

Implications of Information and Communication Technologies on Trade Facilitation in European Countries

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Abstract

Digital trade facilitation (TF) is related to the implementation of information and communication technologies (ICTs) to automate and simplify international trade procedures. The analysis of Digital TF measures, particularly Paperless trade and Cross-border paperless trade measures is in the focus of this paper. The former refers to the implementation level of ICTs in trade formalities (e.g. customs automation or availability of internet connection at border-crossings), while the later is related to regulations for electronic transactions, implementation of systems for exchange of documents across borders and electronic trade-related data. To analyze them, data on digital TF measures as a part of broader set of TF indicators, contained in the latest edition of UN Global Survey on Digital and Sustainable Trade Facilitation, are used. The implementation of digital TF measures, accelerated by COVID-19 pandemic, helped contactless trade processes in new conditions. Accordingly, the paper aims to investigate the progress of Digital TF measures implementation in European countries in period 2017-2023 along with ICTs progress and as a response to the crisis caused by COVID-19 pandemic.

Keywords: Digital trade facilitation, paperless trade facilitation measures, cross-border paperless trade measures, trade value, trade costs, panel data.

1. Introduction

Trade facilitation (TF) has been an important issue for the world trading system over several last decades. It is a process of “simplification, modernization and harmonization of export and import processes” (WTO definition). According to wider definitions used by UNCTAD, TF also includes areas such as transit and transport issues, customs, banking and insurance and other regulatory trade procedures (Moisé, E. et al., 2011). Simplifying and streamlining international trade-related procedures by implementation of TF measures, have several aims and many benefits for countries (Moisé E. and S. Sorescu, 2013; Sá Porto, P. C. et al., 2015). Two main aims of their implementation are to enable easier trade flows across borders and to reduce trade costs. Trade facilitation is very important not only for large, but also for small and medium enterprises in reducing their trade costs and easier integration into global value chains (López González, J. and S. Sorescu, 2019). As a result of reforms related to trade facilitation, multilateral WTO Trade Facilitation Agreement (TFA) entered into force in 2017, as a legal form for many TF measures.

Digital trade facilitation includes implementation of information and communication technologies (ICTs) in order to automate and simplify international trade procedures, thus enabling the exchange of electronic documents among stakeholders involved in international trade transactions (cross-border paperless trade; Duval et al. 2018). Benefits of Digital TF measures application are significant and numerous. Their implementation reduces trade costs, making large savings for traders, especially for small and medium enterprises included in foreign trade business. Full implementation of “next-generation” Digital TF measures, like cross-border paperless trade measures, could even double trade costs reduction (Duval et al. 2019). Further, implementation of Digital TF measures decreases the transaction time for managing trade-related procedures. Finally, there also are environmental benefits of digitizing trade procedures, such as reduction of paper usage in trade transactions and the need for copies of the same document through its moving from paper to digital systems (electronic transmission). Emissions savings from paperless trade implementation can be very high. For

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instance, a full transition to paperless trade procedures could eliminate about 36 million tons of carbon dioxide equivalent emissions per year at the global level (Duval, Y. and Hardy, S., 2021).

Digital transformation has been remarkably accelerated by the Covid-19 pandemic crisis, which showed all weaknesses of the world trading system. Namely, in response to Covid-19 pandemic, many countries all over the world made additional efforts to simplify and digitalize trade procedures, that is to implement Digital TF measures, as effective means to mitigate trade disruptions (United Nations, 2021). Therefore, the aim in this paper is to explore the implications of ICTs development on the dynamics of TF measures implementation in European countries in the period 2017-2023, as the period before, during and after Covid-19 pandemic. Implementation of ICTs to automate and make easier international trade procedures is observed through the group of Digital TF measures, based on the UN Survey on Digital and Sustainable Trade Facilitation.

2. UN Survey on Digital and Sustainable Trade Facilitation – A Short Overview of Structure and Methodology

Monitoring of the progress of TF measures implementation has become an important issue along with increasing interest in trade facilitation. Different sources of data can be used for measurement of the implementation level of TF. Most commonly used sources of TF indicators are OECD TF database and UN Global Survey on Digital and Sustainable Trade Facilitation, which is used in this paper. That Survey has been conducted since 2015 every two years. The newest UN Survey on Digital and Sustainable Trade Facilitation (edition 2023) contains data for totally 60 TF measures for 161 countries grouped into the following four main TF groups: (1) General TF measures: Transparency, Formalities, Institutional arrangement and cooperation and Transit facilitation; (2) Digital trade facilitation which consists of Paperless trade measures, related to the implementation level of information and communication technologies (ICTs) to trade formalities and Cross-border paperless trade measures, such as implementation of systems for exchange of documents across borders and electronic trade-related data, regulations for electronic transactions, etc.; (3) Sustainable trade facilitation (TF for Small and Medium-sized enterprises (SMEs), Agricultural TF, Women in TF); (4) Other trade facilitation (Trade Finance Facilitation, Trade Facilitation in Times of Crisis-emergency measures, which are added in new edition of the survey since trade finance has an important role in trade flows facilitation, particularly in periods of crises).

Many of mentioned TF measures are directly related with articles of the WTO TFA, while some measures are beyond the coverage of that agreement, but they significantly contribute to better implementation of TFA. For instance, most of Digital TF measures, particularly those related to Cross-border paperless trade, are not included in the WTO-TFA, which is also the case with Sustainable TF group of measures (except some of measures within agricultural TF sub-group) and Other TF sub-group of measures (United Nations, 2021).

Regarding Digital TF which is in the focus of this paper, two sub-groups of measures are developed: Paperless TF measures and Cross-border Paperless TF measures. The first sub-group contains the following ten measures: (1) Electronic/Automated System for Customs Data (ASYCUDA); (2) Internet connection available to Customs and other trade control agencies at border-crossings; (3) Electronic Single Window System; (4) Electronic submission of Customs declarations; (5) Electronic application and issuance of trade permit; (6) Electronic Submission of Sea Cargo Manifests; (7) Electronic Submission of Air Cargo Manifests; (8) Electronic application and issuance of Preferential Certificate of Origin; (9) E-Payment of Customs Duties and Fees and (10) Electronic Application for Customs Refunds. Cross-border Paperless TF sub-group consists of the following six measures: (1) Laws and regulations for electronic

transactions (e-commerce law, e-transaction law); (2) Recognized certification authority issuing digital certificates to traders to conduct electronic transactions; (3) Electronic exchange of Customs Declaration; (4) Electronic exchange of Certificate of Origin; (5) Electronic exchange of Sanitary & Phyto-Sanitary Certificate; (6) Paperless collection of payment from a documentary letter of credit.

The level of implementation of TF measures is expressed in implementation rate, calculated based on the survey data. Namely, each question in questionnaire is rated in one of the following ways: score 3 is assigned to “fully implemented” measure, score 2 for “partially implemented”, score 1 for “pilot stage” in implementation and score 0 for “not implemented” measure, while scores 1 and 0 for subquestions within each question are related to answers “yes” and “no”. Individual implementation rate for each TF measure is calculated relative to fully implemented score 3, while the average implementation rate is related to sub-groups, groups of TF measures and overall implementation rate (Popović Petrović and Dragutinović Mitrović, 2024).

3. The Implementation of Trade Facilitation Measures – A Comparative Analysis of European Countries

Newest UN Survey conducted in 2023 indicates that global average TF implementation rate of all General and Digital TF measures stands at 69%, while the addition of Sustainable TF measures lowers global average to 65% (United Nations, 2023). These results imply that more efforts are needed to implement Sustainable measures, particularly in TF for SMEs as the main stakeholders in international trade and key for sustainable and inclusive growth (Popović Petrović I., Dragutinović Mitrović R., 2024). Concerning Digital TF measures, improvements at global level are registered in Paperless TF standing at 70%, whereas the level of implementation level of Cross-border Paperless TF measures is at rate of only 47%, with main challenges in enabling the electronic exchange and legal recognition of trade-related data and documents across borders (United Nations, 2023).

Considering European countries based on the latest data of the UN Survey, the average implementation rate of General and Digital TF measures is 82%. The highest level of TF implementation in most of observed countries is achieved in Transparency and Formalities followed by Institution sub-group. On the other side, relatively new and hence later introduced Sustainable TF measures, particularly within TF for SMEs and Women in TF, have remarkably lower implementation rates. Within the group of Digital TF measures, Cross-Border Paperless TF measures are notably lower implemented in all observed groups of European countries in 2023 (around 58% in average) compared to Paperless TF sub-group (average rate 84%).

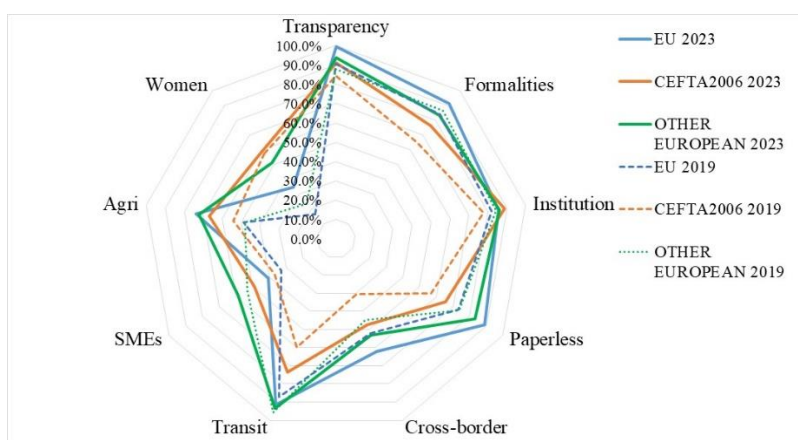


Figure 1. Implementation rate of trade facilitation measures in European countries

Source: The UN Global Survey on Digital and Sustainable Trade Facilitation; <https://www.untfsurvey.org/>.

The whole period 2017-2023 is characterized by different growth dynamics of implementation rate both across TF groups of measures and groups of European countries. Figure 1 illustrates these differences in two selected years (the year before and after Covid-19 pandemic crisis). Apart from Sustainable TF group with the largest increase in implementation in Agriculture TF, Paperless TF and Cross-border Paperless TF measures have one of the largest relative increase in European countries by 20% and 23% in 2023 compared to 2019. Among observed countries, CEFTA2006 has registered the largest relative progress in Cross-border Paperless TF measures from only 30% in 2019 to 47% in 2023. Despite that positive dynamics, CEFTA2006 members are lagging behind other groups of countries not only in the implementation of that sub-group, but of most other TF measures (Figure 1).

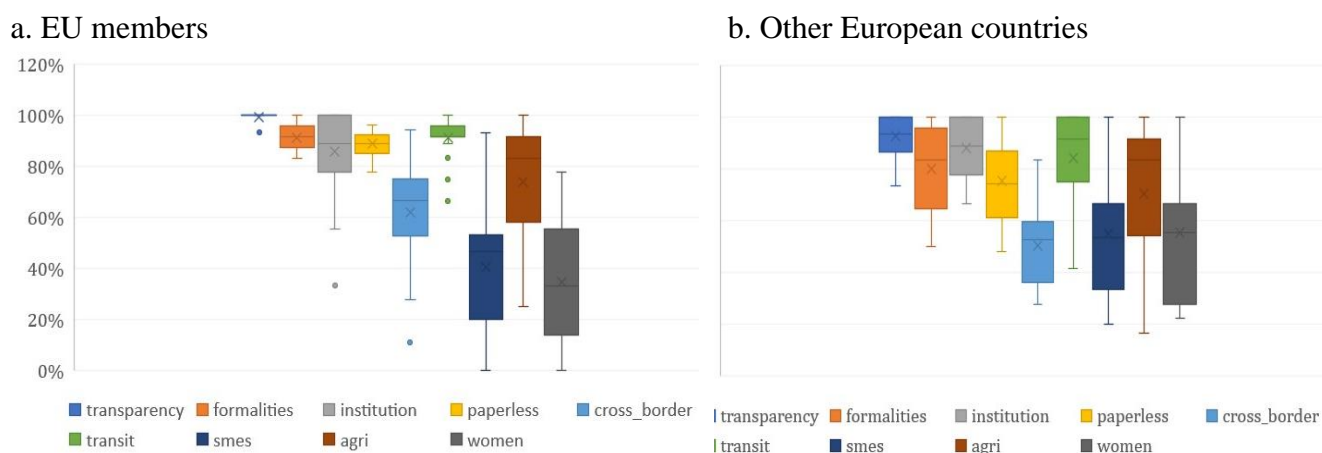


Figure 2. Variability of TF measures implementation rate across European countries, 2023
Source: The UN Global Survey on Digital and Sustainable Trade Facilitation; <https://www.untfsurvey.org/>.

As indicated by Box-and-Whisker plot, higher variability and asymmetry in implementation of TF measures exist in Sustainable TF group (TF for SMEs, agricultural TF, Women in TF) due to their later and still lower implementation levels. This is the case not only in EU members, but in other European countries (Figures 2a and 2b). For instance, TF for SMEs in the EU has the highest variability across countries, largely because countries like Germany and Portugal have not yet started implementing measures in the area of SMEs access Single Window. In non-EU countries, the implementation rate of TF for SMEs varies from 20% in Bosnia and Herzegovina to 100% in Norway, while the largest variability is seen in Agricultural TF, with rates from 16% in Belarus to 100% in Iceland and North Macedonia. On the other hand, despite the relatively high implementation levels of five standard TF sub-groups (within General TF and Digital TF groups) and resulting lower heterogeneity across all observed countries, there are exceptions in some TF sub-groups in the EU, with high variability in TF implementation rates and some outliers. For example, Hungary has reported extremely low implementation rate of Institutions TF measures (33%) compared to all other European countries (Figure 2a). This is because Hungary has not yet started to implement measures within this sub-group, such as those for National Trade Facilitation Committee or similar body and in the area of Government agencies delegating border controls to Customs authorities.

Within Transit TF sub-group, extremely low implementation rates compared to the rest of EU countries are registered in Finland and Lithuania (67% and 75%). That is mostly due to the absence of TF measures implementation in the area of Cooperation between agencies of countries involved in transit. Regarding Digital TF measures, significantly higher implementation rate of Paperless TF compared to Cross-border TF measures is evident both within and outside the EU. Median implementation rate of Paperless TF measures in the EU is

89%, while median rate in other European countries is 74%. On the other side, Cross-border TF median implementation rate is 66% in the EU, whereas in other non-EU countries median is 53%.

4. Implementation of Digital trade facilitation measures in European Countries

Along with the points already indicated in previous section, several additional conclusions can be derived on the dynamic of Digital TF measures implementation in the period 2017-2023. Firstly, the implementation of Digital TF measures in both sub-groups is growing across all groups of European economies, although with different rates. Secondly, the implementation rate of Paperless TF measures is significantly higher than Cross-border Paperless TF sub-group in all observed years and all country groups. Finally, a higher level of implementation for both sub-groups of TF measures is evident in more developed countries, such as EU and EFTA members compared with CEFTA2006 members or other European countries. Particularly, implementation levels of both Digital TF sub-groups in CEFTA2006 integration are notably below the average level of all European countries (Figure 3).

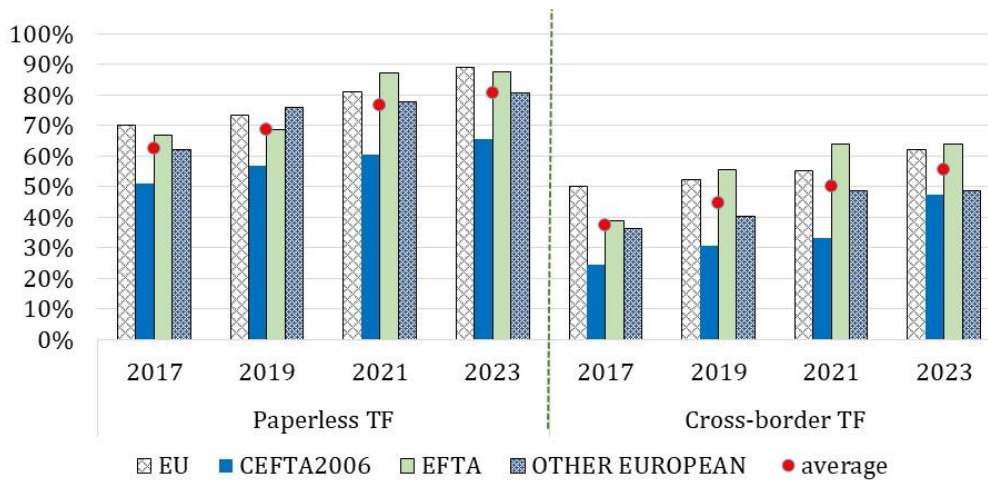
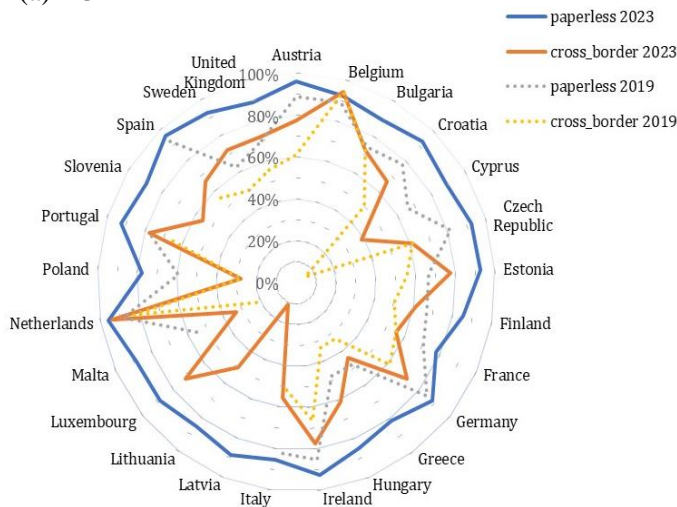


Figure 3. Implementation rates of Digital TF measures in European countries, 2017-2023
Source: The UN Global Survey on Digital and Sustainable Trade Facilitation; <https://www.untfsurvey.org/>.

(a) EU



(b) Other European countries

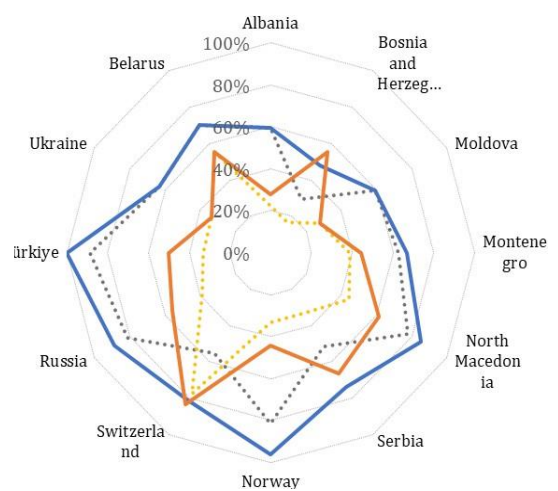


Figure 4. Implementation rate of Digital TF measures in European countries, 2019 and 2023
Source: The UN Global Survey on Digital and Sustainable Trade Facilitation; <https://www.untfsurvey.org/>.

A common characteristic of all individual European countries is significantly higher level of implementation in both Digital TF sub-groups in 2023 compared to 2019, resulting in lower variability across countries both within and outside the EU (Figure 4). The latest UN survey indicates that the implementation rate of Paperless TF measures in the EU ranged from 78% in France and Poland to 96% in Austria, Netherlands and Spain in 2023, while in non-EU countries it varied from 48% in Bosnia and Herzegovina to 100% in Turkey. Concerning Cross-border TF measures, the implementation rate in the EU varied from 11% in Latvia to 94% in Netherlands and Belgium, whereas in non-EU countries it ranged from 28% in Albania and Moldova to 83% in Switzerland.

4.1 Paperless TF Measures Implementation in European Countries

Paperless TF measures imply the use of ICT in trade procedures related to trade, starting from Internet connection at border crossing to comprehensive and complex establishing of Electronic Single Window systems (United Nations, 2023). According to the latest data, the best TF performance within this sub-group of Digital TF group in all four groups of European countries is in the area of Electronic submission of customs declarations, followed by Internet connection. The efforts of European countries in adopting and enhancing Electronic/Automated System for Customs Data (ASYCUDA) have reflected in very high TF implementation rates in all groups of countries (Figure 5). Contrary to mentioned areas, the least implemented Paperless TF measure is the Electronic Single Window System, followed by the Electronic Application and Issuance of Preferential Certificate of Origin in most groups of countries.

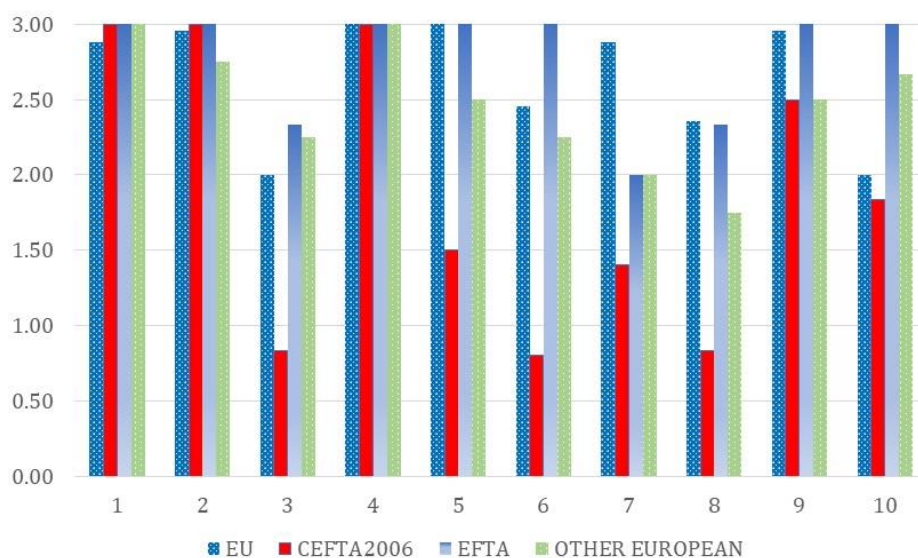


Figure 5. Paperless TF measures implementation rate in Europe, 2023

1 - Electronic/Automated System for Customs Data (ASYCUDA); 2 – Internet connection available to Customs and other trade control agencies at border-crossings; 3 - Electronic Single Window System; 4 - Electronic submission of Customs declarations; 5 - Electronic application and issuance of trade permit; 6 - Electronic Submission of Sea Cargo Manifests; 7 - Electronic Submission of Air Cargo Manifests; 8 - Electronic Application and Issuance of Preferential Certificate of Origin; 9 - E-Payment of Customs Duties and Fees; 10 - Electronic Application for Customs Refunds.

Source: The UN Global Survey on Digital and Sustainable Trade Facilitation; <https://www.untfsurvey.org/>.

Observing by individual countries, UN Survey results indicate that Turkey is the only European country with fully implemented all ten Paperless TF measures. Regarding individual areas, Electronic submission of customs declarations is the only area with fully implemented TF measures in all European countries, while Electronic application and issuance of import and

export permit is fully implemented in all EU members. Internet connection available to Customs and other trade control agencies at border-crossings is also fully implemented in most European countries (except Bulgaria and Belarus where it is partially implemented). Regarding the area of Electronic/Automated System for Customs Data (ASYCUDA), TF measures are fully implemented in all countries, except France, Latvia and Hungary where these measures are partially implemented.

Table 1. Paperless TF measures implementation by individual European countries, 2023

	1	2	3	4	5	6	7	8	9	10
Austria	X	X	X	X	X		X	X	X	X
Belgium	X	X	X	X	X	X	X	X	X	X
Bulgaria	X	X	X	X	X	X	X	X	X	X
Croatia	X	X	X	X	X	X	X	X	X	X
Cyprus	X	X	X	X	X	X	X	X	X	X
Czech Republic	X	X	X	X	X	X	X	X	X	X
Estonia	X	X	X	X	X	X	X	X	X	X
Finland	X	X	X	X	X	X	X	X	X	X
France	X	X	X	X	X	X	X	X	X	X
Germany	X	X	X	X	X	X	X	X	X	X
Greece	X	X	X	X	X	X	X	X	X	X
Hungary	X	X	X	X	X	X	X	X	X	X
Ireland	X	X	X	X	X	X	X	X	X	X
Italy	X	X	X	X	X	X	X	X	X	X
Latvia	X	X	X	X	X	X	X	X	X	X
Lithuania	X	X	X	X	X	X	X	X	X	X
Luxembourg	X	X	X	X	X	X	X	X	X	X
Malta	X	X	X	X	X	X	X	X	X	X
Netherlands	X	X	X	X	X	X	X	X	X	X
Poland	X	X	X	X	X	X	X	X	X	X
Portugal	X	X	X	X	X	X	X	X	X	X
Slovenia	X	X	X	X	X	X	X	X	X	X
Spain	X	X	X	X	X	X	X	X	X	X
Sweden	X	X	X	X	X	X	X	X	X	X
United Kingdom	X	X	X	X	X	X	X	X	X	X
Albania	X	X	X	X	X	X	X	X	X	X
Bosnia and Herzegovina	X	X	X	X	X	X	X	X	X	X
Moldova	X	X	X	X	X	X	X	X	X	X
Montenegro	X	X	X	X	X	X	X	X	X	X
North Macedonia	X	X	X	X	X	X	X	X	X	X
Serbia	X	X	X	X	X	X	X	X	X	X
Iceland	X	X	X	X	X	X	X	X	X	X
Norway	X	X	X	X	X	X	X	X	X	X
Switzerland	X	X	X	X	X	X	X	X	X	X
Russia	X	X	X	X	X	X	X	X	X	X
Türkiye	X	X	X	X	X	X	X	X	X	X
Ukraine	X	X	X	X	X	X	X	X	X	X
Belarus	X	X	X	X	X	X	X	X	X	X

X - fully implemented X - planning stage
X - partially implemented X - not implemented
 - do not know

Source: Author`s presentation based on data of The UN Global Survey on Digital and Sustainable Trade Facilitation.

The main problem in almost all European countries is establishing the Electronic Single Window System. The Netherlands, Norway and Turkey are the only countries which fully implemented TF measures in that area, while other EU members have only partially

implemented them. Apart from the Electronic Single Window System, it appears that most EU members also face some obstacles in the area of Electronic Application and Issuance of Preferential Certificate of Origin, as only nine members have achieved full implementation. This measure also exhibits significant disparity in implementation levels among countries (Table 1). The largest difficulties in establishing the Electronic Single Window System are in CEFTA2006 region, where three countries have not yet begun implementation, and two countries are in the planning stage (Table 1). Besides, CEFTA2006 has also registered significantly lower implementation levels of Electronic Application and Issuance of Trade Permit, Electronic Application and Issuance of Preferential Certificate of Origin and Electronic Submission of Sea Cargo Manifests, compared to other countries. Electronic Application for Customs Refunds is also measure which is a challenge for most European countries even within the EU.

4.2. Cross-border Paperless Trade Facilitation Measures in European Countries

Another sub-group of Digital TF measures refers to Cross-border paperless TF which covers six measures. It implies the implementation of systems that enable and facilitate the exchange of electronic trade-related data and documents within a country and across borders (United Nations, 2023). Among these measures, the Establishment of laws and regulations for electronic transactions, as well as the Recognition of certification authority issuing digital certificates to traders to conduct electronic transactions, are fundamental measures to enable the exchange of trade-related information. In case of European countries, the former is fully implemented only in EFTA (TF score 3), while the latter is the most implemented in the EU and CEFTA2006 (average scores slightly above 2.5; Figure 6).

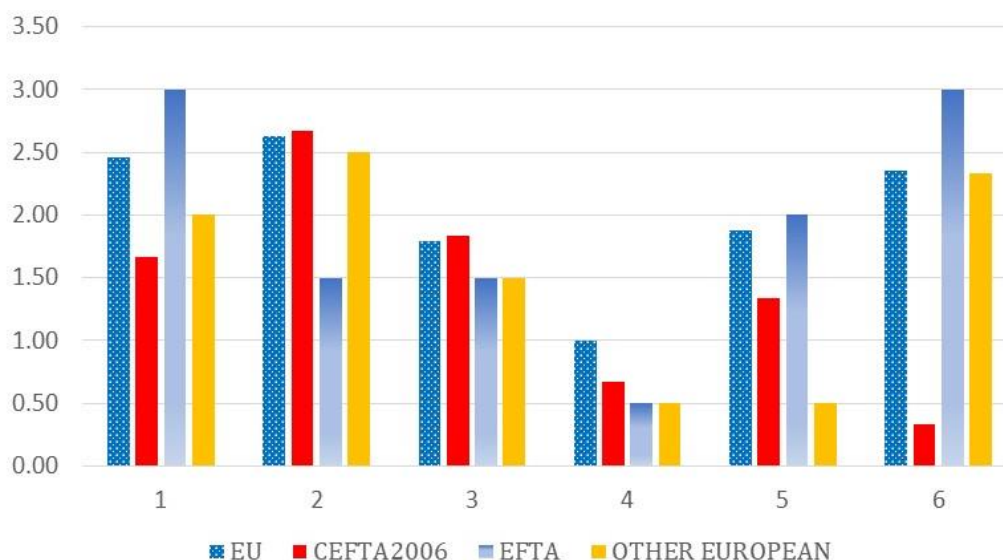


Figure 6. Cross-border Paperless TF measures implementation rate in Europe, 2023

1 - Laws and regulations for electronic transactions (e-commerce law, e-transaction law); 2 - Recognized certification authority issuing digital certificates to traders to conduct electronic transactions; 3 - Electronic exchange of Customs Declaration; 4 - Electronic exchange of Certificate of Origin; 5 - Electronic exchange of Sanitary & Phyto-Sanitary Certificate; 6 - Paperless collection of payment from a documentary letter of credit.

Source: The UN Global Survey on Digital and Sustainable Trade Facilitation; <https://www.untfsurvey.org/>.

On the other hand, TF scores indicate that the least implemented Cross-border TF measures in all observed groups of European countries are Electronic exchange of Certificate of Origin, Electronic exchange of Customs Declaration and Electronic exchange of Sanitary & Phyto-Sanitary Certificate. Moreover, notably lower TF implementation scores are evident in the CEFTA2006 region compared to other groups of countries for the measure Paperless collection

of payment from a documentary letter of credit and Laws and regulations for electronic transactions.

Table 2. Cross-border Paperless TF measures implementation by individual European countries

	1	2	3	4	5	6
Austria	X	X	X	X	X	X
Belgium	X	X	X	X	X	X
Bulgaria	X	X	X	X	X	X
Croatia	X	X	X	X	X	X
Cyprus	X	X	X	X	X	X
Czech Republic	X	X	X	X	X	
Estonia	X	X	X	X	X	X
Finland	X	X	X	X	X	X
France	X	X	X		X	X
Germany	X	X	X		X	X
Greece	X	X	X	X	X	
Hungary	X	X	X	X	X	X
Ireland	X	X	X	X	X	X
Italy	X	X	X	X	X	X
Latvia			X		X	
Lithuania	X	X	X	X	X	
Luxembourg	X	X	X		X	X
Malta	X	X	X	X	X	X
Netherlands	X	X	X	X	X	X
Poland	X	X	X	X	X	
Portugal	X	X	X		X	X
Slovenia	X	X	X	X	X	X
Spain	X	X		X	X	X
Sweden	X	X	X	X	X	X
United Kingdom	X	X	X	X	X	X
Albania	X	X	X	X	X	X
Bosnia and Herzegovina	X	X	X	X	X	X
Moldova	X	X	X	X	X	X
Montenegro	X	X	X	X	X	X
North Macedonia	X	X	X	X	X	X
Serbia	X	X	X	X	X	X
Iceland						
Norway	X	X	X	X	X	X
Switzerland	X	X	X	X	X	X
Russia	X	X	X	X	X	X
Türkiye	X	X	X	X	X	X
Ukraine	X	X	X	X	X	
Belarus	X	X	X	X	X	X

X - fully implemented X - planning stage
X - partially implemented X - not implemented
 - do not know

Source: Author’s presentation based on data of The UN Global Survey on Digital and Sustainable Trade Facilitation.

Full implementation of TF measures related to Laws and regulations is achieved in only approximately 45% of European countries and those related to Recognized certification authority in 60% of countries (both mainly in the EU). Measure the Electronic exchange of Sanitary & Phyto-Sanitary Certificate has not yet been fully implemented in any European country, though it is partially implemented in almost all EU members and a few other countries

(Table 2). The most challenging situation is with measure the Electronic exchange of Certificate of Origin. Problem to start implementation of this measure exists in most EU members (except Netherlands) and the majority of other observed countries. According to TF scores for 2023, obstacles are also evident in implementation of measure the Electronic application for customs refunds in all CEFTA2006 members which have not yet started to implementation, as well as in developed countries of the EU.

5. Conclusion

As a result of ICTs development, but also in response to the numerous challenges caused by Covid-19 pandemic, European countries have been more focused on implementation of Digital TF measures. These measures aim to improve efficiency of cross-border trade, enhance the transparency of trade procedures and reduce unnecessary formalities associated with them. The results show notable improvements in Paperless TF measures implementation in observed period 2017-2023. The best performance (fully implemented TF measures) in the areas Electronic submission of customs declarations (in all countries), Electronic application and issuance of import and export permit (in all EU members), Automated System for Customs Data (ASYCUDA) (except in Latvia and Hungary), Internet connection available to Customs and other trade control agencies (except in Bulgaria and Belarus).

The analysis of Digital TF implementation across European countries has highlighted areas where further reforms are needed. The biggest challenges even in developed European countries are in the area of establishing and completing Electronic Single Window system as a single submission point for all documentation. This is very important instrument enabling traders to enter data into the Single Window system only once, with the system then distributing the data towards institutions involved in that process. The use of ICT and the establishment of Single Window System are challenging elements of TF, primarily from financial aspect, since they require large amount of expenses and investments in ICT. Within Paperless TF sub-group, other areas to improve in most of observed countries are the Electronic application for customs refunds, Electronic application and issuance of Preferential Certificate of Origin.

The progress in the implementation of Cross-border Paperless trade is remarkably lower compared to Paperless Trade measures in all European countries. This is expected, as their implementation depends not only on individual country but also on cooperation between the customs authorities of countries. This means that involvement of country in trade-related cross-border electronic data exchange with other countries strongly depends on regional cooperation. Additionally, many countries are still in the early stages of developing their national paperless systems. The least implemented measures within Cross-border Paperless trade are in the following areas: Electronic exchange of Certificate of Origin (except Netherlands) followed by Electronic application for customs refunds (even in the EU) and Electronic exchange of Sanitary & Phyto-Sanitary Certificate. Less developed European countries, such as CEFTA2006 members, have more difficulties in implementation of Cross-border paperless TF measures, despite being regionally integrated.

In addition to the above mentioned conclusions, the analysis shows that, even though Covid-19 pandemic had negative impact on foreign trade flows, notable progress has been made towards digital transformation of trade procedures (trade digitalization) in European countries during the observed period, thus helping to mitigate negative consequences of the crisis.

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