



## **eUCP AND ELECTRONIC COMMERCE INVESTMENTS: e-SIGNATURE AND PAPERLESS FOREIGN TRADE**

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### **ABSTRACT**

The developments in electronic documents that are seen in recent years suggest that use of paper will be completely abandoned in all business processes after some time. As an advantage of the developments in information systems, the use of electronic documents has become widespread and even compulsory in some applications. Although it is one of the areas where the benefits of electronic documents will be seen, the use of electronic documents in foreign trade has not become so popular. As the paper-based processes still prevail, it seems that there is a need for a radical and comprehensive change in this area. Although a long time has passed after the publication of eUCP, it has not produced the expected effect, which indicates the necessity of introducing new payment methods to replace letters of credit. In this article, a general evaluation was made within the framework of the latest developments and the possible effects of electronic documents on foreign trade were discussed with a proposal of a new payment method based on a single document.

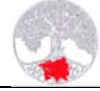
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### **eUCP ve Elektronik Ticaret Yatırımları: Elektronik İmza ve Kağıtsız Dış Ticaret**

#### **ÖZET**

Elektronik belgeler konusunda son yıllarda yaşanan gelişmeler tüm iş süreçlerinde kağıt kullanımının bir süre sonra tamamen ortadan kalkacağına dair işaretler vermektedir. Bilgi sistemlerindeki gelişmelerin bir getirisi olarak elektronik belge kullanımı yaygınlaşmış ve hatta bazı uygulamalarda zorunlu hale gelmiştir. Elektronik belgelerin faydasının en çok görüleceği alanlardan biri olmasına rağmen, dış ticarete elektronik belge kullanımı yeteri kadar yaygınlaşmamıştır. Kağıda dayalı süreçlerin halen devam etmesi bu alanda radikal ve kapsamlı bir değişim ihtiyacının bulunduğunu göstermektedir. eUCP'nin yayınlandıktan sonra uzun zaman geçmesine rağmen beklenen etkiyi yaratmamış olması, akreditifli ödeme yöntemini ikame edecek yeni ödeme yöntemlerinin devreye girmesi gerekliliği göstermiştir. Bu makalede son gelişmeler çerçevesinde genel bir değerlendirme yapılarak elektronik belgelerin dış ticaret



alanındaki muhtemel etkileri üzerinden durulmuş ve tek belgeye dayalı yeni bir ödeme yöntemi önerisinde bulunulmuştur.

**Anahtar Kelimeler:** eUCP, e-Ticaret, e-Belge, e-İmza, Dijital İmza, Akreditif, Elektronik Konşimento

## 1. Introduction

Owing to the e-business applications of our time, internal and external communication has increased in foreign trade firms. The use of Business to Business (B2B) sites such as Alibaba.com has become widespread across the world and in this way the effectiveness of foreign trade companies has increased. However, since the use of the electronic formats of the documents used in foreign trade has not reached a satisfactory level worldwide, paper documents are still being used widely. Converting these documents into image files and sending them through the internet results in the loss of their legal validity; therefore, such documents are still being delivered by couriers, whereas the use of electronic documents is spreading quickly among all business lines. There are various reasons for the electronic versions of the documents used in foreign trade to fail to become widespread although the history of the efforts to prepare them goes a long way back. The letter of credit procedures are still being carried out more in paper form although eUCP (The Supplement to the Uniform Customs and Practice for Documentary Credits for Electronic Presentation) has been in effect for 13 years after having been published in 2002 by ICC (International Chamber of Commerce) in order to simplify the letter of credit procedures that are subject to slow moving procedures involving intensive document examination processes. This paper will also discuss the obstacles before the use of electronic documents in foreign trade and how such obstacles can be overcome. Removal of the bottlenecks faced in the area of electronic documents in foreign trade will save firms from the burden of operational procedures and allow them become more customer-oriented by allocating more resources in areas such as marketing and research and development activities.

## 2. Electronic Documents

An electronic document can be defined as a file created using any computer program provided that the authenticity and content of the signature it bears are confirmed to be original by a certificate authority. It can also be defined as a combination of words, images etc. which are created, transmitted and stored using electronic devices and which contain a statement of a person or institution on a certain matter or data attesting a case. They can be files created in various formats such as MS Word, pdf, html, xml etc. However, for it to gain a status that is binding for persons or entities, it must be signed electronically by the person sending it (Reed, 2003).

A wet signature is a name or sign affixed by a person always in the same manner under a writing showing that he/she approves of what is written there. Electronic signature is the name given to the digital code which is attached to a document being sent electronically and which shows the identity and authority of its sender. Similar to a wet signature, it also indicates that the person approves of what is written in the document (Flaherty & Lovato, 2014).

An electronic signature is superior to a wet signature in many ways. These are stated below:

- a) **Authenticity:** It is the identification of a signer. In the wet signature procedure, the identification is made through a signature specimen, but the signature specimen should be ascertained for not being fraudulent and confirmation should be obtained from a notary public for its validity period. Since a document signed electronically comes



directly in a way already ascertained for identification by a Certificate Authority (CA), there is no need for that type of a confirmation procedure.

- b) **Authorization:** The authorization status of the signer of a document is again confirmed by a certificate authority.
- c) **Integrity:** Impairment of document integrity is easy in paper documents. Due to the integrity aspect of an electronic signature, any situation impairing the document integrity renders the signature of the document invalid before a certificate authority.
- d) **Hashing:** The hashing property of an electronic signature protects the confidentiality as well as the security of an electronic document.
- e) **Timestamp:** Another superiority of e-signature is its timestamp property. When an electronic document is prepared the time of preparing it is ascertained and approved by a certificate authority. Owing to this property a retrospective document issuance as happens in paper documents is not possible.

For electronic documents to be classified as documents in legal sense there is a need for a certificate authority, also called a trusted third party, acting as an electronic notary to confirm the signatures they bear and their document integrity (Laudon & Traver, 2012).

### 2.1. Characteristics of Electronic Documents

The characteristics enumerated below are the features that an electronic document should possess. Under normal conditions an electronic document can be defined as a file created using any computer program provided that the authenticity and content of the signature it bears are confirmed to be original by a certificate authority.

- ❖ It should have a format that is used in the web environment and can be displayed by different web browsers.
- ❖ It should be secure. It should have a non-reproducible and unalterable character.
- ❖ Its authenticity and integrity should be secured by being signed digitally.
- ❖ It should be possible to integrate it with all business systems, it should support all office applications and current types of documents and should be easily convertible to different formats.
- ❖ It should record all procedures performed on it in an auditable manner.
- ❖ It should have legal validity and be signed as accepted by electronic signature laws.
- ❖ It should be prepared in line with the international standards and its form requirements should not be outside the international standards.
- ❖ It should have web-based usability that can be displayed simultaneously by all related parties.



## 2.2. Benefits of Electronic Documents

Electronic documents are very important for the development and future of electronic state and electronic business applications. Some of the benefits of electronic documents are listed below:

- a) **Cost reduction:** A considerable portion of the costs of products being traded across the world consists of the cost related to paperwork. Such costs arise due to repetitive data entries, postal and courier expenses, errors in documents and loss of documents on the way. Using electronic equivalents of paper documents means at the first stage elimination of these costs arising from paperwork. After that, effects such as increased efficiency in companies and complete removal of various business processes will take place.
- b) **Shorter transaction times:** Forwarding of paper documents by post or courier takes days and sometimes weeks particularly in foreign trade transactions. By contrast, e-documents can reach their destinations in 1-2 seconds. Instead of going forward and backward between concerned entities, e-documents can be displayed concurrently by all relevant institutions. Errors can be corrected on the internet without calling the documents back. The days of examinations to find any inconsistencies between the documents will be avoided all together, because the system will be able to check such discrepancies rapidly.
- c) **Decreased effect of human factor:** Disagreements due to different interpretations of the documents as well as problems arising from human intervention to business processes such as bribery and favoritism will be eliminated. An e-document, which works in line with the common standards worldwide, will reach the system of the authorities that will approve it in seconds owing to the M2M applications and be approved in a short time if eligible and will reach its ultimate goal provided that all necessary conditions are met.
- d) **Elimination of archive costs:** Archiving paper documents is a very costly work particularly for large organizations such as banks and governmental agencies. Such documents are required to be stored for long periods of time in storage rooms secured against fire, humidity and theft. After the deadline, these documents need to be destroyed in a secure way. This is a very costly work; even retrieving some documents from the archive when necessary is a major cost and a loss of time, not mentioning the fact that it can take weeks to retrieve them. Yet, electronic documents can be archived automatically by the system without any time limitation and with a minimal cost. While in a classical system asking for a document from the archive takes sometimes weeks, e-documents can be displayed within seconds and its processing in all entities can also be displayed if an integration of such entities is set up (Laryea, 2002).
- e) **Recorded economy:** The use of e-documents will be an important step in the elimination of unrecorded economy; tax evasion and trying irregular ways will be more difficult. Statistical data will be kept more accurately.
- f) **Prevention of fraud:** Corruption, fraud and swindle through forged documents will be eliminated. Making alterations on documents will be prevented.
- g) **Language differences stop being a problem:** It is possible to prepare e-documents in



multiple languages and to display them in the desired language.

### 2.3. Electronic Bill of Lading

The most important shipping document used in foreign trade is the bill of lading. The reason for this is that sea freight has been used since ancient times and the legal ground of the bill of lading dates back to old times. The legal validity of international freight documents is based on the International Sea Freight Agreement that was approved in Hague in 1924. This agreement and many national freight rules take the paper bill of lading as their basis and do not cover the electronic bill of lading. From the first years of using electronic documents, works to develop electronic versions of the documents used in foreign trade have been continuing (Pagnoni & Visconti, 2010). These works are mostly focused on the bill of lading due to its importance. The bill of lading is a certificate of receipt given by the shipping company or its authorized agency or if there is no agency in the port of lading by the ship captain to the shipper, issued to the order of or as a blank endorsement and showing that the goods in the document has been received for shipment at the port of lading to be carried to the port of discharge; it is at the same time a bill of lading when an on board notation is added (shipped B/L). This document is also in the nature of a contract (Turan, 2010)

The legal validity of electronic documents is based on the electronic signature they bear and the legal validity of an electronic signature is based on national electronic signature laws. However the legal ground of a bill of lading is based on international laws. The fact that it would be difficult to ensure such a legal ground with an electronic bill of lading and the lack of an integrated system adopted worldwide are the obstacles before the development and widespread use of electronic bills of lading. However, the use of electronic bills of lading in the future on an integrated system incorporating banks and all commercial parties seems inevitable. In fact, the e-AWB (electronic Airway bill) system has already been put into practice in air freights. This is an integrated system whereby all airline companies can work with each other without having to enter into individual agreements among them owing to the multilateral agreement, the standards of which are set by IATA and FIATA (IATA & FIATA, 2013). Like air cargo agencies, airline companies are also expected to join the e-AWB system by signing this multilateral agreement. Since this development in airlines can be applied to the other transportation modes through multilateral agreements, it gives the indications that electronic documents will be used in all transportation modes.

### 3. eUCP: A supplement to UCP 600

The most important work on demolishing the obstacles before the foreign trade documents in the legal area is the publication of the eUCP brochure by the International Chamber of Commerce. Foreseeing that electronic documents will be very operative in commercial life in the future, ICC, the International Chamber of Commerce, formed a work group at the beginning of 2000 to carry out works towards eliminating the uncertainty about the presentation of electronic documents under letters of credit (IOMA, 2003). At the end, the brochure named eUCP (The Supplement to the Uniform Customs and Practice for Documentary Credits for Electronic Presentation), which contains uniform rules on the presentation of electronic documents under letters of credit, came into force as of April 1, 2002. Following are the general headings of eUCP, which was revised for UCP 600 in 2007 and is currently in use as Version 1.1 (ICC, 2002):

- ❖ Formats and presentation procedures of the electronic documents to be presented
- ❖ Procedures to be followed by banks when examining e-documents
- ❖ What needs to be done if the system of the bank issuing the letter of credit is unable to



- present the e-documents.
- ❖ Procedures to be followed in accepting and declining e-documents.
- ❖ Concept of being original in e-documents.
- ❖ Things to be done if an e-document is destroyed due to a virus or another system problem.
- ❖ Establishing the issuance dates of e-documents.
- ❖ Transmission of e-documents.

#### **4. Electronic Documents and Foreign Trade**

Using electronic documents in foreign trade transactions is not only to the benefit of foreign trade firms; it is a development whose effect will be felt worldwide with its expected outcomes such as an increase in the world trade volume and products becoming cheaper as it shortens business processes.

##### **4.1. Obstacles before the Use of Electronic Documents in Foreign Trade**

Despite its plenty of benefits, the use of electronic substitutes of the documents used in foreign trade has major obstacles. Some of these obstacles are summarized below:

- ❖ The initial investment to be made is too large compared to the volume and profitability of foreign trade transactions.
- ❖ There are great differences between the business processes conducted with paper documents and the business processes conducted with paperless documents.
- ❖ A large number of entities from different countries are involved in the business processes of foreign trade transactions and there are complex business processes.
- ❖ The international standards for paperless trade have not been fully determined.
- ❖ Banks wait for increased customer demand to make an investment.
- ❖ It is difficult to eliminate the reliance and familiarity that have built up towards paper documents through many years.
- ❖ It is difficult to establish an international coordination among entities for a project to be invested in to set up a common system although it is necessary to use such a single common system among entities to secure integration.
- ❖ Since digital certificates have legal validity only in certain countries, this prevents reaching the critical number of users that is necessary for a satisfactory return on investment.
- ❖ eUCP is limited to the letters of credit that are being covered.

##### **4.2. Electronic Signature and Foreign Trade Transactions**

In order for electronic documents to qualify as documents in legal terms they need to bear an electronic signature in a manner accepted by national laws. Electronic signature is the name given to the digital code which is attached to a document being sent electronically and which shows the identity and authority of its sender. It would be too optimistic to think that with the



passing of electronic signature acts in many countries, the entire foreign trade transactions will rapidly be carried to the electronic environment due to its cost advantage and paper documents will totally disappear. It will be more difficult than assumed for electronic documents to deprive paper documents of their dominance over the business life. The reason for this is that the initial investment to be made is too large compared to the volume and profitability of foreign trade transactions. Moreover, there are great differences between the business processes conducted with paper documents and the business processes conducted with electronic documents and a large number of entities are involved in the business processes of foreign trade transactions and there are complex business processes.

Another problem is that countries across the world have separate electronic signature laws each, because an electronic signature formed in accordance with the laws of a country may not be recognized by another country. A solution to this problem would be to use the digital certificates of internationally accepted certificate authorities.

## 5. Conclusion

The way to terminate the dominance of paper documents in foreign trade primarily passes through the proliferation of using electronic documents in the banking and customs transactions. In the field of banking, the Bolero documents are one of the products that is more likely to have a leading role. Almost all of the banks across the world use the SWIFT system and since Bolero is a SWIFT affiliate, it has been adopted rapidly by the banks operating globally (Euromoney Institutional Investor PLC., 2011). A suitable atmosphere seems to start forming for the middle-scale banks to make a transition to the Bolero system. Bolero International was established in 1998 under the management of the financial and logistical societies SWIFT and TTclub (Through Transport Mutual Insurance Association). The main purpose of Bolero International is to form structured electronic commercial documents that are acceptable worldwide so that there would be no need for mutual transmission agreements (Bolero Association, 2009). The merger between SWIFT and TTclub societies brought together thousands of entities across the world including freight brokers, container fleet carriers, port authorities and financial institutions. In this way, a pressure group that can be influential was also formed. Bolero International is the most important project on electronic documents being implemented by the private sector. The number of entities from many sectors all over the world joining the Bolero project is increasing with each passing day. The Bolero project focuses particularly on transoceanic transport and works to make the electronic bill of lading, which is the electronic equivalent of the bill of lading used in sea freights, a valid and widespread document across the world ( Bolero Association, 2009).

In view of the above, what needs to be done to spread the use of electronic documents worldwide is to introduce a new, simple but secure international payment method that will replace the current complicated payment methods. In this new method, instead of issuing a large number of foreign trade documents, a single electronic foreign trade document that will be issued by a system, of which all commercial parties are members, should be used (Civelek & Sözer, 2003).

### 5.1. Elimination of Complex Payment Methods

Worldwide integration of an e-document system in a way to cover institutions such as banks and customs offices will lead to the elimination of document-based payment methods such as letters of credit. (Cronican, 2013) The control of any one of the parties will disappear due to such integration of the system. For example, once the clearance of goods is recorded on the e-

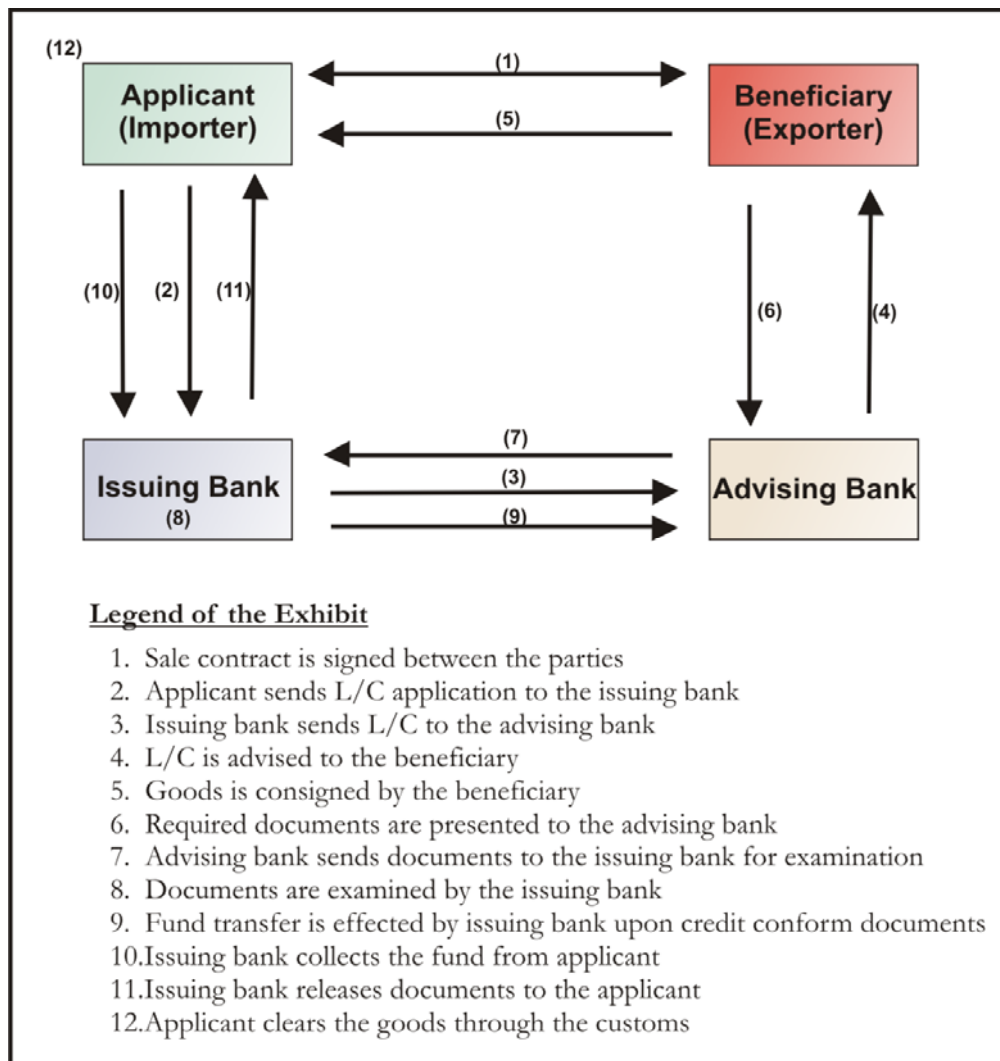


document, the transfer between the bank accounts will take place without any need for manual intervention and if the bank account is unable to pay, the e-document will not allow goods to be cleared. If the purchaser fails to pay the necessary amount and causes the goods to wait at the customs, then the parties will try to solve the problem in line with the provisions of the electronic contract. If this is repeated in a malicious way, the parties may be removed from the system and this will reduce the number of applications made to courts for swindles in foreign trade transactions.

### 5.2. Decrease in the Number of Documents and Single Document System

Although the legislation of each country is different, an average of 40 different documents are issued by 28 different entities to materialize a single foreign trade transaction. All the foreign trade documents can be combined to form a single foreign trade document and this document can be transmitted to all relevant entities simultaneously based on the nature of the transaction. All foreign trade transactions can be executed with a single document such as an e-Foreign Trade Document.

**Exhibit 1. Typical Letter of Credit Cycle (Sight, Without Confirmation)**



The classical workflow of the letter of credit method used in executing the foreign trade transactions involving large amounts is shown in Exhibit 1. This method is still being used even though it advances slowly and requires extensive document examination processes.





### Exhibit 2. Proposed Model of Integrated Single Foreign Trade Documents

| Integrated Foreign Trade Document   |   |
|---|---|
| <b>Exporter</b><br>Digital Signature  | <b>Importer</b><br>Digital Signature  |
| <a href="#">Details of Purchase Agreement</a>   |   |
| <b>Description of the Goods and Purchase Conditions</b>   |   |
| Unit Price: .....<br>Terms of Delivery: .....<br>Place of Loading: .....<br>Place of Discharge: .....           | Quantity: .....<br>Freight: .....<br>Insurance: .....<br>Total Amount: .....                    |
| <a href="#">Packing and Weight Information</a>  |   |
| <b>Carrier</b><br><br>Receipt ✓<br>Despatch ✓<br>Delivery ✓<br><br><a href="#">Details of Carriage Contract</a> | <b>Insurance Company</b><br><br>Clauses<br><br><a href="#">Details of Insurance Certificate</a> |
| <b>The Bank of the Importer</b><br><br>Release of the Fund ✓  | <b>The Bank of the Exporter</b><br><br>Receipt of the Fund ✓                                    |
| <b>Export Customs</b><br>Exported ✓   | <b>Import Customs</b><br>Imported ✓   |
| <b>Document Status</b><br>Open <b>Closed</b>  | <b>Document Number</b><br>654654DT-7211241  |

Although some methods have been devised as an alternative to letter of credit, such methods cannot achieve satisfactory efficiency because they are not encompassing all parties in the trade and they still try to use the electronic equivalents of classical documents (Özkan, Bayram, Karakaya & Karakaya, 2014). Yet, it is unnecessary to generate more than one document electronically, because the functions of a document that is designed as a webpage and can be reached by all commercial parties from all over the world can be increased as desired. A single foreign trade document can fulfill all the functions of the documents that are issued separately.



Exhibit 2 shows the sketch of a single foreign trade document that has all the necessary functions.

In order to perform a foreign trade transaction on a single document through the internet from the beginning to the end, all the parties participating in the transaction should be able to connect to each other in a single system. There is a need for a single online platform of which all parties are members to complete a foreign trade transaction using a single electronic document. To be able to set up such a platform, international collaboration is required.

To be able to conduct foreign trade via commercial electronic documents exchanged on the internet, the existing foreign trade payment methods should also be simplified and adapted to the electronic environment. It is unnecessary to transfer the same detailed procedures arising from the difficulties of doing business on paper to the electronic environment. It will be appropriate to use a single standard in an electronic environment to replace simpler transaction standards and even all classical payment methods if possible. In this way, the business processes on which one needs to specialize for many years in a paper environment will become operable without any specialization. Obviously, very distinct drops will be experienced in the operational costs of firms as a result of this. To overcome these obstacles, paperless trade investments should be directed to multilateral solutions with the inclusion of all the entities engaged in foreign trade transactions.

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