

GERMANY | CREATING A MODERN DIGITAL TRADE ECOSYSTEM

CUTTING THE COST AND COMPLEXITY OF TRADE

Reforming laws and harmonising
legal frameworks

Commissioned by:

Summary

Findings

1. Germany's exports are **17%** higher in value terms than they were at the start of the pandemic but have fallen back since March 2021.
2. Aligning with MLETR, Germany could realise **€1.1 trillion** in extra trade by 2026.
3. Benefits would include a reduction in:
 - » **costs to business by 81%, just from paperless trade with cost reductions greatest in border and documentary compliance**
 - » **time associated with digitalising cross border paperwork is nearly 81%**
4. Since 2013, Germany has had laws enabling the use of electronic transport documents, but existing laws only cover transport documents and do not provide sufficient clarity for industry implementation.
5. To digitalise the trade ecosystem and align to MLETR, the law must enable all documents to be handled in digital form. In Germany, this is not currently the case.
6. To capitalise on the benefits of digitalising the trade ecosystem, three tasks are required of the German government:
 - » **Add electronic form to Bills of Exchange Act**
 - » **Enable use of electronic transport insurance certificates**
 - » **Enact dedicated regulation on the details of electronic documents**
7. Germany's trade associated with positive SDGs is **38%** higher than its trade associated with negative SDGs
8. There is scope for Germany to take a leadership role on sustainability by implementing the EU taxonomy, but this will require monitoring ESG products, sectors and activities at a transactions level.

Making the Case for Digitalisation

Electronic Transferable Records

ICC is calling on national governments to create a modern digital trade ecosystem by reforming laws to digitise trade documentation and align legal frameworks to the UNCITRAL Model Law on Electronic Transferrable Records (MLETR). This supports the [G7 Framework for Collaboration on Electronic Transferable Records](#) call to do the same, the work of [UNCITRAL](#) in promoting MLETR, the [Framework Agreement on Facilitation of Cross-border Paperless Trade](#) in Asia and the Pacific of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). It also supports the ambition of [The Commonwealth Connectivity Agenda](#) to increase intra-Commonwealth trade to \$2 trillion by 2030.

A modern digital trade ecosystem fit for the 21st century requires national laws to recognise all trade documents in digital form, and legal systems to be aligned to enable digital information to move seamlessly across borders and between stakeholders – buyers, sellers, financiers, insurers, shippers, logistics and customs. Whilst great progress is being made to digitise trade facilitation and customs documents, most jurisdictions around the world still require documents that transfer the possession of goods (transferable records) to be presented in paper form. Examples of such documents in international trade include bills of exchange, bills of lading, promissory notes and warehouse receipts.

The digital trading system currently operates on antiquated systems and laws, in some cases dating back centuries. A typical trade transaction involves up to 27 documents, 9 of which relate to the transfer of possession, can cost \$80,000 per transaction and take up to 2-3

Making the Case for Digitalisation

Electronic Transferable Records

months to process. In total, 4 billion documents move across the trade ecosystem at any given time creating inefficiencies that slow trade down and hamper growth and innovation. Through undertaking necessary legislative reform we can create an enabling legal environment for paperless trade that will enhance SME participation in trade and underpin the economic recovery.

Such legislative reform will contribute to a modernised trading ecosystem that is simple, efficient, and interoperable – where trade happens in hours and days, not weeks and months – and where costs are lower, especially for SMEs. This will help make countries more attractive to digital foreign direct investment and, with faster connectivity, will improve the digital competitiveness and capacity of firms to trade internationally.

The optimal way to achieve this is to reform national laws and align them with the UNCITRAL MLETR.

This report was commissioned by ICC United Kingdom in partnership with ICC France and Germany and the ICC Digital Standards Initiative to set out the economic case for harmonising legal frameworks and provide analysis on the preparedness of the UK market in relation to use of digital identification.

ICC Digital Trade Roadmap

TODAY

HEAVILY PAPER-BASED PROCESSES
4 billion documents circulating in the trade system

LIMITED ACCESS TO FINANCE
US\$1.5 trillion trade finance gap persists

OUTDATED LAWS
National laws not accepting title documents in digital form

NO STANDARDS
Lack of standardized information, processes and systems

NEXT 5 YEARS

DIGITISE THE FLOW OF INFORMATION IN TRADE

REDUCE THE COST OF TRADE

UPDATE AND ALIGN LAWS AND REGULATIONS

DEVELOP DIGITAL STANDARDS

FUTURE

AUTOMATION
All trade documents handled in digital form

INCREASED FINANCIAL INCLUSION
Cost of finance attainable to all stakeholders

REVISED LEGAL FRAMEWORK
No legal barriers and aligned legal systems

INTEROPERABILITY BETWEEN SYSTEMS
Seamless trade flows between different technology platforms and stakeholders

Building Blocks for Success

LEGAL REFORM (Governments)

- Update national laws to accept title documents in digital form
- Align legal frameworks to MLETR

STANDARDISATION (ICC Digital Standards Initiative)

- Work with international institutions and industry groups to establish international interoperable digital standards
 - » Build on existing standards
 - » Create new standards where they don't exist

INDUSTRY ADOPTION & TRANSFORMATION

- Support industry to modernise digital infrastructure
- Make the internal business case for digital transformation
- Promote technology solutions

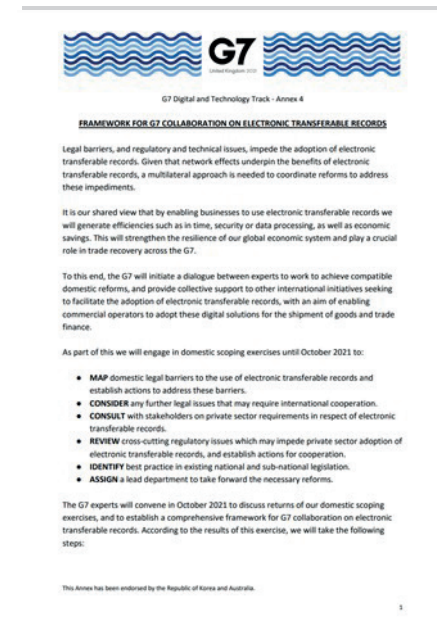
G7 Ministerial Declaration

“Paper-based transactions, which still dominate international trade are a source of cost, delay, inefficiency, fraud, error and environmental impact. It is our shared view that by enabling businesses to use electronic transferable records we will generate efficiencies and economic savings. This will strengthen the resilience of our global economic system and play a crucial role in trade recovery across the G7.”

G7 Digital and Technology Ministers, 28 April 2021



Digital and Technology Ministerial Declaration



Framework for G7 Collaboration on ETRs

Definition;

Transferable Records

Transferable documents or instruments are paper-based documents or instruments that entitle the holder to claim the performance of the obligation indicated therein and that allow the transfer of the claim to that performance by transferring possession of the document or instrument.

Transferable documents or instruments, sometimes called 'documents of title' typically include:

- **bills of exchange**
- **bills of lading**
- **cargo insurance certificates**
- **marine insurance policies**
- **promissory notes**
- **seaway bills**
- **ships delivery orders**
- **warehouse receipts**



The Global Framework

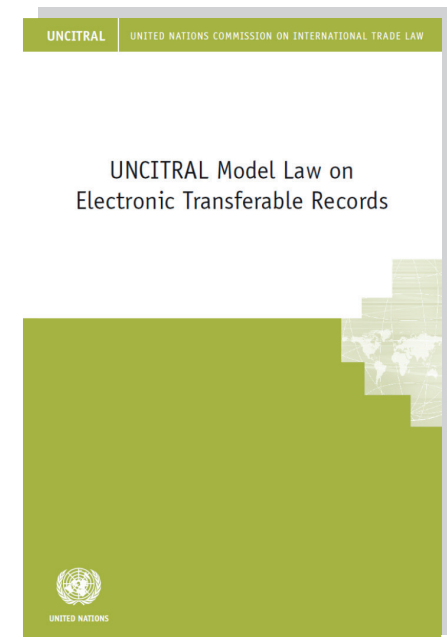
UNCITRAL Model Law on Electronic Transferable Records (MLETR)

The MLETR creates an enabling legal framework for paperless trade. It provides an international framework to align national laws and enable the legal use of electronic transferable records both domestically and across borders.

The MLETR builds on the principles of non-discrimination against the use of electronic means, functional equivalence and technology neutrality underpinning all UNCITRAL texts on electronic commerce. It enables the use of modern technologies including registries, tokens and distributed ledgers.

Aligning national laws to MLETR enables digital information to move seamlessly across borders and between stakeholders – buyers, sellers, financiers, insurers, shippers, logistics and customs

UNCITRAL is the United Nations Commission on International Trade Law, a subsidiary body of the U.N. General Assembly responsible for helping to facilitate international trade and investment.



Economic Case for Legal Reform & Alignment

UNCITRAL Model Law on Electronic Transferable Records (MLETR)

According to a 2021 study commissioned by ICC United Kingdom, modernizing laws in the UK will unleash SME growth and:

- Generate **£25 billion** in new economic growth: **25%** extra SME trade by 2024
- Reduce the number of days needed for processing documents by up to **75%**
- Free up **£224 billion** in efficiency savings which can be recycled into the real economy
 - » £171 billion from bills of lading
 - » £26 billion from bills of exchange
 - » £27 billion from promissory notes
- Generate **£1 billion** to tackle the trade finance gap

CREATING A MODERN DIGITAL TRADE ECOSYSTEM

The economic case to reform UK law and align to the UNCITRAL Model Law on Electronic Transferrable Records (MLETR)

ICC UNITED KINGDOM
INTERNATIONAL
CHAMBER OF COMMERCE
The world business organization

coriolis[®]



Enabling SMEs

To Participate in Trade

- Digitalisation will dramatically reduce the cost and complexity of trade and enable more SMEs to participate in global trade.
- Modernising antiquated systems and processes will enable SMEs to operate more efficiently through the smarter use of technology solutions.
- Harmonized systems will help SMEs scale their businesses into international markets at lower cost and better access supply chain opportunities.
- Safer, more secure digital systems will reduce fraud and criminal activity reducing exposure to risk and disputes.
- Greater access to trade finance solutions will address 50% of the global trade finance gap and help SMEs grow into international markets.



Promoting Sustainable Trade

The digitalisation of trade, when combined with investment in digital infrastructure and skills will help ensure no one gets left behind, particularly in the emerging economies.

Legal reform and harmonisation is a fundamental building block to a successful modern digital trade ecosystem. Without reform, the cost of trade will remain high and solutions will be unable to scale across borders. It is also a pre-requisite to implementing international digital standards, another key building block that remove the fragmentation that currently exists in the trading systems and enable systems and processes to talk to each other and information to flow in digital form.



**LEAVE NO ONE
BEHIND**



Digitization helps alleviate poverty by promoting more trade and shared prosperity between nations. Trade reduces consumer costs, improves choice, increases access to investment and opportunity, creates good jobs and improves living standards.



On average, 5 of 6 digital businesses are led by women. Digital trade enables more SMEs to participate across the whole economy reducing regional, sectoral and international inequalities.



Paperless trade will reduce the cost and complexity of trade, tackle 50% of the global \$1.7 trillion trade finance gap and enable more SMEs to participate and drive the economic recovery and reduce fraud and criminal activity. Legal reforms will remove barriers to innovation, eliminate inefficiencies in the trading systems and accelerate the smarter use of technology solutions.



An estimated 4 billion trade documents are in circulation. If stacked on each other, the documents would be 520,000 meters high and constitute approximately half a million trees. Paperless trade reduces the carbon footprint of trade and promotes more sustainable working practices.



Creating a modern digital trade ecosystem will help make trade work for everyone. Stronger trade relations reduce conflict and promote peace and security. New institutional partnerships will be created where they didn't exist before and harmonized legal frameworks will enable governments to work more closely than ever before to promote trade.

Scaling Reforms and Maintaining Momentum

The opportunity now exists to rapidly scale up legal reforms to harmonise legal frameworks worldwide and remove a key barrier to the growth of digital trade. In the context of the economic recovery, this exercise presents itself as a low cost, high return activity for all governments seeking to reduce the cost and complexity of trade and increase SME participation to drive the recovery.

However, this isn't a given. More business cases and economic data are required to demonstrate the value of reform and ensure that the momentum generated by the G7 in 2021 is sustainable and long term. The business cases provided by this project will generate the evidence to ensure this happens.

The reports will be published at the same time as G7 governments provide a full report back in October 2021 on legal barriers and a roadmap for reform.

Current Legal Situation in Germany

Functional Equivalence as Guiding Principle

Legal Reform 2022

Since 2013, Germany has had laws enabling the use of electronic transport documents.

Under the current law, an electronic record has the same functions as a paper document of transport shall be deemed equivalent to a document of transport, provided that the authenticity and integrity of the record are assured (electronic document of transport).

However, the existing laws only cover transport documents and do not provide sufficient clarity for industry implementation.

The result has been low usage of electronic documents.

PROS

**Technology
neutral**

Flexible

**Design is up to
the users**

CONS

**Details
missing**

**Requirements
unclear**

**Analogue
application
of the law**

RESULTS:

- » Companies are reluctant to introduce electronic documents
- » It isn't clear how functional equivalence could be proven in a court proceeding.
- » Use of some electronic documents is low

Electronic Documents of Transport

To digitalise the trade ecosystem the law must enable all documents to be handled in digital form. In Germany, this is not currently the case.

| DOCUMENT OF TRADE | RELEVANT SECTION OF LAW | ACCEPTED IN DIGITAL FORM |
|---------------------------------|--|--------------------------|
| Waybill | Sec. 408 (3) HGB | Yes |
| Consignment note | Sec. 443 (3) HGB | Yes |
| Warehouse receipt | Sec. 475c (4) HGB | Yes |
| Bill of Lading | Sec. 516 (2) HGB | Yes |
| Sea-Waybill | Sec. 526 (4) HGB | Yes |
| Transport Insurance Certificate | Sec. 363 (2) HGB | No |
| Bills of Exchange | Art. 1; 3 (1 and 2) Bills of Exchange Act | No |
| Promissory Notes | Art. 75; 3 (1 and 2) Bills of Exchange Act | No |

Solution:

Legal Reform and Regulation

To enable industry to implement legislation and fully align German Law to MLETR, three solutions are required:

Adopt Implementing Regulations (for electronic documents of transport)

The following text would enable existing laws to be implemented by industry:

The Federal Ministry of Justice and Consumer Protection is hereby empowered to determine by regulation, issued in agreement with the Federal Ministry of the Interior and not requiring the consent of the Federal Council (Bundesrat), the details of issuing, presenting, returning and transmitting a document of transport, as well as the particulars of the process of posting retroactive entries to an electronic document of transport.

Legal Reform

Three tasks are required of the German government:

- Add electronic form to Bills of Exchange Act
- Enable use of electronic transport insurance certificates
- Enact dedicated regulation on the details of electronic documents

Solution:

Adopt Implementing Regulation

Functional Equivalence

- **Electronic record**
- **Same functions**
- **Authenticity and integrity**

Legal terminology required to provide industry the necessary certainty they need to implement legally compliant technology for electronic transferrable records

Legal Definition

- **issuing**
- **presenting**
- **returning**
- **transmitting**
- **retroactive changes**

Technical Definition

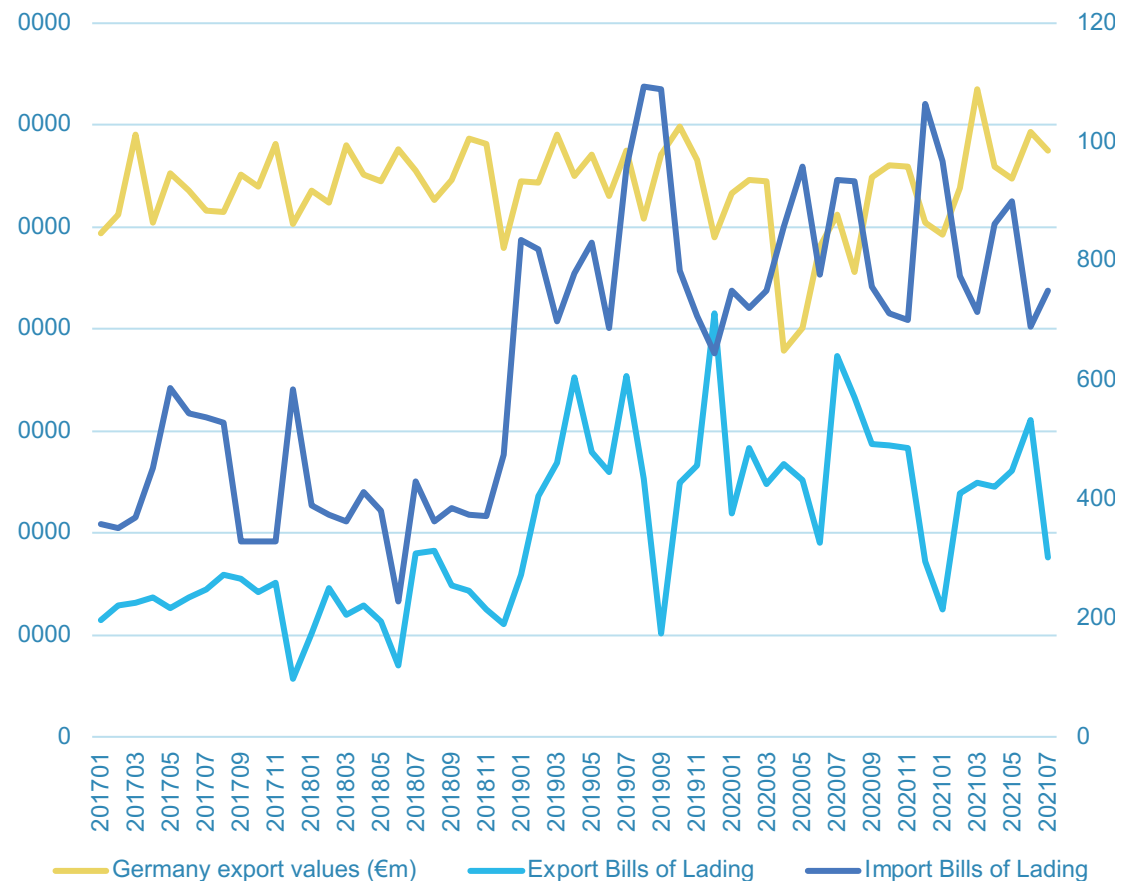
- **Reliable methods**
- **Electronic signatures**
- **Data formats**

Note: ICC Germany will publish a supplementary paper to this report 'Electronic Documents of Trade in Germany' covering the legal situation in Germany with draft legal text for government.

Germany May Be Seeing the Start of Pandemic Impact on Supply Chains

- Germany's exports are 17% higher in value terms than they were at the start of the pandemic but have fallen back since March 2021
- The data show counts of Bills of Lading from Germany's ports – as Germany trades predominantly with Europe, trade through ports gives an idea of its non-EU trade position – imports are higher than exports
- Shipment counts fell between December 2020 and March 2021, picked up in April and May but fell back in June and have not recovered their December 2020 levels
- The pattern is similar for export shipments through ports suggesting that supply chain shortages may be impacting Germany's trade
- Values have remained the same suggesting inflationary pressures

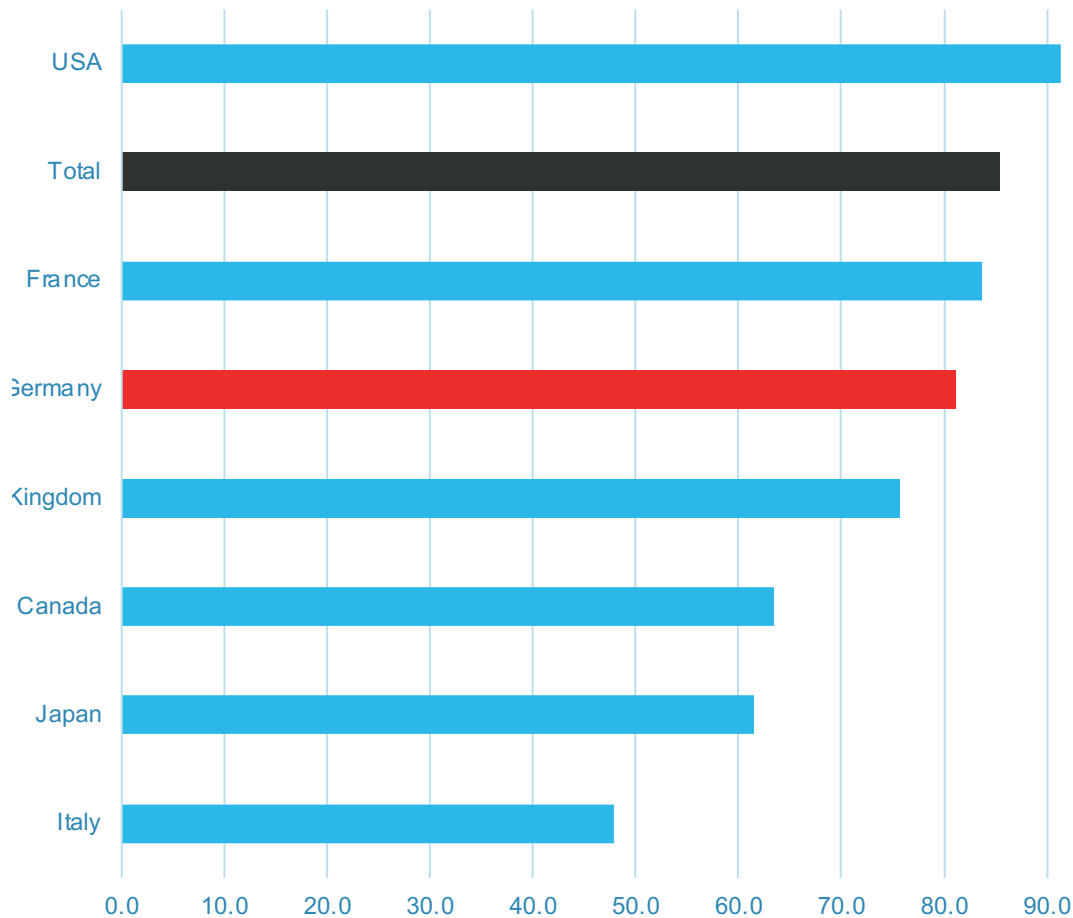
Germany's trade position (export values, €m), and port bills of lading (counts), Jan 2017-July 2021



The Pandemic Has Caused Greater Complexity for Exporters

Especially SMEs But Digitalization Can Help:

Reduction in costs, 2019-2026, from paperless trade (%)

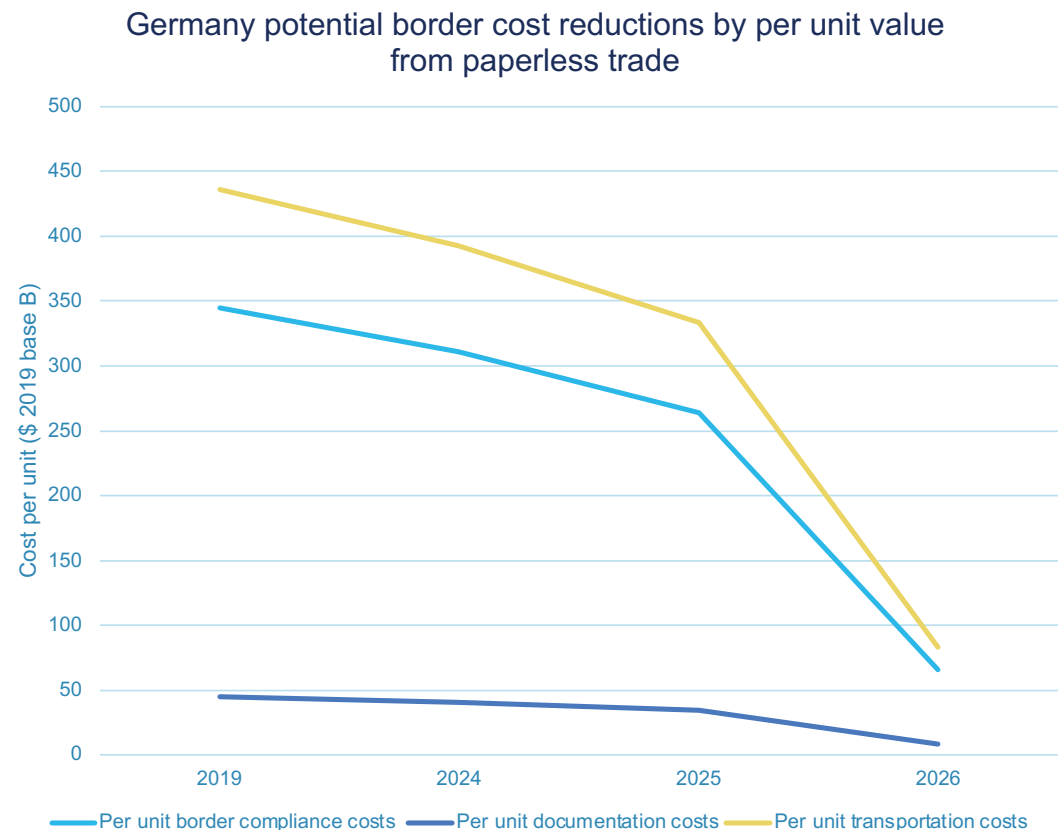


- Paperless trade helps address complexity by allowing digital communication, documentation and data across borders
- Digital trade helps by enabling digitally enabled transactions
- Digitalising electronic transferrable records helps by allowing transferrable documents like Bills of Lading, Bills of Exchange or Letters of Credit to streamline trade and reduce time and costs; it also enhances the use of digital documents for working capital purposes speeding up access to finance
- Germany stands to reduce costs to business by around 81%, just from paperless trade

The Pandemic Has Caused Greater Complexity for Exporters

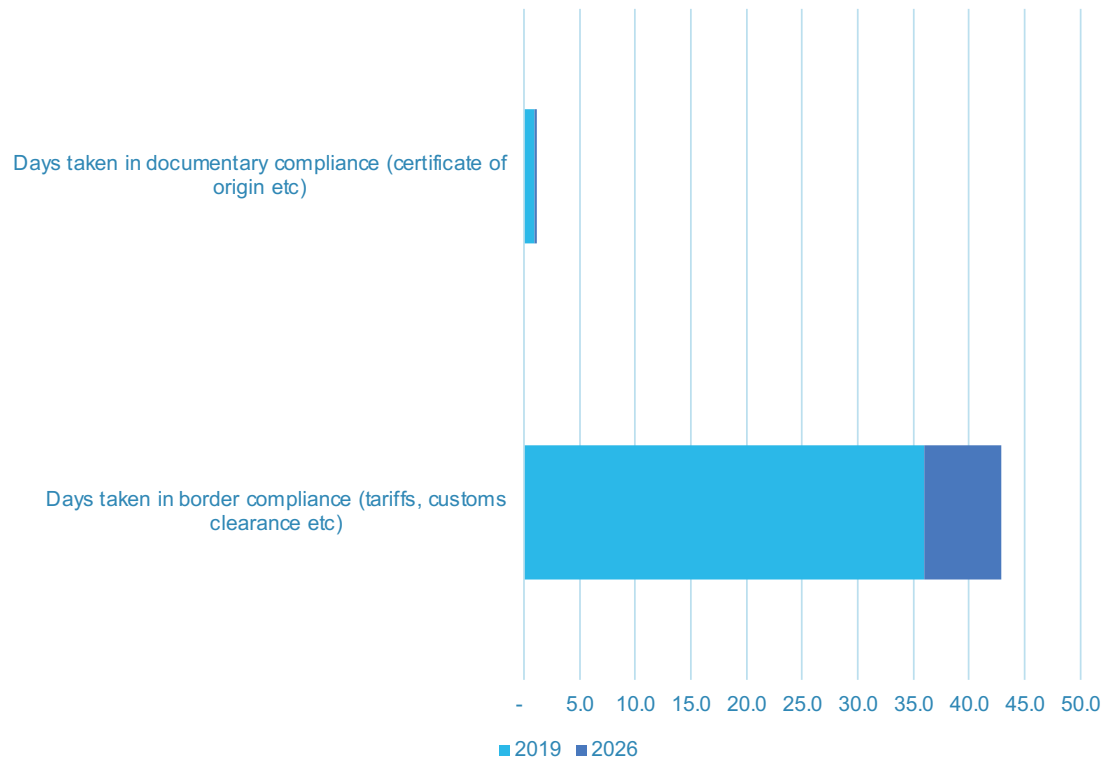
Especially SMEs But Digitalization Can Help:

- 2019 costs are taken from World Bank Ease of Doing Business and UNCTAD transportation cost data
- The trajectory of cost reduction is taken from the survey of 55 global banks conducted for the ICC MLETR alignment business case in March 2021
- The cost reductions assume that no legal change takes effect fully until 2023 therefore any effects amplify after 2024 quickly
- The impact is a significant drop in border costs (tariffs and customs and excise regulatory checks) and documentation (eg rules of origin)



Time Savings Associated with Is Nearly 81% Border Crossing and Paperwork

Time savings for German exports from paperless trade
across borders

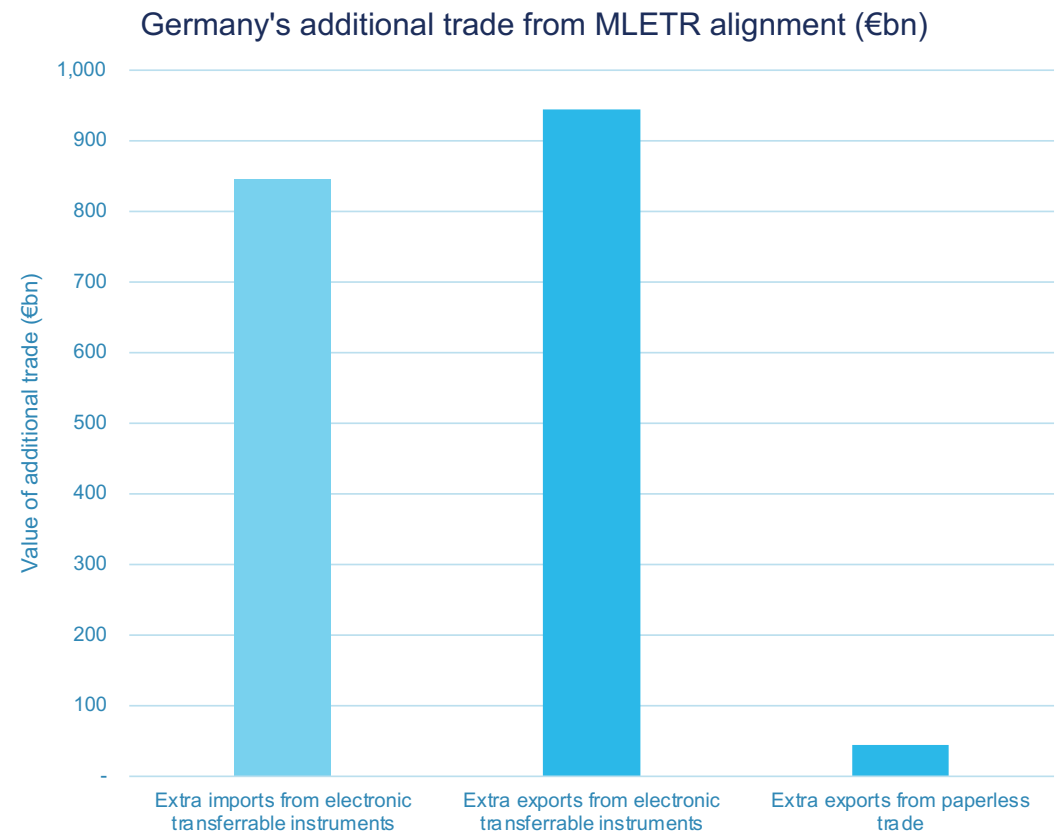


- Brexit has increased the amount of time taken crossing borders by an estimated 7%
- Paperless trade enables digital original documentation and speeds up the process significantly
- The technology exists and experts interviewed assessed that the reduction in the number of days on average would be between 75% and 85%
- Based on the Ease of Doing Business data for Germany the figure is around 80%

By Aligning With MLETR Germany

Could Have €1.1 Trillion Extra Trade by 2026

- As Germany has a higher number of exports, the impact on export values is higher but this feeds into supply chains and consumption elsewhere
- €1 trillion extra exports by 2026 increases the value of German trade by 71% if MLETR alignment can be implemented by the end of 2022
- The impact of digital trade facilitation on exports is lower at just below €45 billion but will help Mittelstand businesses in terms of reducing costs proportionately more than bigger ones



Digitalisation Can Help Track Sustainability

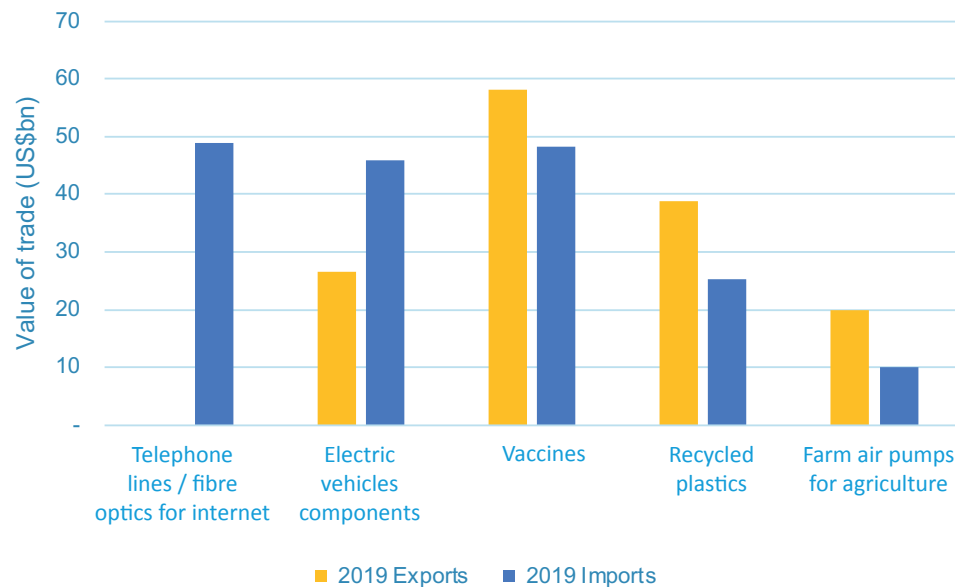
- Germany's trade associated with positive SDGs is **38% higher** than its trade associated with negative SDGs
- But Germany ranks in the **top five** import partners in the **five largest** sectors associated with negative SDGs:
 - » **Crude and refined oil**
 - » **Coal**
 - » **Women's clothing (man made textiles)**
 - » **Plastic packaging**
 - » **Components for combustion engines**
- It is **No.1** for recycled plastic exports at **\$38.8 billion**

Germany Has a Key Role to Play in Sustainable Trade

POSITIVE SDGs

TO 5 Sectors

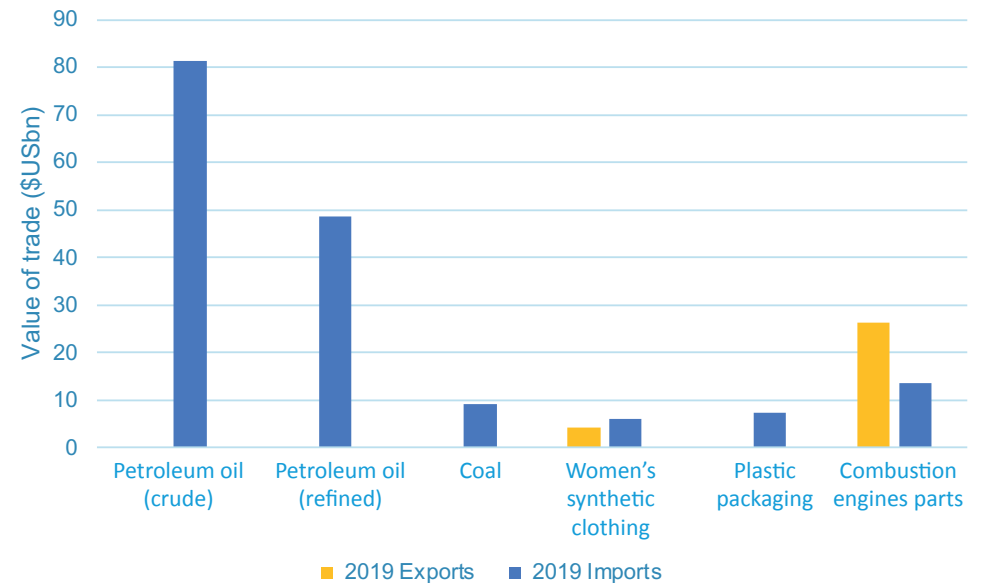
Germany's imports and exports in top five sectors associated with positive SDGs (\$bn)



NEGATIVE SDGs

TO 5 Sectors

Germany's imports and exports in top five sectors associated with negative SDGs (\$bn)



- Germany is the third largest trading partner and accounts for nearly **10% of world exports**
- This means it can **influence** the way in which supply chains become sustainable
- There is scope for it to take a **leadership role** by implementing the EU taxonomy, but this will require monitoring ESG products, sectors and activities at a transactions level
- This requires a **digital solution** as it is too complex to be done manually
- **MLETR** has the potential to track products through Bills of Lading so the scope for linking ESG and digital goals offers huge possibilities

APPENDIX

Method Glossary

- The UK was taken as a base for costs and time savings over time for digital trade for banks and businesses using the ICC United Kingdom survey of 55 global banks
- World Bank Ease of Doing business data was used as a base for export and import costs (<https://www.doingbusiness.org/en/rankings>). This provides information about the costs in terms of dollar values per shipment and costs of border crossings and border compliance for base estimations and replaced the need for a dedicated survey approach as was conducted in the UK. This was used as the basis of the paperless trade analysis
- UNCTAD transportation costs were used as a baseline for creating an index of transport and freight costs in international trade <https://unctadstat.unctad.org/EN/TransportCost.html>
- Only exports are analysed to assess the costs and time savings associated with paperless trade to avoid double-counting on bilateral relationships
- The assessment of the impact on trade of electronic transferrable records on trade was based on the UK case study published by the ICC in May 2021 which included a survey of 55 international banks. This study gave estimates from that survey of the total benefits to banks' trade finance businesses of a move to electronic transferrable records.

- A typical shipment was valued at \$25,000. UNCTAD and the OECD estimate costs on the basis of a typical container of 20 ft that weights between 1.8 and 2.2 metric tonnes. We assumed 2.2 metric tonnes and used trade volume data from the United Nations Comtrade database to estimate the “typical value” of that shipment using the Coriolis Technologies MultiLateral platform’s mirroring approach (<https://comtrade.un.org/> and <https://www.coriolis-data.com/dashboards>)
- Costs by country were derived from the Ease of Doing business indicators (a more accurate and recent estimation of costs than is currently available in the East of Doing business data which was last published for 2019
- The value of trade by \$25,000 for each country to get a unit value of trade in 2021 for each country. The total cost for each country (compliance + documentation + transport) was multiplied by the number of units to get a total cost of transportation, border compliance and documentary costs
- The percentage of total trade accounted for by trade costs was calculated.
- Cost and time savings were taken from the documentary research, expert interviews and discussions with trade professionals (approx. 20 in total) and the ICC UK survey of 55 banks. There were assumed to be no impacts on costs in the first year after legal reform

so growth in line with trend forecasts was calculated for 2022. Benefits were estimated to accrue from 5% in the first year and exponentially thereafter.

- Coriolis Technologies creates a momentum forecast of trade to give a base line picture of how trade will grow over the following five years. The cost elasticity of trade was derived from a meta-analysis of academic research on the subject using cross—country analysis (https://www.nber.org/system/files/working_papers/w16796/w16796.pdf. And <https://core.ac.uk/download/pdf/6224614.pdf> for example) and the country elasticity from this analysis was used as a coefficient to create uplifts in trade forecasts between 2021 and 2026 using an upper-bound and a lower bound estimate given the estimated expectation of changes in trade costs from paperless trade
- Cost changes year-on-year were estimated assuming a gradual reduction from 10% in 2024 to 15% in 2025 and 25% in 2026 if regulations are implemented in the next 18 months This gives the base forecast and the lower and upper bound estimates for 2025. The acceleration in impact is because of the multiplier effect as legal reform is implemented before 2024. However, this is substantially below the estimated costs savings in the documentary research because these tend to be unquantified

- Documentary research covering 600 media sources, speeches and third-party documentation across the G7, Europe, Asia, Africa, North America and South America was analyzed using Python-based Natural Language Processing tool.
- Approximately 1.1 million words in appropriate documents were analyzed.
- Documents were analyzed for the frequency, context and content of key words associated with trade digitization, paperless trade facilitation and related legal reform.
- The results were grouped into specific categories and themes related to legal reform, electronic transferrable instruments, and digital trade facilitation.
- The documentary research was supplemented by 20 expert interviews with trade practitioners, in particular covering SME impact and sustainability.

- All goods exports and imports are classified by a standardised customs and excise code – the HS code
- This HS code is mapped to sustainable development goals (SDGs) using the UN concordance: <https://www.unescap.org/sites/default/d8files/knowledge-products/SDG-HS-NTM-Concordance.png> algorithms based on the UN Concordance)
- This yields the five largest sectors contributing positively to SDGs in global trade flows and the five largest sectors contributing negatively to SDGs in global trade flows
- The number of times a G7 country is counted amongst the top five importers or exporters in each of these five sectors is recorded

- » Paperless trade: this is digital cross-border trade facilitation measures to mean “Trade taking place on the basis of electronic communications, including exchange of trade-related data and documents in electronic form across borders” (https://www.unescap.org/sites/default/d8files/knowledge-products/FAQ%20on%20the%20Framework%20Agreement_Dec%202020.pdf)
- » Electronic Transferrable Records: “electronic transferrable records that are equivalent to transferable documents or instruments.” In other words, these are electronic versions of often paper-based transferable documents that entitle the holder to claim the performance of the obligation indicated in the documentation- for example payment or delivery. (https://uncitral.un.org/en/texts/ecommerce/model-law/electronic_transferable_records, https://uncitral.un.org/sites/uncitral.un.org/files/media-documents/uncitral/en/mletr_ebook_e.pdf).
- » Border compliance: “captures the time and cost associated with compliance with the economy’s customs regulations and with regulations relating to other inspections that are mandatory in order for the shipment to cross the economy’s border, as well as the time and cost for handling that takes place at its port or border.” (<https://www.doingbusiness.org/en/data/exploretopics/trading-across-borders/faq>)
- » Documentary compliance: “captures the time and cost associated with compliance with the documentary requirements of all government agencies of the origin economy, the destination economy and any transit economies.” (<https://www.doingbusiness.org/en/data/exploretopics/trading-across-borders/faq>).
- » Digital trade: digitally enabled transactions in goods and services (https://www.oecd-ilibrary.org/trade/digital-trade_524c8c83-en)

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NOTE:

This project is part of wider, ICC global programme making the case for legal reform. The programme has multiple research commissioners, project funders and institutional partners.