# 1 Introduction

Using electronic documents and transactions can speed up and increase trade. Electronic messages can eliminate the need to enter data into a computer manually at each supply chain checkpoint and can provide opportunities for the potential reuse of data.

There are various ways to digitize trade documents and transactions. One way is simply to take a visual snapshot of a paper document. Another possibility is an internet web portal where individual data elements can be keyed in – this is known as data-trader interface (DTI). Paperless transactions can also be conducted using computer-to-computer electronic messages in a standard format between business partners – known as electronic data interchange (EDI). Typically, these systems provide an application programming interface to facilitate interactions with the database (UNECE and UN/CEFACT, 2018).

A study focused on the Asia-Pacific region found that even partial implementation of cross-border paperless trade measures could see an export increase of US$ 36 billion annually or, under a more ambitious scenario of full implementation, an annual export gain of US$ 257 billion (ESCAP, 2014). The time required to export could also fall on average by 24 per cent for partial implementation and 44 per cent for full.

The use of electronic processes in international trade can also have significant environmental benefits, given that global supply chains usually involve the printing, dispatching, processing, exchanging and ultimately discarding of vast quantities of paper documents (Duval and Hardy, 2021): "At the global level, emissions saved through paperless trade implementation average 36 million tons, equivalent to planting over a billion trees."

To cut red tape at the border via simplification, modernization and harmonization of customs procedures, WTO members adopted the Trade Facilitation Agreement (TFA), which entered into force in 2017.

The TFA requires WTO members to provide for advance lodging of documents in electronic format for pre-arrival processing of trade administration documents, as appropriate. It also encourages customs authorities to accept paper or electronic copies of supporting documents required for import, export or transit formalities.

**"Even partial implementation of cross-border paperless trade measures could see an export increase of US$ 36 billion annually."**

The 2021 United Nations Global Survey on Digital and Sustainable Trade Facilitation[1] (United Nations, 2021) shows that TFA-related measures have been well implemented by improving transparency of regulations, streamlining the formalities and enhancing institutional arrangements and cooperation mechanisms. However, more work remains to be done in digitalizing trade processes, in particular on enabling the exchange

and legal recognition of trade-related data and documents in electronic form.

A recent joint study by the Asian Development Bank (ADB) and ESCAP finds that the average trade cost reduction in the Asia-Pacific would be more than 13 per cent in the case of full digital trade facilitation implementation, such as paperless trade measures, in addition to the binding and non-binding measures already under the TFA (ADB/ESCAP, 2021).

Several regional instruments and initiatives, such as the Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific, have aimed at accelerating progress in this area (see Box 1). The relative urgency in enabling cross-border paperless trade became more apparent during the COVID-19 crisis, when physical distancing measures made the exchange of paper documents more challenging and the flow of small shipments and parcels through e-commerce platforms further accelerated.

**"The average trade cost reduction in the Asia-Pacific would be more than 13 per cent in the case of full digital trade facilitation implementation."**

## 1.1 Paperless trade systems

The main function of a paperless trade system is to generate, send, receive, store or otherwise process trade-related information electronically.[2] Different paperless trade systems exist (e.g. electronic customs declarations, electronic port management systems, electronic single windows).

Paperless trade refers to the digitalization of information flows required to support goods and services crossing borders (UNECE and UN/CEFACT, 2018). This notion is often used to refer to the electronic exchange of data in a purely national commercial and regulatory context; that is, business-to-government (B2G).

However, paperless trade systems can also be used among governments (G2G) and businesses (B2B). These levels of activity are not mutually exclusive, and a paperless trade system can cover several of them.[3] Table 1 lists some of the relevant sections on paperless trade systems in the *ESCAP Technical Readiness Assessment Guide* and *Checklist*.

**Table 1: Paperless trade systems – relevant sections in the *ESCAP Technical Readiness Assessment Guide* and *Checklist***

| Questions in the *Guide* and *Checklist* | Section |
|---|---|
| Has your country implemented electronic customs (and other services that facilitate customs declarations in an electronic format)? | A2.1.1 |
| Has your country implemented electronic port systems (including air, sea, road, rail and inland ports)? | A2.1.2 |
| Has the country implemented a paperless customs declaration for national transit procedures (inbound transit, outbound transit, inland transit)? | B5.1 |

**Box 1: Bilateral and regional agreements and initiatives for cross-border paperless trade**

**ASEAN Single Window Agreement***

The first regional agreement dedicated to cross-border paperless trade is arguably the Association of Southeast Asian Nations (ASEAN) Single Window Agreement, which was signed in 2005 by ten ASEAN members. Under the agreement, members aim to develop and interconnect NSWs, which enable parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfil all import, export and transit-related regulatory requirements (UNECE and UN/CEFACT, 2020a).

Although progress has been made, this has proved more challenging than originally anticipated, with the first live exchange of a document – an ASEAN preferential certificate of origin – achieved among most members only in 2018.

**Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific****

In part to answer the challenges faced with the ASEAN Single Window Agreement, ESCAP members, led by the Republic of Korea, initiated in 2012 the negotiation of the Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific. Adopted in 2016, the Framework provides an inclusive platform for the digitalization of trade processes based on a core set of principles and aims to foster the mutual recognition of trade-related data and documents in electronic form among 53 economies.

It entered into force in February 2021 and has been accompanied by less formal initiatives among member subgroups, such as the World Customs Organization (WCO) and ESCAP Joint Task Force on Cross-border Electronic Data Exchange between China, the Republic of Korea, Mongolia and the Russian Federation.

**Bilateral and regional trade agreements**

While paperless trade has been a long-standing focus in the Asia-Pacific, including under the Asia-Pacific Economic Cooperation (APEC) or as part of a growing number of bilateral and trilateral digital trade agreements between Singapore and other economies, the number of initiatives in this area has also been growing rapidly in other parts of the world.

The majority of bilateral and regional trade agreements recently concluded around the world now include one or more provisions on paperless trading, most often as part of a dedicated chapter on e-commerce or customs and trade facilitation. Sharing experiences at the regional and global level will be key to ensuring that these provisions are implemented effectively and inclusively.

The EU eIDAS Regulation on electronic identification and trust services for electronic transactions*** supports secure and seamless electronic interactions among public and private stakeholders, and the EU Customs Single Window Certificates Exchange (EU CSW-CERTEX) provides useful insights for further development of paperless trade.

* See https://asean.org/our-communities/economic-community/asean-single-window.

** UN document E/ESCAP/RES/72/4.

*** See *Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC*, 28 August 2014.

## 1.2 National single windows

All domestic paperless trade systems may ultimately (and ideally) connect to one NSW.[4] Efficient integration reduces compliance costs, as data are only submitted once. The establishment of NSWs is encouraged under the TFA. Table 2 lists some of the relevant sections on paperless trade systems in the *ESCAP Technical Readiness Assessment Guide* and *Checklist*.

**Table 2: National single windows – relevant sections in the *ESCAP Technical Readiness Assessment Guide* and *Checklist***

| Questions in the *Guide* and *Checklist* | Section |
|---|---|
| Has a single window system been implemented in your country to expedite cargo movement/clearance and to facilitate the international trade supply chain? | A2.2 |
| Are any of the systems mentioned in A2.1, "Electronic systems", connected via a common or single network? | A3.2 |

## 1.3 Establishing interoperable paperless trade systems

Creating a well-functioning paperless trade system is not without challenges, and this is all the more true when integrating a paperless trade system into an NSW. Various technical and legal methods are required (see Table 3).

Paperless trade systems and NSWs need to connect with their foreign counterparts to support the cross-border exchange of trade-related information. This requires interoperability within and between NSWs and other single windows, which international standards and technology-neutral laws can help to achieve.[5] Cross-border paperless trade measures had a global implementation rate of only 34 per cent in 2017,[6] so many economies are still to reap the benefits that paperless trade systems and NSWs can bring.

As recent regional and free trade agreements have revealed, state actors are becoming increasingly interested in the benefits of digital trade. Studies show that this interest has permeated both sides of the development spectrum, with both developed and developing countries increasingly including chapters dedicated to e-commerce and digital trade provisions (Monteiro and Teh, 2017). This is especially true for "digital-only" agreements in the Asia-Pacific region.[7] Table 4 lists the relevant section on establishing interoperable paperless trade systems in the *ESCAP Technical Readiness Assessment Guide* and *Checklist*.

**Table 3: Key actions for interoperable paperless trade systems and national single windows**

| | |
|---|---|
| **Enabling a conducive legal framework** | |
| ▪ Legal recognition of e-transactions and documents<br>▪ Legal recognition of trust services | ▪ Data governance rules<br>▪ Liability allocation and dispute management |
| **Enabling a conducive technical framework** | |
| ▪ Digital identity<br>▪ Electronic payment<br>▪ Data models and semantics | ▪ Communication protocols<br>▪ Connectivity<br>▪ Data security |
| **Promoting efficient governance and engaging stakeholders** | |
| ▪ Governance rules and structures<br>▪ Capacity building for paperless trade system users | |
| **Promoting technical assistance** | |
| ▪ International technical assistance and support programmes for paperless trade system implementers | |

**Table 4: Establishing interoperable paperless trade systems – relevant sections in the *ESCAP Technical Readiness Assessment Guide* and *Checklist***

| Questions in the *Guide* and *Checklist* | Section |
|---|---|
| If any of the systems mentioned in A2.1, "Electronic systems", have been implemented, what percentage support cross-border data exchange? | B1.1 |
| If a single window system mentioned in A2.2 has been implemented, does it support cross-border data exchange? | B2.1 |
| If yes, does it function as the national single window, which acts as the national single point of connectivity for any cross-border data exchange with other dialogue partners? | B2.2 |

## Endnotes

1 For an interactive website, see https://www.untfsurvey.org.

2 Article 2(f) of the UNCITRAL Model Law on Electronic Commerce defines an information system (such as a paperless trade system) as "a system for generating, sending, receiving, storing or otherwise processing data messages."

3 For instance, the UNECE Integrated Services for MSMEs in International Trade (ISMIT) single submission portals for micro, small and medium-sized enterprises mainly cover B2B processes such as contracting for transport, logistics and financial services. They often also facilitate regulatory processes through B2G information exchange (see https://unece.org/fileadmin/DAM/cefact/cf_forums/2018_China/eCommerce_Bio-PPT/PPT_05_CramMartos.pdf).

4 There are several case studies that can guide the interconnection between NSWs (see Box 1). The ASEAN Single Window Agreement connects the NSWs of ASEAN members into a regional network. The European Maritime Single Window environment connects maritime NSWs to facilitate data exchanges and to share resources and services, such as a unique user registration and access management and common data sets (e.g. location data, hazardous material data, ship sanitation data). Other regional initiatives have been launched to connect NSWs, including the EU Single Window Environment for Customs and the Eurasian Economic Community Single Window initiative.

5 Some initiatives provide general guidance on NSW interoperability, in particular *Single Window Interoperability: Recommendation No. 36* (UNECE and UN/CEFACT, 2017a) and *Cross-border Single Window Interoperability: A Managerial Guide* (UNNExT/ESCAP, 2018).

6 See https://www.unescap.org/news/good-progress-made-implementing-wto-trade-facilitation-agreement-still-long-road-paperless-and.

7 See the Singapore–Australia Digital Economy Agreement (SADEA) and the Digital Economy Partnership Agreement (DEPA) concluded between Singapore and other states.