the net benefit (or net impact), rather than distinguishing between the benefits and costs. As a result, this analysis calculates net benefits and is not able to calculate benefits or costs as distinct components.

COSTS (£m)	Total transition		Average annual (excl. Transition) (Constant Price)	Total cost (Present Value)
	(Constant Price)	Years		
Low	N/A		N/A	N/A
High	N/A		N/A	N/A
Best-estimate	N/A		N/A	N/A

Other key non-monetised costs not included in net benefits

The non-monetised costs include interoperability costs: those faced by electronic trade document platform developers to ensure interoperability between different systems. There is also likely to be some level of environmental cost due to the energy consumption of the technologies used for electronic trade document systems (however, these may be more than off-set by the reduction in emissions due to less use of paper, printing and couriering). Due to a lack of reliable evidence, it was not considered possible or proportionate to monetise these environmental costs.

BENEFITS (£m)	Total transition (Constant Price) Years		Average annual (excl. Transition) (Constant Price)	Total benefit (Present Value)
Low	N/A		N/A	N/A
High	N/A		N/A	N/A
Best-estimate	N/A		N/A	N/A

Other key non-monetised benefits not included in net benefits

The non-monetised benefits include the entrance of businesses that do not currently export into the international market because of the reduction in trade costs associated with this Bill. Other non-monetised benefits include increased security (as electronic documents can not be forged as easily as paper ones), along with increased access to trade finance for small to medium businesses (as electronic trade documents increase visibility of supply chain cash flow). Due to a lack of reliable evidence, it was not considered possible or proportionate to monetise these benefits.

Key assumptions/sensitivities/risks	Discount rate (%)	3.5
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One key assumption is the adoption rate of electronic trade document systems by businesses, with predictions from industry stakeholders varying considerably. This assumption affects the net benefits monetisation methodology, and the different scenarios modelled account for this range.

Other assumptions include: the proportion of total trade transaction values that are associated with paper document processes; the proportion of paper document costs that will be saved by shifting to electronic systems; and the projected annual growth rate of export and import values in future years.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (equivalent annual) £m: 0.0			Score for Business Impact Target (qualifying provisions only) £m: 0.0
Costs: 0.0	Benefits: 0.0	Net: 0.0	

1.0 Policy rationale

Table 1: Theory of change

Problems and opportunities	Actions	Outputs	Outcomes	Impact
Things that invite action	What is going to be done to take advantage of the opportunities and solve the problems	What the actions will produce	Behaviour change over the medium term, caused by the outputs	Effects of behaviour change over the long-term
<p>Technological development has enabled the possibility of electronic trade documents.</p> <p>Existing UK laws, alongside those of our trading partners, do not allow for electronic trade documents to be recognised on the same footing as physical ones.</p> <p>This legal situation inhibits the development of an international trade logistics ecosystem (shipping, finance, insurance, etc.) based on electronic trade documents.</p> <p>The absence of this ecosystem (as well as legal certainty) prevents UK businesses from taking advantage of the potential</p>	<p>Introduce primary legislation in line with the UN Model Law on Electronic Transferable Records (UNMLETR) to put electronic trade documents on the same legal footing as physical trade documents.</p> <p>Coordinate with and influence other key trading jurisdictions to encourage the implementation of similar measures.</p>	<p>This will remove a legal impediment to the use of electronic trade documents in the UK.</p>	<p>Foreign governments are incentivised to introduce analogous legal forms.</p> <p>Development of new electronic trade document solutions by existing, and new, providers.</p> <p>Development of interoperability mechanisms between solution providers.</p> <p>Gradual adoption of electronic trade documents by the international trade logistics ecosystem (shipping, finance, insurance) where actors deem cost saving benefits as outweighing adoption costs.</p> <p>Gradual adoption of electronic trade documents by UK trading firms where they deem cost saving benefits as outweighing</p>	<p>Efficiency and time-saving gains.</p> <p>Increased trade between the UK and other countries.</p> <p>Increased security and reduced fraud risk.</p> <p>Environmental benefits due to reduced use of paper, printing and courier services.</p> <p>The extent of this benefit is dependent on the amount of offsetting by emissions from distributed ledger technologies.</p>

Problems and opportunities	Actions	Outputs	Outcomes	Impact
Things that invite action	What is going to be done to take advantage of the opportunities and solve the problems	What the actions will produce	Behaviour change over the medium term, caused by the outputs	Effects of behaviour change over the long-term
benefits of electronic trade documents.			<p>adoption costs.</p> <p>Efficiency and time-saving gains encourage more UK firms to begin exporting, and existing exporters to export more.</p> <p>Improved access to trade finance for small and medium sized enterprises will increase the pool of potential UK exporters.</p> <p>Network effects will lead companies in other jurisdictions to adopt electronic trade documents.</p>	

Policy background/problem under consideration

1. It is estimated that 25 billion paper documents are generated and couriered around the world each year to facilitate international container shipping alone². This generates costs and delays which impede trade. For example, in 2014 AP Moller-Maersk, a container logistics company, undertook research into the length of delays associated with paper documentation³. By tracking a shipment of goods from Kenya to the Netherlands, it concluded it involved 30 different parties, 100 people and 200

² Based on evidence from the World Trade Organisation (WTO): [\(2013\) Briefing note: Trade facilitation – Cutting “red tape” at the border](#), and [\(2020\) UNCTAD, Review of Maritime Transport 2020 \(page 84\)](#)

³ Known as the Trail of Roses project. [Bloomberg \(2018\), Blockchain Is About to Revolutionize the Shipping Industry](#)

exchanges of information. There was a 10-day waiting period for documents to be processed in a shipment period of 34 days.

2. Digitalisation of trade documentation is expected to lower transaction costs and promote greater efficiency, transparency and security in international trade. Accordingly, there is a strong desire in industry to transition towards digitised ways of doing business⁴.
3. Currently, laws governing key business-to-business trade documents such as bills of lading are contingent on physical possession of paper documents. Both UK law, alongside the law of almost all of our trading partners, does not regard electronic documents as being capable of possession. This view of possession made sense when technology did not exist to make electronic documents with the same relevant properties as their paper equivalents. However, technologies have now developed which can provide an electronic equivalent that is cheaper, simpler, faster, and more secure than paper.
4. Some electronic trade document solution providers have emerged who bypass the legal barrier by establishing a 'walled garden' in which all parties to the trade transaction enter into a contract recognising the validity of the electronic trade document. However, the restrictiveness, complexity, and legal uncertainty of this approach means electronic trade documents are used in fewer than 1% of international trade transactions.
5. Given the cross-jurisdictional nature of international trade, global legal reform is required to facilitate the use of electronic trade documents. In recognition of this international coordination problem, the UN proposed a Model Law on Electronic Transferable Records (UNMLETR)⁵. Whilst some smaller jurisdictions, such as Singapore and Bahrain, have enacted legislation consistent with the model law, no major economy is yet fully compliant.
6. Given the extent to which international trade transactions (even those not involving the UK) are based on the Law of England and Wales, it is widely accepted that UK legal reform in line with UNMLETR would act as a significant catalyst towards global legal reform and the development of an electronic trade document ecosystem. As such, under its 2021 G7 Presidency, the UK secured agreement amongst G7 countries to work together to progress coordinated legal reforms in line with UNMLETR⁶.

⁴ [ICC \(2020\), ICC Memo to Governments and Central Banks on Essential Steps to Safeguard Trade Finance Operations](#)

⁵ [UNCITRAL \(2018\), UNCITRAL Model Law on Electronic Transferable Records](#)

⁶ [Gov.uk \(2021\), Carbis Bay G7 Summit Communique](#)

7. DCMS commissioned the Law Commission of England and Wales to examine the UNMLETR and make recommendations on how to bring UK law into conformity. Their final report provided draft legislation which is now being implemented through the Law Commission Special Procedure⁷. This legislation is permissive and stipulates that business-to-business electronic trade documents which satisfy certain criteria should be treated as functional equivalents of their paper counterparts.
8. The proposed reforms cannot be made in any other way than through primary legislation. There are no existing legislative powers which could be used to implement this measure. Whilst there are powers under s.8 of the Electronic Communications Act 2000 and s.1(5) of the Carriage of Goods by Sea Act 1992 respectively to facilitate electronic communications and storage and the use of electronic means, neither of these provisions is sufficiently broad to cover the range of trade documents covered by the Bill.

Rationale for intervention

9. The primary reason for intervention is because of deficiencies in current law. The legislation is permissive and will remove a constraint to the use of electronic trade documents under UK law, thereby supporting the global development of an electronic trade documents ecosystem. This will reduce costs for UK firms engaging in international trade.

Policy objective

10. The objective of the legislation is to put electronic trade documents on the same legal footing as paper trade documents. This will support the development of a global ecosystem for electronic trade documents, which are cheaper, simpler, faster, and more secure than their paper equivalents.
11. The legislation is expected to reduce trade costs, accelerate trade transaction times, increase administrative efficiency, reduce documentation errors and increase access to trade finance. A combination of these factors will result in greater international trade.

Options considered

12. Option 0: 'do nothing'

- i. In this scenario, the expected benefits of the legislation would not be realised. Businesses would have to continue to deal with unnecessary costs, complexity and time delay (all of which have been exacerbated by the

⁷ [Law Commission \(2022\), Electronic trade documents: Report and Bill](#)

pandemic). It could also diminish the primacy of English and Welsh Law as the governing law for international trade transactions, as traders may instead switch to using Singaporean laws to underpin their transactions. Singapore passed the Electronic Transactions Act in 2021, providing legal recognition of electronic trade documents such as bills of lading and exchange⁸.

13. Option 1: introduce primary legislation to recognise electronic trade documents on an equal legal footing to physical trade documents (preferred option)

- i. This allows for a gradual transition to increased take up of electronic trade documents. Benefits include increased growth through improved trade efficiency. Only those businesses that see benefits as outweighing adoption costs will switch to using electronic trade documents.
- ii. The proposed reforms cannot be made in any other way than through primary legislation. The existing law that applies to these documents includes both statute (such as the Bills of Exchange Act 1882) and the common law, and existing powers to allow for electronic documentation are not sufficiently broad to cover the range of electronic trade documents covered by the Bill.

Summary and preferred option with description of implementation plan

14. Option 1: Introduce primary legislation to recognise electronic trade documents on an equal legal footing to physical trade documents (preferred option)

- i. The proposed reforms cannot be made in any other way than through primary legislation. The existing law that applies to these documents includes both statute (such as the Bills of Exchange Act 1882) and the common law, and does not allow for electronic documents.
- ii. The draft Bill provides that certain trade documents can be in electronic form if certain criteria are met. By implementing these changes, the objectives of improved efficiency, reduced trade costs, increased security and environmental sustainability will be achieved.
- iii. The Bill is being managed by the Department for Digital, Culture, Media and Sport with support from the Law Commission of England and Wales. The bill was included in the 2022 Queen's Speech announcement⁹. If parliamentary time allows, it is expected to come into force no later than 2023.

⁸ [Law Commission \(2021\), Digital assets: electronic trade documents. A consultation paper \(page 59\)](#)

⁹ [Gov.uk \(2022\), The Queen's Speech 2022](#)

- iv. The Bill simply enables businesses to choose electronic trade document systems in transacting international trade, so there is no role for the government in enforcing these arrangements. The trade transaction is agreed by all parties involved with contracts established in the same way they are now, therefore the government's role in regulating the system is unchanged. This approach also provides businesses with the flexibility to choose the approach which suits them best (paper-based or electronic systems).

2.0 Costs and benefits

This section is typically completed by analysts, with input from policy teams.

Rationale and evidence to justify the level of analysis used in the IA (proportionality approach):

15. The evidence and data used in the net benefits analysis comes from a range of trade industry sources. This includes HMRC data on the value of goods trade, alongside the International Chamber of Commerce and United Nations on the impact of a shift to electronic trade document systems.
16. The analysis relies upon evidenced assumptions to estimate the net benefits of this proposal. The evidence and research used comes from industry sources, which in some cases was commissioned specifically to understand the possible impacts of this proposed legislation.

Option 0: do nothing

17. It is not possible to precisely estimate the costs and benefits if the proposed legislation is not implemented due to a lack of evidence, however this subsection outlines the current situation and what impacts are expected to occur without intervention.
18. In 2019, there were 160,000 exporting businesses in the UK, exporting £367bn worth of goods and employing 10.2m. If the annual increase between 2013 and 2019 of 1.59% continues, there will be almost 190,000 exporting businesses in the UK by the end of the 10-year appraisal period.
19. Under the 'do nothing' scenario, these exporting businesses will continue to face the sizable trade costs associated with paper trade documentation, as well as the administrative complexity and time delays that the paper-based process brings. The Digital Container Shipping Association has suggested that the costs associated with paper trade documents are three times greater than those associated with digital trade documents¹⁰.
20. Time spent processing trade documents is significantly greater for paper than electronic documents, with one study from Singapore finding the processing of a paper trade document was between 4 hours and 7 days, with this reduced to 10 minutes when digitised¹¹. Trade transactions typically involve several interconnected

¹⁰ [Digital Container Shipping Association \(DCSA\) \(2020\), DCSA takes on eBL standardisation, calls for collaboration](#)

¹¹ [UNESCAP \(2014\), Estimating the Benefits of CrossBorder Paperless Trade \(page 4\)](#)

phases (including sales, transportation, insurance, payment and finance, customs), each of which requires paperwork to be issued and exchanged in a physical format between several parties.

21. These businesses would also be prevented from realising cost savings, as well as gaining increased access to trade finance.
22. This 'do nothing' scenario also risks diminishing the primacy of English and Welsh Law as the governing law for international trade transactions. This would in turn reduce demand for UK legal services related to international trade.
23. There is also a reputational risk. The UK championed these reforms during its G7 Presidency, and stakeholders in banking, insurance, logistics and trade see this proposed legislation as a simple and costless reform. To not take this legislation forward could therefore result in considerable reputational damage.

Option 1: introduce primary legislation to recognise electronic trade documents on an equal legal footing to physical trade documents (preferred option)

Summary of benefits and costs

24. The net benefits analysis uses a 10-year appraisal period, from 2023 to 2032. The analysis follows HM Treasury Green Book principles, including a social discount rate of 3.5% and a price base year of 2019.
25. The main type of businesses in scope of this proposal are UK firms that are currently engaging in international trade. The net benefits analysis focuses on these businesses, both in terms of costs they will save, and the transition and ongoing costs incurred when adopting electronic trade document systems.
26. The table below outlines the benefits and costs of this option, including whether they are direct or indirect, monetised or non-monetised, and whether they are included in the net benefits analysis. The majority of impacts are considered to be indirect because additional steps in the logic chain are required for impacts to be felt (including international standardisation, interoperability of electronic trade document platforms, and global legal consistency). This is explained in full in this section. Decisions on monetisation have been taken using a proportional approach, focusing on those expected to be of greatest size, as well as those with the most reliable evidence to use in analysis.

Benefits	Direct or indirect?	Monetised or non-monetised?
Costs saved by UK firms moving to electronic trade document systems	Indirect	Monetised within net benefits analysis

Benefits	Direct or indirect?	Monetised or non-monetised?
Entrance of additional UK firms into the international trade sector (due to lower entry costs to trade)	Indirect	Non-monetised (due to a lack of reliable evidence to undertake analysis with)
Increased security and reduced fraud	Indirect	Non-monetised (due to a lack of reliable evidence to undertake analysis with)
Increased access to trade finance for UK companies, particularly small to medium enterprises	Indirect	Non-monetised (due to a lack of reliable evidence to undertake analysis with)
Environmental benefits (due to reduced use of paper, printing and courier services)	Indirect	Non-monetised
Transition costs incurred by UK businesses choosing moving to electronic trade document systems	Indirect	Monetised within net benefits analysis
Ongoing, annual costs incurred by UK businesses choosing to use electronic trade document systems	Indirect	Monetised within net benefits analysis
Environmental costs (due to the energy consumption of some blockchain platforms)	Indirect	Non-monetised (due to a lack of reliable evidence to undertake analysis with)
Familiarisation costs (faced by firms to understand the legislation, whether they ultimately transition to electronic systems or not)	Indirect ¹²	Monetised (included within net benefits analysis methodology)
Some loss in revenue of firms that produce, process and courier paper trade documents.	Indirect	Non-monetised (due to a lack of reliable evidence to undertake analysis with)

Consideration of impacts as indirect

27. There are many steps in the logic chain to unlock these impacts. Therefore, as per RPC guidance, the impacts of this policy are considered to be indirect. In addition to the introduction of this permissive legislation, there are five further steps by non-HMG actors required for the full extent of impacts on UK businesses to materialise:

¹² These familiarisation costs are considered to be indirect as there is no requirement on businesses to use electronic trade documents (paper documents will still be accepted and used), and therefore businesses are not required to become familiar with the legislation. It is not expected that the activity of businesses adopting electronic trade documents will require the other businesses to familiarise themselves with the legislation. This is because adoption of electronic documents is not expected to reach a level at which paper documents will no longer still be widely used and accepted during the appraisal period.

- i. Enactment of analogous legal reform by foreign governments. Given the extent to which international trade contracts are governed by English and Welsh Law, the proposed legislative reform could, in theory, facilitate the use of electronic trade documents on a world wide basis. However, evidence from the Law Commission's Consultation suggests that uptake by businesses will be slow until there is global legal consistency in the domestic legislation of all parties to trade transactions¹³. This is particularly the case for supporting actors in the trade logistics ecosystem such as finance and insurance.
- ii. Development of new electronic trade document service offerings by technology solution providers. Existing providers have developed solutions on the basis of a 'walled garden' legal workaround. Once the new legislation is enacted, providers will have to amend their offering to take advantage of the new legal equivalency of electronic trade documents.
- iii. Development of interoperability mechanisms between different solution providers. Given the 'walled garden' workaround of existing solutions, current use of electronic trade documents requires all parties to a trade transaction to use the same solution provider. The ability to interoperate between providers will be required to facilitate full adoption and use of electronic trade documents globally.
- iv. Acceptance of the use of electronic trade documents by the various actors in the trade logistics ecosystem (shippers, insurers, financiers). Use of electronic trade documents by UK trading firms will be contingent on supporting actors upon which they rely to facilitate their transactions also approving their use.
- v. Adoption of electronic trade documents by UK trading firms. This bill will be permissive and will not mandate the use of electronic trade documents; for impacts to arise, firms will need to decide for themselves that cost-savings outweigh adoption costs.

Net benefits

Overview of net benefits monetisation methodology

28. The approach to monetising the net benefits of this option is to estimate the expected net reduction in total costs saved by firms that shift from paper-based trade document systems and instead adopt electronic trade document systems. This includes both the expected reduction in costs faced by businesses due to the reduction in time and costs involved with paper documents, as well as the expected increase in costs incurred when transitioning to and maintaining the electronic systems, as well the familiarisation costs involved.

¹³ [Law Commission \(2022\), Electronic trade documents: Report and Bill](#)

29. The Digital Container Shipping Association has identified this reduction in costs as the key benefit of adopting electronic trade documents¹⁴.
30. The analysis is of the net benefits of the legislation. The evidence available focuses on the net impact of this proposal, rather than the benefits and costs as separate components. This is because the main positive and negative impacts of this legislation relate to the costs faced by business: a reduction in trade costs due to electronic systems reducing time and costs to process and handle documents, and the costs businesses will incur in transitioning to these systems. It has therefore not been possible to conduct analysis of the benefits and costs separately.
31. The analysis assumes that there is technical interoperability between different electronic trade document system providers.

Explanation of net benefits monetisation methodology

32. **(1)** Calculate the total value of UK goods trade (imports + exports) expected per year.
- i. *Value of UK goods exports (£321,792,000,000) and imports (£477,858,000,000) in 2021¹⁵.*
 - ii. *Apply the Office for Budget Responsibility's net trade annual percentage change forecasts¹⁶. As these forecasts only cover 5 years, we have assumed 0.0% in net trade values in the years following the forecast. This is based on the OBR's prediction that there will be 'little growth in export and import volumes'.*
33. **(2)** Identify the proportion of total UK goods trade that is container cargo: **28%**.
- i. *This figure is taken from HMRC's Port Freight Statistics in 2019¹⁷ (the most recent update). It is the deadweight tonnage (a measure of cargo carrying capacity) that container ships accounted for in 2019.*
 - ii. *Container cargo is the type of good trade in scope of this legislation.*
34. **(3)** Identify the proportion of total trade transaction values that are associated with paper document costs: **5%**.
- i. *This figure is based on the finding by the UN Electronic Trade Documents Project that 'paper-shuffling expenses in international trade have been estimated' to be '5 to 15% of transaction values'¹⁸. The lower-bound of this range is used as a conservative approach which was favoured due to the uncertainties.*

¹⁴ [Digital Container Shipping Association \(DCSA\) \(2020\), DCSA takes on eBL standardisation, calls for collaboration](#)

¹⁵ [ONS \(2022\), Dataset: UK trade: goods and services publication tables](#)

¹⁶ [OBR \(2022\), Economic and fiscal outlook – March 2022 Executive Summary \(page 12\)](#)

¹⁷ [Department for Transport \(2020\), UK Port Freight Statistics: 2019 \(page 6\)](#)

¹⁸ [Law Commission \(2022\), Electronic trade documents: Report and Bill \(paragraph 10.17\)](#)

35. **(4)** Identify the proportion of trade documents which are in scope of this legislation: **20%**.
- i. *Trade documents covered by this legislation account for an estimated 20% (8 in 40) of total trade documents.*
 - ii. *The legislation covers 8 types of trade documents involved in a transaction: (1) bills of exchange; (2) promissory notes; (3) bills of lading; (4) ship's delivery orders; (5) warehouse receipts; (6) mate's receipts; (7) marine insurance policies; and (8) cargo insurance certificates.*
 - iii. *Industry stakeholders, such as the Digital Container Shipping Association and Vale International SA, consider 40 a reasonable estimate for the number of trade documents involved per transaction¹⁹.*
36. **(5)** Identify the net impact on costs associated with paper documents following the adoption of electronic trade documents: **50% reduction**.
- i. *This figure is based on the UN Electronic Trade Documents Project estimation that 'at the very least over half' of costs that were associated with paper documents might be saved by shifting to electronic trade documents²⁰.*
 - ii. *This figure is the net reduction in costs associated with paper documents. It includes the cost savings due to the reduction time and money spent producing and handling paper documents, as well as the transition and ongoing costs incurred by firms adopting electronic document systems (for example: staff training, investment in technology capabilities, and developing new internal processes).*
 - iii. *The lower-bound of the UN's figure is used in the analysis. A conservative approach is taken due to the uncertainties in predicting the net impact on costs.*
37. **(6)** It is assumed that the net benefits are split equally between UK businesses and foreign businesses involved in the trade transactions: a **50% assumption** is used to exclude the benefits to foreign businesses from this analysis.
- i. *This assumption has been used to avoid possible double-counting of the legislation's net benefits.*
 - ii. *There will be net benefits to both UK exporters and importers from the lowering of trade costs. This assumption ensures that the net benefit methodology doesn't include the net benefits that will be incurred by foreign businesses involved in trade transactions with the UK (whether importing from or exporting to the UK).*
38. **(7)** Multiply the figures from the previous steps to calculate the **potential net cost savings by firms adopting electronic trade documents, per year in the UK**.

¹⁹ [Law Commission \(2022\), Electronic trade documents: Report and Bill \(paragraph 10.18\)](#)

²⁰ [Law Commission \(2022\), Electronic trade documents: Report and Bill \(paragraph 10.17\)](#)

39. (8) Multiply by the percentage of UK exporting firms expected to adopt electronic trade document systems by each year ('adoption rate'). **Different adoption rate assumptions are listed in the table below.**

	Low adoption rate		Medium adoption rate		High adoption rate	
Year after policy	Y1	Y10	Y1	Y10	Y1	Y10
Adoption rate by that year	1%	10%	5%	45%	10%	80%
Source (industry response) ²¹	Phillips 66 Ltd		Between high and low		Eingio Time AB	

- i. *It is assumed that there is a linear increase in adoption rate in the years between Y1 and Y10.*
 - ii. *The adoption rate by businesses is likely to depend on the speed of other key jurisdictions in adopting similar changes, as well as the business environment firms are operating in.*
40. (9) Calculate the **annual familiarisation costs faced by businesses**, whether they adopt electronic trade documents or not. Subtract this from the total.
- i. *The analysis assumes that during each year and in each adoption rate scenario, 80% of container shipping trading firms that familiarise themselves with the new regulation will subsequently adopt electronic trade document systems.*
 - ii. *It is assumed that familiarisation requires 7 hours of work by 1 employee per business. This accounts for time to review the guidance, explore provider options and disseminate knowledge to senior decision makers.*
 - iii. *The median hourly wage for 'administrative and support service activities' in the ONS Annual Survey of Hours and Earnings is used²². The analysis applies the annual increase in hourly earnings as seen for this group between 2015-2020.*
 - iv. *These familiarisation costs are considered to be indirect because it is not expected that the activity of other businesses adopting electronic trade documents will require non-users to familiarise themselves with the legislation. This is because adoption of electronic systems is not expected to reach a level at which paper documents will no longer be widely used or accepted during the appraisal period.*

²¹ [Law Commission \(2022\), Electronic trade documents: Report and Bill \(paragraph 10.15\)](#)

²² [ONS \(2022\), Dataset: Annual Survey of Hours and Earnings time series of selected estimates \(table 7\)](#)

Results of net benefit monetisation, including sensitivity analysis

41. Sensitivity analysis has been conducted on the adoption rate of electronic trade documents by UK businesses.

	Low scenario <i>Low adoption rate assumption</i>	Best-estimate scenario <i>Medium adoption rate assumption</i>	High scenario <i>High adoption rate assumption</i>
Total net benefits (Y1 to Y10) (present value) (£m)	249.8	1137.0	2049.7

Overview of benefits

42. The legislation and use of electronic trade documents would be expected to result in various positive outcomes, including:

- i. **A reduction in trade costs:** Paper-heavy transactions are expensive. Whilst the resources (paper, ink, secure postage, courier services, etc) considered individually might not be particularly expensive, once the number of paper documents are added together, the total cost is high. There are also significant costs in terms of handling and processing the paper documents, which is estimated to cost three times as much as processing electronic documents²³.
- ii. **Accelerated trade transaction times:** Reported time reductions range from 41% to 99%²⁴.
- iii. **Increased administrative efficiency:** Digitisation of documents will allow for the removal or reduction of manual processing of documents. For example, instantaneous transmission of electronic documents removes the delays caused when documents have to be posted or couriered.
- iv. **Greater transparency:** Electronic trade documents enable parties to access real-time information on the location and state of their underlying shipments. This greater level of assurance is likely to result in greater volumes of trade.
- v. **Increased security, and reduction in fraud:** The international trade sector is vulnerable to fraud, and paper documents can easily be photocopied or signatures forged. Electronic trade documents, whose movements can be immutably recorded on a shared ledger, are less vulnerable to some types of fraud²⁵.
- vi. **Increased access to trade finance for UK Small to Medium Enterprises (SMEs):** The World Trade Organisation has estimated that up to 80% of

²³ [Law Commission \(2021\), Digital assets: electronic trade documents. A consultation paper \(paragraph 7.34\)](#)

²⁴ [UNESCAP \(2014\), Estimating the Benefits of CrossBorder Paperless Trade \(page 6\)](#)

²⁵ [Law Commission \(2022\), Electronic trade documents: Report and Bill \(paragraph 2.56\)](#)

global trade is supported by some sort of financing or credit insurance²⁶. Electronic documents increase the visibility of supply chain cash flow, and could allow SMEs to enjoy increased access to trade finance. This may also facilitate British businesses to engage in international trade for the first time.

- vii. **A reduction in documentation errors:** Paper-intensive arrangements require manual processing which is prone to error²⁷. This is less likely with electronic documents.
- viii. **Environmental benefits:** In 2018, the UK emitted 2.5m tonnes of carbon dioxide from the paper and printing processes in international trade²⁸. By digitising trade documents, these emissions are expected to significantly reduce.

43. It is expected that the combination of these outcomes will result in greater international trade.

Overview of costs

- 44. Businesses that adopt electronic trade document systems are expected to face initial transition costs (including training staff and developing new internal processes), as well as ongoing costs associated with running the systems (including staff training and technology upgrades/maintenance).
- 45. Some businesses will also face familiarisation costs (whether they subsequently adopt electronic trade document systems or not).
- 46. Businesses involved in producing, processing and couriering paper trade documents may experience a reduction in annual revenue as the industry shifts towards electronic documentation.
- 47. Another cost relates to the environment. Whilst the move from paper to electronic trade documents will have environmental benefits (due to lower use of paper and printing, as well as fewer courier deliveries of these documents), there may be environmental costs due to the energy consumption of some types of blockchain platforms (the technology that is likely to be used for electronic trade document systems in some cases). This issue is explained in Section 5.0.

²⁶ [World Trade Organisation \(2016\), Trade Finance and SMEs: Bridging the gaps in provision \(page 4\)](#)

²⁷ Miriam Goldby (2nd ed 2019), Electronic Documents in Maritime Trade (paragraphs 3.19 and 3.21); [World Trade Organisation, Emmanuelle Ganne \(2018\), Can Blockchain Revolutionize International Trade?](#); [International Finance Corporation, World Bank Group \(2019\), BLOCKCHAIN: Opportunities for Private Enterprises in Emerging Markets \(page 33\)](#)

²⁸ [OECD \(2021\), Carbon dioxide emissions embodied in international trade \(2021 ed.\) \(Select D17T18: Paper products and printing for the 'Industry' selection\)](#)

3.0 Risks and unintended consequences

Risks and assumptions of the analysis

Assumption	Evidence	Risk	Description of sensitivity analysis undertaken
Adoption rate of electronic trade documents amongst UK exporting businesses.	Evidence used is industry response to Law Commission's consultation on the subject: <ul style="list-style-type: none"> • Low adoption rate: Phillips 66 Ltd • High adoption rate: Enigio Time AB • Medium adoption rate: mid point between low/high 	Medium risk. This assumption relies on firms' decisions, as well as the introduction of equivalent measures in other jurisdictions. These steps are uncertain.	Sensitivity analysis undertaken for this variable in both benefits and costs monetisation (see relevant parts of section 2). It is considered the key variable influencing the scale of positive impact of the legislation, hence the decision for sensitivity analysis.
Proportion of total UK goods trade that is container cargo: 28%.	HMRC Port Freight Statistics 2019 (the most recent publication). Based on deadweight tonnage (a measure of cargo carrying capacity).	Medium risk. This data is based on weight. This is used as a best-estimate in the absence of data on value.	None undertaken.
Proportion of total trade transaction values that are associated with paper document processes: 5%.	Uses mid-point of UN Electronic Trade Documents Project of '5 to 15%' ²⁹ .	Low risk. Not a wide range of estimates provided by industry stakeholders. Analysis uses the lower-bound figure of 5% to take a conservative approach.	None undertaken.

²⁹ [Law Commission \(2022\), Electronic trade documents: Report and Bill \(paragraph 10.17\)](#)

Assumption	Evidence	Risk	Description of sensitivity analysis undertaken
Percentage of costs associated with paper documents expected to be saved by adopting electronic documents: 50%.	Uses UN Electronic Trade Documents Project estimation that 'over half' of costs associated with paper documents might be saved by electronic trade documents ³⁰ .	Medium risk. Lack of certainty due to electronic trade documents being novel, so there aren't case studies to use. Analysis uses the lower-bound figure of 50% to take a conservative approach.	None undertaken.
Projected annual growth rate of exports and imports value in future years.	The Office for Budget Responsibility forecast is used for the next 5 years. The following 5 years assume no growth (based on the OBR's general forecast of little growth).	Low risk.	None undertaken.

48. A risk that might prevent the policy from fully realising its objective is that, due to the novelty of electronic trade documentation, it is difficult to accurately predict the market response to this legislation. Transition costs involved with the move from paper-based to electronic documents, as well as the need for interoperability might slow industry take-up at first. In addition, the absence of global legal consistency and similar legislation from other key trading jurisdictions on electronic documents may restrict uptake.

49. As a result of this uncertainty, the analysis models three adoption rates to account for the range in possible scenarios.

³⁰ [Law Commission \(2022\), Electronic trade documents: Report and Bill \(paragraph 10.17\)](#)

4.0 Wider impacts

Small and micro business assessment (SaMBA)

50. In 2018, small and medium enterprise (SMEs) exports accounted for around 32% of UK exports, totalling £200bn of goods and services³¹. For context, SMEs account for three fifths of the employment and around half of turnover in the UK private sector³². It has been estimated that 12% of UK small and micro businesses export³³.
51. This measure is expected to have a significant positive impact on small, medium and micro businesses. It could increase their involvement in international trade so that their proportion of total UK exports increases towards the proportion of their total UK private sector turnover.
52. The proposed legislation will achieve this in the following ways:
- i. **Increased access to trade finance for UK SMEs:** Access to finance is often cited as a key barrier to exporting³⁴. The World Trade Organisation estimates up to 80% of trade is supported by some sort of financing or credit insurance³⁵. Electronic trade documents will increase the trust, transparency and visibility of supply chain cash flow between SMEs and banks, therefore fostering the extension of trade finance to SMEs³⁶. The transparency provided by electronic document systems is also expected to accelerate access to trade finance, with an International Chamber of Commerce survey of banks finding that 92% of respondents felt digitisation would speed up trade finance processes³⁷.
 - ii. **Reduced barriers to trade for UK SMEs:** Due to the reduction in costs and administration associated with paper documents, the ability to use electronic trade documents might make international trade more feasible for UK SMEs.
53. Small and micro businesses are not exempt from this legislation. As the legislation is permissive and does not force firms to use electronic trade documents (paper documents will still have equal legal footing), smaller UK businesses that already operate internationally but might not be able to afford the initial costs to adopt

³¹ [British Business Bank \(2020\), UK SME exporting trends: finance and trade \(page 3\)](#)

³² [Federation of Small Businesses \(2021\), UK Small Business Statistics: Business Population Estimates for the UK and Regions in 2021](#)

³³ [Department for Business Innovation and Skills \(2016\), BIS Estimate of the proportion of UK SMEs in the supply chain of exporters \(page 5\)](#)

³⁴ [British Business Bank \(2020\), UK SME exporting trends: finance and trade \(page 4\)](#)

³⁵ [World Trade Organisation \(2016\), Trade Finance and SMEs: Bridging the gaps in provision \(page 4\)](#)

³⁶ [Trade Finance Global \(2022\), Can SMEs benefit from digital solutions in trade finance?](#)

³⁷ [Trade Finance Global \(2022\), Can SMEs benefit from digital solutions in trade finance?](#)

electronic trade document systems will not face any compulsory burden. If they choose to, they could continue to use paper documentation. However, the cost and time saving of electronic trade documents mean it is expected that many of these firms will make the change.

54. Overall, the legislation is expected to have a significant positive impact on the UK's micro and small enterprises.

Greenhouse gases impact test/wider environmental impacts

55. The United Nations Conference on Trade and Development estimates that the average customs transaction involves 40 documents³⁸. An estimated 28.5 billion paper trade documents are currently used across the world each year³⁹.

56. In 2018, the UK emitted 2.5m tonnes of carbon dioxide from paper and printing in international trade⁴⁰. This data has not been updated. However, the UK trade transaction value decreased by 5.25% between 2018 and 2021⁴¹. If these emissions decreased proportionally, UK emissions of carbon dioxide from paper and printing in international trade would be 2.37m tonnes. This figure does not include the emissions associated with transporting paper documents.

57. By digitalising trade documentation, it would reduce the use of paper and printing, and therefore lower the carbon emissions from these processes. Electronic trade documents also have the benefit of reducing the need for courier vehicles to transport paper documents, further reducing carbon dioxide emissions.

58. While there are environmental benefits to digitised documentation, there are also some detriments. The energy consumption of some blockchain platforms (the technology likely to be used to support some electronic trade documentation systems) are a source of carbon dioxide emissions. This is due to the power required by the network users employing computational capacity to verify the transactions added to the blockchain.

59. The amount of carbon dioxide emissions from the blockchain platforms is dependent on whether the platform is based on a proof of work (i.e. public blockchain) or a proof of stake (i.e. a private blockchain) system. The former requires large amounts of carbon-emitting cryptographic work, whilst the latter authenticates the blockchain with a much smaller energy footprint. For example, Ethereum (a blockchain-based software platform) estimates that its move from a proof of work to a proof of stake

³⁸ [World Trade Organisation, \(2013\) Briefing note: Trade facilitation – Cutting “red tape” at the border](#)

³⁹ [Law Commission \(2022\), Electronic trade documents: Report and Bill \(paragraph 10.28\)](#)

⁴⁰ [OECD \(2021\), Carbon dioxide emissions embodied in international trade \(2021 ed.\) \(Select D17T18: Paper products and printing for the ‘Industry’ selection\)](#)

⁴¹ [ONS \(2022\), Dataset: UK trade: goods and services publication tables](#)

system will reduce its energy usage by 99.95%⁴². Many established electronic trade document system providers are using or developing proof of stake blockchain solutions because of their lower carbon footprint.

60. There are also other types of technology (such as registry-based systems) which can support electronic trade documents and which are not blockchain-based, and therefore do not use energy to the same order of magnitude.
61. Overall, some of the carbon emission reductions will be off-set by emissions produced by blockchain platforms. The degree of this off-setting will depend on the type of technology used (blockchain or otherwise), and the type of blockchain system used.
62. It has not been possible to undertake analysis to quantify the net impact of this legislation in terms of carbon emissions. There are uncertainties as to which technologies will predominantly be used to support electronic trade documentation systems, with the different types of technology varying considerably in terms of carbon emissions. It has therefore not been possible to provide well-evidenced and reasonable figures on the potential net environmental impact of this legislation.

Competition

63. This legislation could result in various impacts in terms of the degree of competitiveness in the UK economy.
64. The transition to electronic trade documents may initially be more common among larger businesses, as they could be better able to afford the transition costs involved. If this is the case, then the legislation could distort market competition in favour of larger businesses who will benefit from the cost saving that the shift to electronic trade documents is expected to bring (whilst smaller businesses which haven't transitioned will not be benefiting).
65. However, smaller businesses are also expected to transition to electronic trade documents, even if this is initially at a slower pace than larger businesses. Smaller businesses are expected to particularly benefit from improved access to trade finance, as electronic systems will increase the visibility of supply chain cash flow⁴³. This may increase the ability for smaller businesses to export, and therefore increase competitiveness in the UK international trade sector.

⁴² [Ethereum Foundation Blog \(2021\), Ethereum's energy usage will soon decrease by ~99.95%](#)

⁴³ [Law Commission \(2022\), Electronic trade documents: Report and Bill \(page 219\)](#)

Equalities

66. This legislation is unlikely to have a disproportionate impact on any groups of people sharing a protected characteristic.

Trade and investment

67. There are considerable trade impacts expected from this legislation, including a reduction in costs associated with trade, an acceleration in trade transaction times and an increase in trade volumes.

68. By reducing trade costs, the legislation may also increase the international competitiveness of UK businesses⁴⁴. This could make the UK a more attractive place for investment (both in terms of attracting inward investment, and incentivising UK investors to invest domestically rather than abroad).

69. The World Trade Organisation does not require notification of this legislation.

Innovation

70. This legislation is expected to have positive impacts in terms of innovation. Due to a reduction in trade costs, businesses may have greater funds to develop innovative new practices and products.

71. In addition, the legislation is expected to increase participation of UK firms in international trade. International trade has been found to have a positive effect on innovation due to it promoting competition, increasing market size and allowing knowledge spillovers⁴⁵.

⁴⁴ [Law Commission \(2022\), Electronic trade documents: Report and Bill \(paragraph 10.32\)](#)

⁴⁵ [Marc J. Melitz \(Harvard\) and Stephen J. Redding \(Princeton\) \(2021\), Trade and Innovation](#)

5.0 Post implementation review/monitoring and evaluation

Monitoring and evaluation

72. The impact and success of the proposed legislation will be monitored by tracking key indicators, including:
- i. Value of exports per year
 - ii. Number of total exporting businesses
 - iii. Number of micro, small and medium exporting businesses
 - iv. Number of new exporting businesses since legislation
 - v. Value of trade finance provided to UK micro, small and medium businesses
 - vi. UK carbon emissions associated with paper and printing processes in international trade per year, using the OECD's database⁴⁶.
 - vii. Adoption of electronic trade documents by UK exporting businesses (including absolute number and proportion of total exporting businesses, and how adoption rates compare with countries implementing similar measures)
73. Many of these metrics are already recorded and published by organisations including HM Revenue and Customs, the Organisation for Economic Co-operation and Development, the International Chamber of Commerce, the Digital Shipping Container Association and the World Trade Organisation. These metrics are typically recorded annually (if not more frequently), therefore regular monitoring of the impacts of the proposed legislation will be possible.
74. In addition, as many of these metrics are already collected currently, it will be possible to compare their trajectory with the period of time when electronic trade documents were not in use. The metrics will be used to track the impact of the legislation in terms of the number and types of businesses trading, the value of UK trade and the take-up of electronic trade documents. By monitoring the take-up rate in particular, policy decisions can be taken to encourage adoption if required.

Post-implementation review

75. A post-implementation review (PIR) will not be conducted.
76. The Bill is uncontroversial and the digitisation of trade documents has been called for by industry⁴⁷. It is also permissive legislation, meaning that no business will be forced

⁴⁶ [OECD \(2021\), Carbon dioxide emissions embodied in international trade \(2021 ed.\) \(Select D17T18: Paper products and printing for the 'Industry' selection\)](#)

⁴⁷ [Law Commission \(2021\), Digital assets: electronic trade documents. A consultation paper \(paragraph 2.47\)](#)

to use electronic trade documents if they do not wish to do so, and paper documents can continue to be used instead. As a result, it is very unlikely that this legislation will need to be reversed. A PIR is therefore not considered proportional or necessary.

77. The monitoring and evaluation approach outlined in the previous section, which includes key performance indicators and the stakeholders involved in collecting these, will ensure that the level of success and impact of the proposed legislation can be monitored without a PIR.