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**REGULATORY MECHANISMS OF ELECTRONIC CONTRACT'S AND  
DIGITALSIGNATURE INIRAN AND COMMON LAW'S, WITH AN  
EMPHASIS ON THE UNCITRAL  
(MODEL LAW ON ELECTRONIC COMMERCE WITH GUIDE TO ENACTMENT1996)**

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**ABSTRACT**

The goal of all current e-commerce developments is to automate the process of trading by means of Information Technology. A company should be able to establish trading relationships with any other company. These relationships are established by using e-contracts. Thus either all companies must be using one common trading system or standards must be established that will allow different systems to interoperate. It is not still clear yet whether one e-contract system will prevail and will become dominant, though many attempts are made nowadays. However, if no one of them becomes dominant, without a common standard the interoperability between the separate systems seems to be hardly obtainable. The commercial relations of merchants have been affected widely by the invention of the new methods of communications, such as the Internet. Nowadays, merchants across the world accept the presence of technology voluntarily in their daily transactions. Thus, the mode of making contract, in particular international commercial contracts in large scales, has been shifted from traditional ways to electronic methods. In consequence, many legal questions have been arisen. The way of application of rules on conclusion of contracts in the paper-based world, such as the time of conclusion of contracts, to the formation of electronic contracts is one of the main issues that much ink has been spilled on by legislators and legal scholars so far. In this paper the standardization processes and activities in the e-contracts area are described. First, some general observations on the e-contracts standardization processes and their specificity are made. Then some of the current, popular e-contract standardization activities have listed.

**Keywords:** *E-commerce, E-Contract, Standards Classification, Electronic Contract's, Digital Signature, Uncitral.*

**INTRODUCTION**

Increasing trends and growth of information and communication technology in the world have led to new virtual legal rules. Expansion of e-commerce at the international level will hereof require anticipating needed legal mechanisms which growing trend of using the Internet in the world reveals the importance of this issue more than ever. According to the virtual nature of communications in personal or commercial exchanges in electronic transactions, one of the most important matters from a legal perspective is to prove transactions and the identity of the parties. Sometimes these communications due to the transactions between individuals, lead to: communication disorders, or improper misuses such as, disrupting public security and trust. The current virtual era has led to economy, commerce, banking, money, economic enterprises, education, and even virtual entertainments; which requires its own legal framework to regulate these new relationships.

Meanwhile, one of the major existing legal issues is the documentation value of evidences due to these technologies. Evidences to prove electronic litigation in the Business Law in Iran include; document, testimony, confession, circumstantial evidences, knowledge of the judge, the digital signature and other mathematical encryption techniques which are in the category of electronic signature; all of these would

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make proving litigation possible. Although, at first glance, according to traditional conventions of proving the litigation; electronic evidences lack a legal basis of documentation feature, but it seems that there is no prohibition for accepting and documenting electronic evidences and these evidences can, in compliance with the relevant regulations in the form of circumstantial evidence, document, and or mentioned documented cases, be as the court sentence. Now, with the legislation of laws related to e-commerce and electronic evidences all around the world including Iran Electronic Commerce Law, Data Message, like a document, is capable of having documentation feature; and public key infrastructure which is based on digital signatures acts by using certification authorities and has become the most practical form of individual authentication. Also in Iran in order to recognize the new communication facilities in business or rather in national and international business transactions, a law has been enacted as the Electronic Commerce Law; in which, signed contracts are recognized through electronic intermediaries, electronic evidences and documents, and electronic signatures; and some of the legal aspects are taken into consideration in the context of electronic commerce. Once the human being's life had been influenced by the industrial revolution in the eighteen century, and now has been affected by technology revolution evolved by the advent of the Internet in the decade of 1990s, which is, in turn, in fact a result of industrial revolution. Meanwhile, one of the areas in which the traces of technology are evident is the large crucial world of commerce, for it has created a new space, unknown in the past, called 'cyber space' or 'electronic environment', within which commerce is able to flourish and flow more easier, faster and even safer than the past. Following to the emergence of the new methods of communications, such as the Internet, merchants across the world welcome their presence in all aspects of their daily transitions, nationally or internationally, inter alia, pre-contract negotiations, contracts formation, payment issues and even, in some cases (For instance, in the cases that the subject-matter of the contract is intangible goods such as 'computer software', it is delivered by downloading into the computer system of the buyer), performance of contracts. Businessmen are not keen to arrange face-to-face meetings, for which they incur financial costs, spend time and accept voyage difficulties and even dangers. They do prefer to conclude their intended commercial transactions as fast, inexpensive and secure as it is possible. For this aim, in Business to Business (B2B) transactions, merchants use the EDI facilities(Electronic Data Interchange System) to exchange commercial documents, and in Business to Consumer (B2C) transactions they take the advantage of cyberspace and establish electronic markets, without any geographical restrictions, by which they are able to advertise their products and all required information for creating a legally valid contract including prices, the process of formation of a valid contract, the methods of payment and delivery issue. Consumers are similarly able to purchase their desired goods electronically (This is just one example of the capabilities of electronic environment in the commercial context), as they have access to markets which were out of their reach beforetime.

As it is clear electronic contracts are the heart of electronic transactions. In the process of forming a valid contract there are two main stages called offer and acceptance. Offer means a proposal from a party (offeror) to another (offeree/acceptor) to enter into a contract on a certain thing and unambiguous terms such as selling a book for £10, delivery within three days. Acceptance means an expression of willingness to accept the offer. Once a legally valid acceptance occurs, the contract is formed and its legal consequences flow (The author does not intend to elaborate the issues of offer and acceptance here, as it is beyond the scope of the present work. For more details see for example Chitty, J.2004, London: Sweet & MaxwellinEnglishlaw, Corbin,L.1952:*General Principles of Contracts*. 2006) One of the most important issues concerning the conclusion of contracts is the time of conclusion, which is in fact the time of acceptance.

**1-1-THE IMPORTANCE OF DETERMINING THE TIME OF THE CONCLUSION OF CONTRACT**  
Determining the time of conclusion of contracts, whether physically (The term of 'physically' means those contracts which are concluded in the physical environment either *interpraesentes* (face-to-face

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contracts) or *interabsentes* through the traditional methods of communications such as telephone, postal letters, telegram, telex, and fax. ‘Paper-based’ or ‘traditional contracts’ areal soused.) or electronically (The term ‘electronically’ means any contracts which are formed in cyber space by means of modern methods of communications such as website, e-mail and chat-room), is of great significance. Some legal cases to show this importance, which are common between both traditional and physical contracts, are as follows:

### **1-1-1EvocationOfOfferOrAcceptance:**

Once the contract is formed, neither offer can revoke the offer nor can the offer (acceptor) revoke the acceptance, and the intervention of the parties in the process of formation of contract comes to the end (However, there may be some exceptions. For instance, in English law after sending acceptance, the acceptor is able to revoke the acceptance by an expedite means of communication. For example if the acceptance has been communicated by a postal letter, the accept or may cancel it by making a call before the letter reaches the destination. In Iranian law, where the contract is *interpraesentes*, the parties have ‘*option of meeting- place*’, i.e. as long as they are at the presence of each other, are able to cancel the contract, although it has been formed.). The reason is that the contract has been concluded, and it is binding on the parties.

### **1-1-2-Incapacity, Death and Insanity Of The Parties:**

The contracting parties at the time of making the contract must have legal capacity to enter in to the contract. However, in case of any supervening in capacity, the formed contracts are valid as well. The same rule applies to the issues of death and insanity of the parties. Death or insanity of one of the parties before making the contract is an impediment to its formation, but after the conclusion of the contract it has no legal effect.

### **1-1-3-TheValidityOrEnforceabilityOfContract:**

For instance, whenever one of the parties goes bankrupt, the contract would be valid if it has been formed before bankruptcy (In English law also it has been stated that bankruptcy of offeror or acceptor in some cases is an impediment to the conclusion of contract). Takes place; but after it, the contract is void (Iranian Commercial Code, article 423) or voidable (Iranian Commercial Code, article 424).

### **1-1-4-TheTimeOfCommencingTheLegalEffectsOfContract:**

Before the conclusion of contract the involved parties have no obligations against each other, for the legal consequences of a contract, such as passing of property and risk, flow once it is formed.

### **1-1-5-TheApplicableLaw:**

The applicable substantive law to the contract is one which is in force at the time of the conclusion of the contract, and the validity of the contract is determined by it. Its subsequent amendment or alteration has no effect on the previously formed contract (The principle of ‘*the law is not retrospective*’ in Iranian law; in most of justifications the same principle applies.). However, in case any dispute arisen, the applicable adjective law is one that is in force at the time of arising dispute.

### **1-1-6-TheTimeOfLimitationOfActionsAndOtherDeadlines:**

The moment of commencement of the time of limitation for actions is the time of the conclusion of contract. Besides this, whenever deadlines for any other obligations have been set, they start form the time of the conclusion of contract, such as delivery of goods or supply of services, and payment of price.

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### **2-1-STUDING THE CONCEPT, REASONS AND ELEMENTS OF E-COMMERCE**

One of the consequences of globalization is the increased competition in the international economy; because in these conditions, we constantly encounter decrease in shipping costs, astounding growth of information technology, increasing development of e-commerce, minimization of geographic limitations, and increase in competitiveness. And as a result, international economic efficiency will increase.

Here, it can be said that the major consequence of globalization on the economy is the growth of electronic commerce. E-commerce and consequently e-commerce models were introduced for the first time in the early 1970's. In this period, the use of e-business models was very expensive and most of its users were financial corporations, banks and sometimes large industrial companies. The application of e-commerce in the course was difficult and therefore required heavy investments to provide needed platform for it. So, the range of its application was limited financial institutions and large firms. In the next step, electronic data exchange standard was created that was a generalization of the banking and financial transfer model using the new tools of information. But it was different; electronic data exchange had the possibility to be used and utilized in other types of trade too. Electronic data exchange led the application domain of e-commerce models spread broader than the range of large financial institutions. In this topic we are going to explain the concept of e-commerce law and evidence claim. (Smedinghoff, 17, 723-768.)

#### **2-1-1- Explaining the Concepts and the Nature of Electronic Commerce law and Evidence Claim**

In order to define e-commerce law, first it is essential to define the terms of trade and trade law, and then according to this description and elements of "electronic" commerce, we are able to provide a definition for e-commerce and e-commerce law.

**Commerce:** Various explanations have been offered for commerce. Some of them are as follows:

- Commerce is a transaction, a purchase or sale of goods, productions, or property of any kind.
- Commerce is any purposeful activity that includes exchange of goods and services with money. This definition involves production and manufacturing.

Commerce often takes place within the country and sometimes between two or more countries. Therefore, from this perspective, commerce is divided into domestic commerce and international commerce.

Domestic commerce: It includes commerce between natural or legal persons within the same country.

Commerce between the states of a country: Such as the commerce among the states of America (Interstate Commerce).

International commerce: It includes the commerce between countries or natural or legal persons in a country with natural or legal persons in other countries. (Ramberg, 1, (2), 2-3.)

**Commercial law:** Definitions of commercial law in civil law systems and common law are different.

In common law systems, "Commercial Law is a branch of the law which deals with the law and obligations arising from the supply of goods and services during the commerce."

In French legal system, commercial law has a more extended meaning and commercial law includes not only commercial transactions but also other activities such as law of the firms, bankers NAIC (National Association of Investment Companies), transport operators and etc.

France and Iran commerce laws do not provide a direct and consistent definition of commerce, but have enumerated a list of acts that are considered commercial.

**Domain of Commercial law:** According to the above definitions, commerce legally encompasses a wide range of actions. This term not only includes activities of people who are attempting to buy and sell goods, but also covers activities of industrialists, bankers, insurers, NAIC, brokers, agents and organizers of public exhibitions, transport operators and etc.

**Electronic Commerce:** Defined by the European Commission, E-commerce is based on electronic processing and transmission of data such as text, sound and image. This commerce includes other

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activities such as electronic exchange of goods and services, immediate delivery of digital content, electronic funds transfer, electronic stock exchange, electronic bill of lading, business plans, joint engineering and design, financial resources, government purchases, direct marketing after-sale service (Gladman, 1999, 1, 5-7.)

- E-commerce consists of purposeful business activities accompanied with technical data that is done through electronic means.
- Sales of goods and services via computer through internet network.
- Using the internet for procurement, management and trade. According to this definition, activity of pharmacies and large retail stores is considered e-commerce.
- E-commerce is defined as the trade of goods and services with the help of telecommunications and telecommunications-based tools.

Some have used the term «E-Trading» and it also meant «E-commerce». Others have used the terms "preparation and distribution of goods the help electronic equipment", "electronic shopping", and "electronic marketing". Despite this, we should remember that usually a more broad meaning is meant by E-commerce – it means electronic business activity. Examples of e-business that are not considered E-commerce include patent, student enrollments and the work of the court.

### **2-1-2- Agents of the Parties of E-commerce**

In traditional business, parties of the commerce include:

- Individual or natural persons such as a deal or commercial operations between natural merchants;
- between legal entities such as a trade between two companies;
- between legal entities and natural persons such as a trade between a corporation and a natural person;
- parties of an electronic commerce; in addition to the parties above, the e-commerce is also possible without the physical presence of persons or agents
- Commerce between a natural person and a computer system; in this case, when a base is the place of human interaction, a natural person originally by a legal entity enters into a contractual relationship with the computer system of another natural or legal person.
- Commerce between two computer systems; in this case, two computer systems are the parties of a contract or trade, and commerce takes place by means of two computer systems that act as the agent of natural or legal persons.

Considering that internet is rooted both in technology and the government it is that inevitable terms are used to describe common electronic commerce. The most familiar form of electronic commerce is "online" retail. And generally this method of commerce is called business to business (B2B). It is a kind of trade and commerce between companies or business units. The following terms are considered important in e-commerce and during the past decade have been defined in legal texts. Despite this, these terms continuously undergo revisions. (Freedman, 28, (1), 9-10.)

### **2-1-3- Importance and Benefits of E-Commerce Law**

In association with the benefits of e-commerce and electronic payment the followings can be outlined briefly:

- By using e-commerce and electronic payment, delays due to preparation of documents are over.
- By using e-commerce, since the data are not frequently logged in, potential errors are reduced.
- By using electronic payment, the time required to re-enter data in the system can be saved.
- By using e-commerce and electronic payment, cost of labor is reduced due to lack of re-entering the data into the computer.
- By using e-commerce and electronic payment, time delays in information flow become smoother and more reliable.

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### 3-1-DETERMINATION OF THE TIME OF CONCLUSION OF CONTRACTS: AN OVERVIEW ON THE TRADITIONAL RULES

Having mentioned the importance of determining the time of conclusion of contracts, the way of such determination needs to be discussed. In some occasions, they are the contracting parties themselves that determine the time of conclusion of contracts, electronic or physical ones, expressly by incorporation of a term in the contract impliedly by performing the contract partially or totally. In this case, the agreed time over comes the time of occurrence of acceptance, i.e. the legal time of conclusion of contract; this is because of the principle of ‘party autonomy’. However, when there is no express and tacit agreement, according to the underlying legal system the general principles and rules will apply, whether it is a traditional (physical) contract or an electronic one. Thus, the following situations are assumable:

#### 3-1-1-in the Existence Of Mutual Agreement:

When the contrasting parties agree on the time of conclusion of contract, it may be before the time of acceptance, i.e. the conclusion of contract, or after it. In the former case, the legal time of conclusion of contract would have retrospective effect. In other words, although the contract is legally formed at a time in the future, but its effects flow from the agreed time in the past. For instance, in the case that the contract has been performed partially or totally, its effects flow from the time of commencing performance in the past (These types of agreements are common in *construction contracts*; in which the contracting parties draw up a preliminary written agreement and while the negotiations are still in progress to reach a definite decision, they have performed a part of the intended project. By signing the contract, with retrospective effects, it is in force from the time of performance of contract in the past. See for example *Trollope and Colls Ltd v. Atomic Poer Constructions Ltd* [1962] 3 All ER 1035. For more details on construction contacts see Hudson, A. A. and I.N. D. Wallace (12<sup>th</sup> Re. ed., 2010). *Hudson's Building and Engineering Contracts*, London: Sweet & Maxwell). In contrast, in the latter form, the agreed time would be governing, except in the cases that the contract itself is unenforceable under the governing law. This form of contract, then, would be an expression of intention to enter into a contract in the future (Owsia, 1994).

#### 3-1-2-In the Absence of Mutual Agreement:

If there is no agreement on the time of conclusion of contract, reference must be made to the general principles and rules of law. The rules may be different information of contracts *inter praesentes*, compared to the formation of contracts *inter absentes*, and even in the latter cases more complex than the former ones. There as on is that, the means of communications between parties have a determining role in the determining the time of conclusion of contracts, and in the current era the invention of modern methods of communications will add to the complexity of the issue, as they themselves are complicated.

#### 3-1-3-Contracts *Inter Praesentes*:

In these types of contracts where the parties are at presence of each other, the applicable law determining the time of conclusion of contracts is straight forward. Contract is formed when an effective acceptance (By ‘effective acceptance’ it means an acceptance which is in conformity with the terms of the offer and satisfies other legal requirements). For more details in each legal system in question see *supra* note 5. Is received by the offeror, i.e. the offeror hears the acceptance, which in legal texts it is said that the reception rule is applied (All three legal systems apply the same rule in this case. See *supra* note 5.). Similarly, in English law, Iranian law and American law in the conclusion of contracts through instantaneous means of communications, such as telephone, telex and fax, it is deemed that the contract is *interpraesentes*, and then the time of conclusion of contract is the moment at which the offeror receive the acceptance (See for instance in common law *Entores v. Miles Far East Corpn* [1955] 2 QB327; *Brinkibon*

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*Ltdv. Stahag Stahl, 1983*) for instance, in contracting through telephone, hears the acceptance on another end of the line.

### 3-2- Contracts Inter Absentes:

The main discussions are on determining the time of conclusion of contracts interabsentes where the contracting parties are far from each other and located in different places in terms of geography and time or are at the same time-zone but in different places (For instance in a contract between an Iranian businessman located in Tehran and an English merchant located in London, the parties are in) is needed to be chosen. However, one of the two theories, postal and receipt theory, are note worthy and of great significance, and are considered in the following section.)

### 3-3-Choosing the Applicable Rule in Contracts Inter Absentes in the Physical World

As stated in the above section, contracts inter absentes, because of the physical distance between the parties, are made through the means of communications such as telephone, telegram, telex, fax, postal letter, e-mail, website, and chat-room. In the conclusion of contracts via telephone, telegram, telex and fax it has been held that these contracts are analogous to contracts inter praesentes, and then the same rule, i.e. receipt rule, is applicable. However, in respect of the formation of contracts through postal letters, in spite of being some opposite arguments (Some believe that declaration theory should apply. This means that once the acceptor shows his/her intention to accept the offer by writing the acceptance the contract is formed, although it has not posted yet. Some others are of the view that information theory is applicable. This theory means that the contract is formed when the offeror receives the acceptance and is aware of its content. However, the supporters of these two theories constitute the minority of writers.), the judicial decisions and writings of legal scholars rule that the postal rule is applied. This rule means that once the offeree (acceptor) posts the letter of acceptance, the contract is formed even if it does not reach the destination or reaches after some delays. However, what is the aim of this paper is determining the time of concluding contracts in cyberspace via e-mail, website and chat-room and choosing one of the four theories. To illustrate, in a case that an acceptance is sent through e-mail, when is the contract formed? When the acceptor clicks on send bottom? Or when it reaches the ISP of the sender or receiver? Or when it is entered in to the inbox of the offeror, or even when he or she reads the e-mail and is aware of the content of the letter? Similar to this scenario is illustratable for communications through website and chat-room. For this aim, it is needed to consider the reasoning behind the application of the two leading rules, receipt or postal rule, in the paper-based contracts and then, according to the nature of e-communications, choose one of these two rules to be applied to the communications through modern methods. However, after sorting out this matter, a further step also remains, which is not perceivable in physical communications; and it is determining the time of occurrence of sending and receiving of an e-message or e-communication. For example, assuming that the postal rule applies for communications through e-mail, then at which moment sending of an e-mail occurs? Once the acceptor clicks on the 'send' bottom? Or when it is received by ISP? Or when it enters into the inbox of the addressee? For determining this issue, reference will be made to the legislation on electronic commerce in the selected legal systems which will be considered in the fifth part.

#### 3-3-1-Receipt Rule:

In English law, as a general rule, the receipt rule is applied; i.e. the contract is formed once the acceptance is received by the offereor (The CISG also has chosen the receipt rule. In article 18(2) it provides: 'an acceptance of an offer becomes effective at the moment the indication of as sent reaches the offeror.' (The CISG also has chosen the receipt rule. In article 18(2) it provides: 'an acceptance of an offer becomes effective at the moment the indication of as sent reaches the offeror.'). This rule is applicable in cases in which the contracting parties communicate through instantaneous means of communications such as telephone (*Entoresv. Miles\Fareast Corporation* [1955]). In communications by means of fax (*Schelde*

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*Delta Shipping BVv. Astarte Shipping Ltd (The Parnela)* (1995)). And telex the same rule is applied as well. However, the offeror may not require the reception of acceptance (Beatson, J. 2002). In the American Uniform Commercial Code (UCC) there is no express provision as to the time of conclusion of contract. However, it has been pointed out that the postal rule which introduced in 1818 (see the next section) is applicable to all methods of communications even instantaneous ones! In such a case, once the acceptor or announces its acceptance the contract is formed, even if it does not reach the offeror. However, the condition is that the offer and acceptance must be made in the same manner, i.e. both by means of telephone or fax or any other means (Spindler, G. and F. Börner, 2002). Moving to Iranian law, there is no indication in the Iranian Code of Civil in this finally the information rule means the contract is formed once the offeror receive the letter and reads it and is aware of its content. The postal and receipt rule are of the most of supporters among legal scholars.

respect. However, one of the eminent legal scholars is of the view that in communicating through instantaneous means of communications such as telephone, fax, and telex the acceptance is effective from the time at which it is received by the offeror, similar to the case in which the contracting parties are at the presence of each other. As it is clear, while in communicating through instantaneous means of communications both English and Iranian law apply the same rule, i.e. the receipt rule, American law applies the postal rule.

### 3-3-2-Postal Rule (Or Mail-Box Rule)

In English law there are some exceptions to the receipt rule discussed above. One of them is where the acceptance is sent by a postal letter to the offeror, in which the contract is formed, once the letter is posted (This rule for the first time invoked in the case of *Adamv. Lindsell* (1818). 250 and reiterated in *Byrnev. Van Tienhoven*, 1880)... *when an offer is made and its acceptance is posted in a letter, the contract is formed at the moment the letter is posted, even if it does not reach the destination at all...* However, if the non-reception of the letter is due to the failure of the acceptor, for example where the address of the offeror is written incorrect, then the acceptance is effective when the offeror receives the letter within a reasonable time. See for example *Getreide- Import- Gesellschaftv. Contimar; Holwell Securities Ltd v. Hughes*, 1974). For this reason, it has been called postal rule. The rule is applied to all cases that the parties communicate through non-instantaneous means of communications (Chitty on contracts, *supra* note 5, para.2-043), such as telegraph (*Brunerv.Moore*,1904) and telemessag (Chitty on contracts, *supra* note 5, sections 2-031.). In American law the UCC has no provision in this regard, but in the legal writings (Corbin on Contract, *supra* note5,pp.124-125.) and judicial decisions (The oldest and most well-known judicial case in this respect is *Adamsv. Lindsell* (1818) 1B&Ald681.) the postal rule has been adopted in communicating through postal letter, and the possibility of the revocation of acceptance has not been approved once the letter is posted.

### 3.3.3TheRationaleBehindTheApplicationOfThePostalRule:

It may be argued that the postal rule is an unfair one; because the offeror is bound to the contract before he receives its acceptance, and is aware of the decision of the offeree. Even the offeror may be bound to a contract for which he has never received any acceptance. The logic behind this rule is important in the adoption of an appropriate rule to be applied in communicating electronically through chat-room, website and e-mail. Some reasons have been put forwarded: the postal rule is applied whenever the communications are assigned to a reliable third party. This belief has been pointed out in *House hold Fire Insurancev. Grant (Brogdenv. Directors of the Metropolitan Railway Co.* [1877] 2 App. Cas. 666, 691. [1879] 4 Ex. D. 216, 233.). Once the acceptor sends the acceptance letter, it is out of his or her control. Then the any future probable risk should be put on the recipient, i.e. the offeror, who is in a good position to control it. Furthermore, in cases that the offeror chooses communications to be made through post, admits impliedly to receive the acceptance through post as well, and then it is logical to put any



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perceivable risk on him (Edinburgh,1929). Some other believes that the post office acts as the common agent of the parties. Any communications with the agent are deemed to be made with the principal (Edinburgh, 1995). It has also been stated that the postal rule is applied in cases that the offer indicates the possibility of announcing acceptance by non-instantaneous means of communications such as post (Gringras, 1997).

### **4-1-THE NATURE OF DOCUMENTATION ELECTRONIC SIGNATURE AND PUBLIC KEY INFRASTRUCTURE**

In today's commercial environment, defining a framework to authenticate computer-based information requires familiarity with concepts and professional skills of legal and security aspects of computer. Combining these two areas is not an easy task. Concepts of the field of data security often do not match with the concepts of law. In terms of data security, "digital signature" is the result of a specific technical process on specific data. The historical legal concept of "signature" is broad. From this perspective, any sign that intends to authenticate certain evidence is a signature. According to digital technology, nowadays, the broad concept of signature can include: signs, digital images of printed signatures and so on. From the perspective of information security, these simple electronic signatures, as already described, are distinctive from digital signatures. However, "digital signature" sometimes refers to computer-based signatures. Proving the existence in a legal relationship, authentication of the relationship parties, and integrity of the content of the exchanged information are all required in the electronic environment which is immaterial and virtual. This has guided practitioners of informatics law to find "electronic signature" or "ICT signature". To understand what is called the electronic signature, first, it is necessary to define it and then electronic signature types are examined. Then, we must investigate how secure digital or electronic signature is authenticated and can be invoked. (Boss, 37, 87-88.)

#### **4-1-1- The Concept of Electronic Signature**

Lexically it means Attending, finishing or enforcing a matter. In colloquial meaning it means writing the name or family name or a particular sign that shows the identity of the owner of the sign below the papers and documents (regular or official) and ensures the occurring of the transaction.

##### **4-1-1-1- Imminent Signature**

It is a signature that cannot be rejected or denied; such as the signature below an official document or the signature that its signatory confesses to issuing it. Imminent signature is used for comparison during addressing the authenticity of the denied and doubted signature (Article 225 of the Civil Procedure Code). Registered and validated signature is considered imminent signature by the certificate authority.

##### **4-1-1-2- Signature and Rights**

Signature is not part of the nature of the transaction; it confirms the form of the deal. The purpose of signing the script is one of the following:

**(A) Reason:** Signature acknowledges the script in addition to announcing the identity of the signer. When the signer uses a unique and distinctive sign, the sign is attributed to him/her.

**(B) Formality:** Signature makes the signer to consider to his/her act official and formal.

**(C) Verification:** In some cases, in accordance with law or custom, signature is an endorsement or confirmation of the script or the signer intends to create legal effects.

**(D) Efficiency and Certainty:** Signing a written document often shows the occurrence, clarity and certainty of the deal. Conditions of official legal transactions and required signature in various legal systems are not the same. And these conditions will change over time as well.

In some legal systems, deal or document do not invalidate due to the absence of a signature, but the courts, do not consider the lawsuits of these documents enforceable. Over the past century, in most legal

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systems, conditions have become more limited, or at least effects of failure conditions have been reduced to a minimum. Written documentation is likely to continue, and the beneficiaries or the parties are trying to comply with the formality, but in some cases information are computer-based, and in this way the paper is not used.

Although the basic nature of trading has not changed, but the law has been considering technological advances. Legal and business communities must adopt rules and procedures which use new technology To obtain the conventional effects of paper. For this purpose, signature must have the following attributes:

**(A) Signature Authentication:** Signature must show who has signed the document, message or evidence. It must also show that other entities cannot offer or use it without the permission of the owner of the signature.

**(B) Document Authentication:** Signature must show what is signed and prevent denial and rejection of the document or altering the document or signature. Signer authentication and verification of the document are tools to deal with fraud and forging. In terminology of information security, these tools prevent denial and refusal and these services are named "denial and refusal prevention services". These services provide the data source or data delivery by the sender and prevent denial and refusal of the receiver.

**(C) Positive and Practical Action:** Attaching signature should be a positive action that provides the procedures and means transaction.

**(D) Efficiency:** Signature creation and its verification process should authenticate the signature and document and also have the lowest cost. (Winn, 4, 13-15.)

#### **4-1-1-3- Digital Signature Technology**

Digital signature is a kind of electronic signature which consists of series of mathematical data (codes) alongside a particular person who is the sender of the electronic documents. Digital Signature, with the help of a mathematic changing program, has a cipher form and authenticates the content of the message and the signer's identity. This signature also has a method to provide evidence of the specific sender. This feature prevents denying and rejecting the owner of the signature. Because of the secure encryption, the possibility of extracting the signature and attaching it to another document is almost ruled out.

Digital Signature is created and verified through encryption. Encryption is a branch of applied mathematics whose duty is to change messages into seemingly unintelligible forms and return them to the original form. Digital signatures often used "public key encryption".

Paragraph (e) of Article 2-1633 of the California Civil Code (America) states: "electronic signature is an electronic sound, symbol or process that an individual accepts it and attaches it to electronic documents."

Paragraph (y) of Article 2 of electronic commerce project states: "Electronic signature is any sign reasonably attached to the data message which is used to identify the signatory of the data message."

On the validity of electronic signature, Article 1633-7 of the Civil Code of California states: "(A) It is not possible to consider any document or signature without legal effect just because it is in electronic format. (B). No contract can be considered without legal effect because just it was signed using electronic equipment, facilities or documents. (C) If any law orders the requirement of written evidence, electronic document in this respect will suffice. (D) If any law orders the requirement of the contractor's signature, electronic signature will suffice."

Signatory of the electronic signature can be a natural person, a legal person or a computer system controlled by him/her.

Currently, there are at least three types of common electronic signature:1. Secure electronic signature 2. Enhanced electronic signature 3. The advanced electronic signature

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### **4-1-2- Terms and Features of Electronic Signatures**

Signing the document is a social affair not a scientific one. Document signing is an act upon which a person (A) shows he/she confirms the contents of the document and another person (B) checks this confirmation shows that he/she understands it. But making (A) committed to the document is never quite reliable. Any evidence that implies on such commitment is subject to question and doubt; in other words, signing documents requires take the risk.

### **4-1-3- Signed with the Private Key**

The assumption is that when the document is signed with the private key of any person, it involves that person's liability. That person can deny and refuse; it is not impossible, but it is very difficult. This means that: 1. Signature recipients have strong reasons that the signatory is the guarantor. 2. Owner the key needs to be cautious; because the key can be used to sign any legal transaction and the owner of the key is responsible to prove that the signature is not authentic.

According to paragraph (b) of regulations of computer information networks approved in 09/12/1380 by the Supreme Council of the Cultural Revolution: "using any password for information exchange requires approval of authorities of registration, algorithms, and password key; applicant information is also in the secretariat of the information supreme council (or introduced authority). Otherwise it is prohibited."

### **4-1-4- Terms of Secure Electronic Signature**

According to Article 10 of the electronic commerce project, secure electronic signature must meet the following terms: 1. It is unique for every signatory 2. It determines and shows the identity of the signer of the "data message" 3. It is issued by the signer or his/her exclusive will 4. It is somehow attached to a "data message", so that any changes in the data message can be detected and found.

### **4-1-5- Legal Signatures for Electronic Commerce**

Signature in legal terms is a symbol adopted someone. To accept responsibility of the transaction, basically law does not prescribe that the act of signing must be accompanied with the safety rules. Therefore, signature, safety rules and reasons are separate topics. Not observing safety rules does not mean that the signature is void.

Signature righteousness and signature belonging to the signer are another matter. For example, a court in America considered the signature on a fax that this sentence was on it "I, X, immediately pay X \$ in case of receiving X products from you" valid, because ownership of the text, handwriting and signature were proved and even more importantly the message also had the signature.

## **4-2- Validity and Effects of Electronic Signature**

Article 14 of electronic commerce project states: "The keys of data messages are securely created and maintained. These keys are valid in terms of contents and signatures of the document, obligations of the parties or the party who has committed and persons who are considered their legal deputies. These keys can be invoked in the court and judicial system."

Article 15 of mentioned project states: "Denial and doubt cannot be claimed towards secure data messages, secure electronic records, and secure electronic signatures; it can only be claimed that the mentioned data message is a fraud; it is also possible to prove that the mentioned data message is legally invalid." (Berbecaru and et al, 2002, 4, 15-16.)

### **4-2-1-Electronic Certification Service Provider**

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Article 13 of the electronic commerce project states: "Electronic certification service providers are units that are established in the country to provide services for electronic signature certification. These services include: production, export, storage, delivery, verification, cancellation and updating electronic signature authenticity certification."

Although the realm of electronic signature is wide, but it is not official and does not have credibility in case of testament, deed of trust, adoption, or divorce.

It is worth noting that some laws, concerning the electronic validity, have focused their attention solely on electronic signature (for example, laws that only follow the instructions of the Europe Union). And others include regulations that are about contract and related issues. From the latter category, there are laws inspired from the model law of electronic commerce of the United Nations Commerce Commission (such as e-commerce law in Hong Kong and e-commerce plan in Iran). Almost all laws consider fundamental and legal effects for electronic documents and signatures. (Birnbaum, *Electronic Signature Comparison*, 2001, 9-10)

#### **4-2-2-Traditional Paper and Pencil Strategy**

Signing traditional paper documents is subject to numerous risks; there is no standard method for signing with a pen. How to sign documents in order to find legal validity is not taught to anyone. The person is free to sign in any way he/she wants and even can change his/her sign every minute; conventional signature can be forged. Science can only help us know if the signature is authentic or not. Signature matching in this context can help us. As common signatures and recorded in the paper documents are at risk of denial and rejection, electronic signature can also be subject to such situations. To make the owner of the electronic signature committed to his/her signature, technology, offers a variety of new tools and strategies and electronic signature laws have also enacted provisions in this area.

Public key encryption, "PENOP" is among these strategies. In "PENOP" biometrics technology of pen is used. PENOP is a part of computer software which increases the performance of other applications. This method has two features:

1. Signature-Record Service: Specific data of handwritten signature is captured and saved on the screen of pen-based computer; this service receives information such as ID or user name which represents user's identity based on his claim. It then commands the user to use the pen and write his/her signature on the computer screen. Therefore, the "PENOP» is legally equivalent to a signature on paper.
2. Signature Check Service: This service investigates and reports the authenticity of a signature.

Based on "PENOP" strategy, party (b) asks party (a) attach the biometrics sign to the document in order to sign the electronic document. In this method, signature's data such as signature's image, signature's writing speed, and other biometrics measures, are stored in computer memory and form the signature. This biometric signature is incorporated with the document encryption index; and the result is a signed document. (Bacchetta, M., et al, 2, 7-9.)

### **CONCLUSION**

The electronic environment is not independent from the traditional environment in terms of legal rules and principles. It is neither logical nor possible to write a separate legal frame work to the electronic environment. The traditional contract law has evolved over centuries and is an invaluable legal legacy. However, it must be kept up- to- date as the time passes and new legal issues emerge. One of the debatable issues, i.e. the time of conclusion of electronic contracts, illustrated in the present paper. The conclusion is, as the judicial decisions as well as legal writings show, where the communications of the contracting parties are through instantaneous means such as telephone, fax the receipt rule is applied, then the contract is formed once the acceptance is received by the offeror. In contrast, in the communications through non-instantaneous methods, such as postal services, the postal rule is applied, i.e. the contract is formed once the acceptance is sent, even fit does not reach the offereor at all. It considered that sending

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an e-mail is similar to posting a letter, then it cannot be regarded as an instantaneous means of communication, and for this reason it is appropriate to apply the postal rule in contracting through e-mail; but as to the exact time of dispatch reference must be made to the applicable law to the contract, the MLEC, IECA, UECT, CUECIC or any other Act. In contrast, it examined that communication through website and chat-room technically is similar to a telephone conversation, and then it is logical to consider them as an instantaneous method of communication and apply the receipt rule. Again the exact time of receipt of an electronic communication or an electronic message containing the acceptance of offer must be determined by the applicable legislation on electronic commerce. However, it is recommended to the contracting parties to agree on a certain time in respect of the time of conclusion of electronic contracts avoiding any future disputes in this regard, or at least, reach an agreement on the applicable law to the contract. The reason is that the cyber space is a world without any physical boundaries, and where there is no agreement on the applicable law to the contract, the application of the rules of International Private Law to determine the applicable law.

Considering basics and infrastructures is the first condition to enter the world of e-commerce and progress in this field. E-commerce law, despite some flaws and defects, should be considered as the Starting point of this process. Experience of other countries shows that in case of the realization of e-commerce, safety on one hand and rational claims on the other hand would be discussed. At first, creating and recording digital signature and then electronically recording electronic documents help with many imaginable problems in this field. In the case of electronically recording signatures and documents, the important thing is to "trust" the head of the bureau and try to achieve the latest standards. The latter one is so important without which electronic, efficient, and systematic recording would be unimaginable. Every act of assigning recording, as described above, to a new organization or persons who do not have any expertise in the recording affairs, because they are unfamiliar with the principles and rules of recording, would be doomed to failure. Recording signatures and electronic documents obeys the same rules and principles that other documents and signatures (on paper and manual) obey. Contrary to the opinion of some, we cannot consider technology developments a pretext to violate principles and rules. Before anything "electronic recording" has to be recognized by approving proper legislation and assigning some of the official document bureaus to it after necessary training. Possibility of recording in both electronic and paper-based methods in these bureaus is the best available way to stop deviating from the principles and rules. Electronic recording bureau can record digital signature while backing up recorded documents, it can also deal with its daily affairs such as recording real estate.

The claim that creating centers, for signature certification and electronic recording, separately lead to more complex and formal electronic transactions, therefore, lack of interest in them is also doomed to invalidity. Just to be faster and cheaper makes major problems such as cheating, fraud and abuse in cyberspace, and proving issues harder. We cannot accept these major problems. However, by making detailed regulations, it is possible to certificate and record electronic signatures in one bureau in the minimum possible time. Making a balance between philosophy of expanding e-commerce and safety and reliability of it is the best option that can easily be achieved by electronically recording signatures and documents. As it was mentioned, about rules governing contracts, attempts have been made through electronic intermediaries so that significant differences and distances between the methods and tools of traditional commerce and electronic commerce do not affect legal aspects of the issue. Although UNCITRAL law model and the law of e-commerce in Iran do not have specific rules and basically their intention is not to login to the field of substantive law, but validity of contracts and contracts effects have been explicitly subjected to general rules. In conducting regulations of e-commerce, they have tried well to remove any inconsistency between these regulations and general rules as much as possible.

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