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E-Trust Assessment on E-commerce

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Abstract*—The E-Commerce, as to the nature of the transaction between both parties, is represented in various classifications and includes a framework of computer programs and systems that undertake services in the internet, which are search for information, exchange management, study of rating condition, provision of rating, online payment mode, summary of report and account management. These are the foundations which insure the internet organized activities, increasing the efficiency of transacting parties. For these transactions, system security must be provided and create the necessary ground for mutual trust between the parties, trust towards the system operation, as well as trust towards the relevant product, brand or service[1]. In Internet or electronic environment the trust concept is represented as 'e-trust or electronic trust ' formulation. The E-Trust , whose concept is the willingness of the truster (one party) to accept the risks and vulnerability against an internet vendor based on positive expectations about the characteristics and future behaviors of the trustee (other party) , is created with difficulties for an online seller[1]. In this research firstly , we survey the concept of trust , e-Trust , trust factors , trust life cycle and then, identify and introduce the e-trust building models , methods and enhancing in the context of E-commerce .

***Keywords:* Trust, E-Trust, E-Commerce, E-Trust Building, E-Environment, Assessment**

I. INTRODUCTION

Today advantages of online shopping on anyone not wearing. With this technology exchanges and development of economic and financial transactions and achieve results in time and costs, savings can be significant. Information and statistics reflect the fact that the use of online purchases is growing and the forecasts suggests that continuation of this trend. Despite the growth process which online Internet purchases using electronic payment methods as well as their undeniable benefits, still use traditional methods preferred by the buyers are. However, according to projections done in the not too distant future, the use of electronic purchasing methods in the field of competition, traditional methods will overtake the current.Authors believe that the three shipping, payment and trust the main three factors are important and that have direct impact on the development of B2C. Weakness in any of the above factors reduce customer trust in online purchases is. To develop the technology, should reduce the risks to the first two factors (transport, payments) and increased trust in trying to be the third factor. This research has been implemented to study the effects of trust factors over e-transactions in the fields of management and commerce.

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The e-commerce (EC), whose simplest definition is the implementation of any commercial transaction by online mode and through internet, today is used not only as an innovative solution between buyers and sellers for the implementation of transactions by online mode, but in many countries organizations and governments represent a considerable part of their services to recipients in the circles of e-service mechanism. Therefore, the electronic government as well, which is defined as government and adjunct agencies' service provisions to citizens, in the context of the internet, is directly related with EC[1]. In fact , trust and security are represented in detail as two key concepts of e-transactions, in case of the first the existing two basic challenges make the formation of trust between both transacting parties slightly risky. For the management of that unsafe environment, it is necessary to create security and trust in the EC system. It has been discussed about security and trust in online environment, about the 'trustor' (who is endowed with psychological, individual, experimental and cultural specific peculiarities that affect others towards the probability of the individual's trust) and the 'trustee' (in the framework of his features are virtue, capability, good will, being predictable and unanimous). In virtual environment, contrary to the real, the trustor is the customer who deals with e-transactions through website and on the opposite side the trustee is considered the given website[1]. Perform all e-commerce business using computer networks, particularly the Internet. E-commerce, somehow, is paperless trading. Various definitions for e-commerce provided that they are often based on past experience in using e-commerce has been. European Commission e-commerce in 1997 to define the form said: "The e-commerce processing and electronic transfer of data, including text, sound and image is based. Various e-commerce activities such as electronic exchange of goods and services, demands immediate digital delivery, electronic funds transfer, electronic stock exchanges, electronic bill of lading, commercial design, direct marketing and after sales service includes.

E-Trust is relatively a new concept in all companies, organizations and every electronic environment. In E-Commerce and E-Government Context , It is the tendency to adopt a position of vulnerability by the consumer towards the internet seller, to which is related the positive expectations of the seller's subsequent behaviour [1]. In commerce, trust is the most important column of exchange establishment. Without gaining trust every exchange, even the ones that are successfully established, will consequently cause disappointment and dissatisfaction in one or both correspondents. Building trust in the reality or virtual environment necessitates the exertion of proper rules and methods respective to its environment.

In traditional environment there exist several factors affecting trust building that some of them does not appear in the new virtual or electronic or cyber or web environments.

II. E-TRUST & E-COMMERCE

E-Commerce is defined as 'those commercial transactions performed on open networks' (OECD/GD, 1997) [20]. Therefore, factors affecting the relationship between customers and vendors, small and large scale businesses such as security, satisfaction, loyalty, trust must be examined in each form. In addition, the behavior before buying, when to buy, then buy the three together formed commercial transactions are different and must be evaluated and compared. Trust is the key factor that influences the acquisition of the business because the business is trading virtually the same mode of interaction between the parties. Trust is an interdisciplinary term and has numerous applications in different sciences like law, psychology, sociology, economics and commerce. Experts of each field have presented a specific definition about the trust according to their area of work and expertise.

These statements reflect the role of the concept of trust in daily interactions. The experts of each field of science have taken trust into their consideration from their own point of view, so that the psychologists consider trust as a personal attribute, sociologist consider it as a social structure and economists consider it as an economic selection mechanism. Adherents of one field may not understand and approve the other fields' points of view about trust. Therefore the currently suggested definitions are very different from each other and most of them are accumulated along an interdisciplinary line. However we can discuss the reason of existing differences in the definitions of trust from two perspectives. First, the trust is an abstract concept and sometimes is misguided with other concepts such as validity, reliability and comfort. Second, the trust is a multifaceted concept and has intuitive and behavioral aspects.

In fact, trust has studied in commercial field as two aspects: Firstly, originally trust has studied in Brick & Mortar commercial context, we named this type of trust studying " offline trust studying" and others trust has studied on virtual environment (online/ cyber/ Internet/ Web environment), we named this type of trust studying "Online trust studying". About "offline trust" studying, we has very researches and researchers, But studying online trust dates back to the time of the creation of electronic or online business transactions (about three decades).

In trade and commerce, trust is the most important column of exchange establishment. Without gaining trust every exchange, even the ones that are successfully established, will consequently cause disappointment and dissatisfaction in one or both correspondents. Building trust in the reality or virtual environment necessitates the exertion of proper rules and methods respective to its environment. In traditional environment there exist several factors affecting trust building that some of them does not appear in the new virtual or electronic or cyber or web environments.

Among those we can point out the two following factors: Sense of the exchange stuff is a feature of traditional commerce, whereas it cannot be fulfilled in the E-Commerce. In traditional commerce in order to finalize the interaction of exchange establishment, the correspondents usually shake hands after closure and this handshaking is a sign of trust and acceptance of the exchange establishment, whereas this act is impossible in the E-Commerce as well.

The two above mentioned examples imply the fact that the discussed new environment is different from the old one. In other words the existing factors and agents in the two environments, despite having possible similarities, are distinguished in general.

In this research[1], we attempted to search and categorize the studies in the field of building online trust on the E-Commerce and E-Government context, using scientific resources such as books, papers, printed and online journals since 1998 until the present (2012). In summary, the term trust was discussed and considered in numerous and plenty of resources. Also in every studied aspects of every related field to the internet marketing, internet purchase, online store, E-Transaction, cyber space and web environment, trust has been pointed out as one of the main columns of the topic, either independently or joint with other terms such as security, privacy, policies, loyalty and adherence, satisfaction and bailment.

Various approaches to the field of trust have been surveyed in the current studies. These approaches can be classified in two general categories of static and procedural approaches. In procedural approach, the method of gaining trust is being discussed and its building steps such as formation conditions, continuity state, methods of enhancement and finally, weakening of trust are studied in aggregate or component based form. In static approach after defining the trust variable, one tries to parse it into more intuitive variables and factors which are called the trust dimensions, and then the effective and perturbing variables in the structure of trust are studied.

The three latent in trading or business variables are including trust, satisfaction and loyalty[1].

- For Trust, Three Observed variable are sell's evaluation, the seller's the type of payment and seller's secured certificate.
- For satisfaction, four observed variables are quality, price consistency of good and photos and delivery speed.
- With regard to loyalty, three observed are recommendation to others, repurchase intention and membership system.

In various researches, several dimensions for the structure of trust have been introduced. Among those we can point out to the following models:

- Deutsch (1958) [32] : An individual may be said to have trust in the occurrence of an event if he expects its occurrence and his expectation leads to behavior which he perceives to have larger negative motivational subsequences if the expectation is not confirmed than positive motivational consequences if it is confirmed.
- Lewis and Weigert (1985) [19] : Trust exists in a social system insofar as the members of that system act according to and are secure in the expected futures constituted by the presence of each other or their symbolic delegations.

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- Hosmer (1995)[8]: Trust is the reliance by one person, group, or firm upon a voluntarily accepted duty on the part of another person, group, or firm to recognize and protect the rights and interests of all others engaged in a joint endeavor or economic exchange (Hosmer, 1995, p. 393). [8]
- Mayer et al. (1995) [26]: The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the truster, irrespective of the ability to control or monitor that other party.[26]
- Rousseau et al. (1998)[18]: Trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another.
- Grandison and Sloman (2000)[10] : Trust is the firm belief in the competence of an entity to act dependably, securely, and reliably within a specified context[10]
- La Londe, 2002,... : As a central variable of social exchange theory, trust is a cornerstone in developing and maintaining business relationships (La Londe, 2002, Sherman,1992).[11][12]
- Mui et al. (2002) [9]:Trust is a subjective expectation an agent has about another's future behavior based on the history of their encounters." [9]
- Olmedilla et al.(2005) [2]: Trust of a party X to a party Y for a service Z is the measurable belief of X in that Y behaves dependably for a specified period within a specified context (in relation to service Z)

In most researches about trust features in the E-Commerce, are the concepts of keywords: competence, benevolence, predictability and integrity which are noted. These keywords are studies about buyer's (trustor's) attitude, belief, intention and behavior. Attitude includes affect and confidence; Belief includes expectancy [15]. Furthermore, in some researches about trust with procedural approach, which is in fact is a modern viewpoint towards E-Trust, the aspects of building online trust, development of online trust, securing the E-Trust, weakening of trust, etc. are discussed and scrutinized. In these researches which are mostly accomplished after 2000, the following aspects have been are covered:

- Trust building/ online trust/
- In procedural approach of trust, the building of trust in the E-Commerce has various steps or phases which determine the amount or measure of the built trust.
- Unawareness: at first step, the person or buyer is in the state of unawareness but has the tendency to acquire knowledge for participating in the exchange. Thus his/her tendency provides the necessary Context for building of trust at the next step.
- Building trust: in the second stage, the person or buyer is seeking to build a trust Context in himself/herself through searching, review and comparison of the related data about providers of the goods or services. In this phase the person attempts to authenticate the website or electronic vendor, after accomplishing searches, inquisition and comparison. Then he/she proceeds the necessary acts for registering his/her information in the sale portal, exchange participation and confirmation.
- Confirming trust: the stage of trust confirmation is exactly the one in which the person commits to choose and place his/her picked up goods in the online purchase basket and finalizes the process of payment and clearing.
- Maintaining trust: the last step or phase of the E-Trust is the one in which the positive actions of the vendor regarding the in-time delivery, intactness or validity of the goods and services, appropriate customer care and warranty, and making a proper connection to the customer create a sense of satisfaction and loyalty in the customer. Delivery is the amount of time necessary for the package to go from the distribution centre to the customer's door. Post-purchase evaluation can be influenced by the efficiency of logistics and customer service. Delivery problem is a very common phenomena existing in the online shopping environment.

Trust in e-transactions is becoming a major key item for determining the success and failure of Internet interactive [28][29]. Different studies (e.g., Kollock[31]; Smith et al. [30], Urban et al.,[28]) present a different type of tools to signal trust in the virtual world. Kollock [31] suggests the implementation of online communities including reputation systems. Links from other trusted websites are also seen as a trust signaling element (Smith et al.)[30].

Electronic commerce, also known as e-commerce, is more specific than e-business, it means that in addition to providing information to visitors about the company, its history, policies, products, and job opportunities, the company or site offers to transact or facilitate the selling of products and services online. (Kotler 2003)[17]. E-Commerce is the process of buying and selling goods and services electronically with computerized business transactions using the Internet, networks, and other digital technologies. (Laudon and Laudon 2005)[3].

E-Commerce has changed how firms do business and is now defining how firms do business. E-Commerce is the process of managing online financial transactions by individuals and companies. This includes business-to-business (B2B), business-to-consumer (B2C) and business-to-government (B2G) transactions. The focus of E-Commerce is on the systems and procedures whereby financial documents and information of all types are exchanged. This includes online credit card transactions, e-cash, e-billing, e-cheques, electronic invoices, purchase order and financial statements.

E-Commerce is often described as being one of four varieties – business-to-business (B2B), business-to-consumer (B2C), Consumer-to-Consumer (C2C) or business-to-government (B2G). Most of statistics has focused on this B2B and B2C. About 80 per cent of the total value of E-Commerce in the world today are accounted for by B2B E-Commerce. B2C E-Commerce has the potential to substantially affect the way in which people live and interact with each other and is therefore a key aspect for statistical measurement. P Smith and Chaffey [27] further around that E-Business should operate on a stage model comprising the following six steps that must occur sequentially : Messaging (internal and external e-mails),Marketing and stock availability checks, Online ordering, Online payment, Monitor order progress, E-business).

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About main difference between B2B and B2C it's considerable because, during the emersion of e-commerce, companies willing to establishment business process reengineering on their organizations have integrated their systems with those of their planning, suppliers, distributors and Supports, using appropriative networks for EDI. Whereas, these interactive systems are used to exchange not only informational, but also data of commercial, they illustrate the first formation of B2B E-Commerce. In B2C E-Commerce it is attractive that all parties engaged in a commercial interaction in EDI are bound to find and trust each other, since they have been individually linked using a private value-added network (VAN). In fact, it seems rational to take that a user engaging in B2C E-Commerce does not perceive the system as a work tool, however rather as a means to order some goods or services for personal use.[13]

In various categorizations of the E-Commerce types (B2C, B2B, C2C, C2B, B2B2C, G2B, G2C, B2G, etc.) different factors and agents such as web based programs, service provider, communication Context and the receiver (customer) must cooperate to create and shape an E-Commerce. In case of considering it as a system, we will be able to categorize these agents and operators in four main context of "production, presenting, transfer and reception" of the goods or services. These areas which can be viewed as the main covering areas of an E-Commerce system have a major role in construction and shaping of the E-Commerce. But despite significant advances in the area of the application of ICT in every aspects of human life such as economics and trading, today the process of gaining trust and security establishment has become one of the greatest concerns of the costumers or citizens in the cyber space. Although the trust and security are two complementary arms and traditionally and even in many statements or manuscripts these two words are used as synonyms but the fact is, in virtual environment the two words do not necessarily have similar meanings. Because the term "security" is used for the subject of protection of data and information systems from unauthorized activities like unauthorized accessing, using, disclosure, reading, recording or inscription, destroying, changing and manipulation. However the trust differs from security, since the term "trust" is used when there is going to be an interaction in a relationship of which on one side is a person or company referred to as "the truster" and on the other side is a person or company as "the trustee". The truster acquires confidence about the fact that his general expectations on the words, promises, written and unwritten statements of the trustee will be met. In other words, the onset of the trust subject is built on an interactive Context or basis between at least two correspondents.

III. E-Trust Properties

Trust according to the area that will be discussed in, is likely to indicate different characteristics.

1. Being personal: in the issue of trust to a specific person, different people may have different views. Trust is the subjective probability by which an individual, A, expects that another individual, B, performs a given action on which its welfare depends. This definition includes the concept of dependence on the trusted party, and the reliability probability of the trusted party. A method for deriving trust from a transitive trust path is an element which is normally found in trust / reputation systems [24].

2. Reflective: almost in all models of trust, it is assumed that each person fully trust himself/herself.

3. Asymmetry: if A have trust in B, then B does not necessarily trust A.

4. Transitivity (Pseudo transitive) : Transitivity is a highly desired property of a trust metric.[6] In situations where A trusts B and B trusts C, transitivity concerns the extent to which A trusts C. but this amount is not necessarily identical to the amount of trust that B has in C and it is rather less than or utmost equal to it. Without transitivity, trust metrics are unlikely to be used to reason about trust in more complex relationships. The more thorough approach distinguishes between different contexts of trust, and does not allow for transitivity between contexts that are semantically incompatible or inappropriate. Contextual approach may, for instance, distinguish between trust in a particular competence, trust in honesty, trust in the ability to formulate a valid opinion, or trust in the ability to consolidate another's opinions. Contextual approach is often used in trust-based service composition[7]. This property causes the creation of two different types of trust

Direct trust, i.e. the personal opinion of the truster about the trustee according to previous interactions and his/her behavior. Indirect trust, i.e. the trust that truster individual extracts from the questioning from others and through their comments and opinions.

5. Dynamism: our trust in a person may become less or more as the time passes as well as sensing changes in his/her behavior. Some environmental factors such as time and location may also influence the level of our trust in others.

6. Combinability: a person derives the level of his/her trust to another person through other individuals.

-In this inference process, the truster person acquires some variables through some different paths to the person who is going to be trusted.

-Combination of trust is one of the essential parts of the trust inference algorithms that are explained in trust models. The weighted average method is one of most common operators that are used in determining the combination of trust in distributed environments.

The combinability property of trust is used to design the net model of trust in virtual environment.

7. Scalability :The growing size of networks of trust make scalability another desired property, meaning that it is computationally feasible to calculate the metric for large networks. Scalability usually puts two requirements of the metric:

The elementary operation (e.g. fusion or discount) is computationally feasible, e.g. that relationships between context of trust can be quickly established.

The number of elementary operations scale slowly with the growth of the network.

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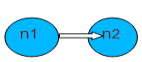
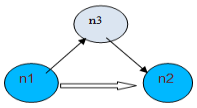
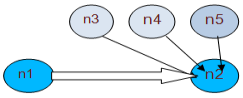
8. Attack resistance : Attack resistance is an important non-functional property of trust metrics which reflects their ability not to be overly influenced by agents who try to manipulate the trust metric and who participate in bad faith (i.e. who aim to abuse the presumption of trust).

IV. TRUST MODELLING IN COLLABORATION SYSTEMS

Collaborative systems accessible on the Web authorize millions of Internet users to share information through a growing collection of tools and platforms such as blogs, shared forums and wikis. All of these systems are include information and resources with various degrees of sensitivity. Although, the open matter of such infrastructures makes it hard for web-users to determine the reliability of the available information and trustworthiness of information providers. Accordingly, making trust management systems to using collaborative systems can play a main role in the formation and popularity of trustable information. Trust promotes mutual understanding and global collaboration (Child, 2001) [21]. As common in the trust research literature, the roles of actors in a directed trust relation are defined as trustor (also truster), which is the trusting entity, and trustee which is the trusted entity. Trust relations E between entities N – the actors in our mixed systems environment – are managed in a directed graph model G = (N,E) [5].

Table 5: Trust Modeling in Collaborations Adopted from Skopik [5]

(a) Direct trust.	(b) Recommendation	(c) Reputation.
Direct Trust Relations. These relations base on first-hand experiences and are inferred from the success and outcome of previous interactions between the trustor and the trustee.	These relations, based on second-hand experiences, are inferred from the success and outcome of previous interactions between a well trusted entity and the trustee.	Reputation is a concept where trust of the trustor to the trustee is completely inferred from third party relationships
		
n1=Trustor, n2=Trustee	n3=Recommender	n3,n4,n5=Reputing actors

Perhaps the reason for the disparate perspectives of the scientific disciplines is the multitude of facets to the phenomena called trust. Trust appears burdened with a plethora of descriptive adjectives. Lewicki & Bunker (1996) [25] suggest that trust maybe categorised based on the perspective from which it is viewed. For example, from the organisational perspective, professional-trust exists among similar professionals (Misztal, 2002) whose common interests lubricate intra- and inter-organizational collaborations (Oliver, 1997) which Rus (2005) views as network-trust. Similarly, institutional-trust results from institutional arrangements characterised in a sociological perspective (Zucker, 1986)[22] ; it is the security one feels in a supported situation where we have 'guarantees, safety nets, or other structures' to support our endeavours (McKnight et al., 1998)[23]. For example, we trust in our 'main foundation' institution, our government, to look after our best interests (John Child,2001, p. 276); organisational-trust'is a type of institutional trust' (Wong, Ngo, & 2003, p. 487). From the perspective of trust-based transactions, some use economic-trust to explain human choice (Miller, 1992); while others use financial-trust to explain our confidence to deposit money in a banking institution in expectation of it being returned with interest. From an interpersonal perspective, knowledge-based-trust (Abrams et al., 2003) assumes the parties have first-hand knowledge of one another based on a history of information-sharing (McKnightet al., 1998)[23]. Similarly, competence-based-trust is important for the transfer of tacit knowledge (Levin et al. 2002). Mollering's (2005) theoretical analysis of trust identifies three types of trust:

1) rational-trust involving choice based on perceived trustworthiness in a specific context;
2) institutional-trust based on the trustor's natural propensity to trust in certain situations,
3) active-trust that involves the development of trust in fast changing situations.

Electronic trust in the e-commerce of type Company to Consumer has multiple stages which the first stage begins with total unawareness of the online shopper about the online seller and continues with formation and after formation the stage of maintenance (continuance) of trust comes. No trust is everlasting and finally in the lifecycle of trust there will be a dropping and vanishing stage. In the e-commerce, gaining trust is a difficult and complex issue, hence its maintaining and prevention from loss has a vital importance for the online seller who is referred to as the online trustee. In summary, five core trust themes have been identified: 1) the capabilities or competence of the trustee; / 2) the principles and standards under which they behave; / 3) the trustor's expectation of the benefits that a rise from a decision to trust; / 4) the notion that trust occurs in situation or context, and; / 5) the dynamic nature of trust. Before we look at each of these themes in more detail, perhaps we should ask ourselves, why do we need to trust in the first place? Close examination identifies that trust occurs in situations where we have a probability that an outcome will differ from what we expect. In a word, 'uncertainty regarding whether the other intends to and will act appropriately is the source of risk [18]. Trust is not needed if our actions proceed with complete certainty and no risk is involved [19]. E-Commerce Trust is Communicated by Six Primary Components. Because time is key to deepening trust. Internet trust is still relatively shallow. Consequently, the frms that suggest trustworthiness are the main determinants of whether someone will take a chance. There are six types of such forms:

1. Seals of Approval Symbols, like VeriSign and Visa, designed to re-assure the visitor that security has been established. The companies that provide these seals of approval are referred to in this report as security brands
2. Brand, The corporation's promise to deliver specific attributes and its credibility based on reputation and the visitor's possible previous experience.
3. Navigation, The ease of finding what the visitor seeks.
4. Fulfillment, Clearly indicates how orders will be processed, and provides information on how to seek recourse if there are problems.

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5. Presentation, Design attributes that connote quality and professionalism.
6. Technology, State of the art connotes professionalism, even if it's difficult to use.

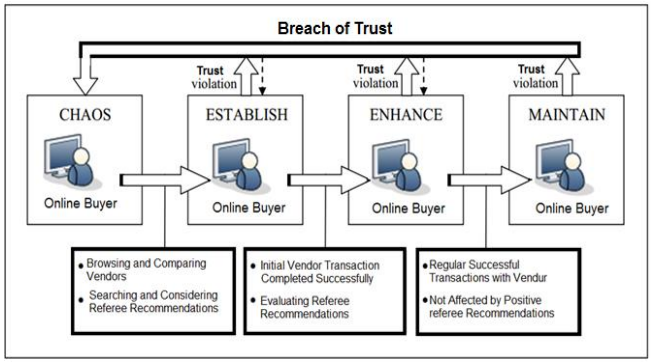

Figure 7: A Chart of understanding Trust lifecycle (Adapted from Head, M., and Hassanein, K [4])

Here are some trust negative factors include: Confidential information sharing, Length of relationship, Perceived powers, Lack of E-Commerce Awareness, Lack of law, Infrastructure, inadequate access, Attacks against the trust management system. Intended to address user and preparer needs regarding issues of security, availability, processing integrity, online privacy and confidentiality within E-Commerce and other systems. System consists of Infrastructure, Software, People, Procedures, Data. Trust Services issues include :

- Types of Trust Services Engagements
  - Examination or agreed-upon procedures {Web Trust (Assurance on E-Commerce systems),System Trust (Assurance on any system)}
- Web Trust and Sys Trust reports are similar: Assurance is provided on management's assertion relating to the principles and Sys Trust reports may be on one or more of the five principles(Security, Availability, Processing Integrity, Confidentiality, Privacy).
- Designed to incorporate a seal management process
  - Seal (logo) included on a client's website as electronic representation of the report
  - Engagement must be updated at least annually to use the seal
  - Initial reporting period must be at least 2 months

There are many methods for assessment the trust of EC , some of which include the following cases : methods of assessment or measurement of trust in the EC.

1. Computational mathematical methods
2. Managerial methods based on collection of users' feedback
3. Methods based on modeling of information
4. Methods based on decision support systems

V. Technology Framework for Building Online Trust

Three Characteristics that ensure trust in E-Transactions include : Achieving trust in E-Transactions with Digital Signature technology and an effective archiving scheme/ What are digital Signatures? An introduction to Public Key Infrastructure/ An introduction to Archiving digitally signed transactions using XML**.**

Digital Envelope: Combines the high speed of symmetric encryption (e.g., AES Rijndael) and the key management convenience of public key encryption encryption. Includes PSE (Smartcards, Mega-brid, USB tokens), biometrics, Hardware Security Modules etc.

Digital Certificate: Digital Certificates provide a means of proving your identity in E-Transactions, much like a driver license or a passport does in face-to-face interactions. Digital Certificate technologies (such as eTrust, WebTrust, eCard, And Smartcard) are steps in the right direction. Secure transaction methods using encryption and other technologies have existed for some time, yet the perceived risk of Internet transactions is still significant. As with any innovation, the market needs time to decide for itself about the adoption and diffusion of new trust mechanisms leading to widespread acceptance [74]. With a Digital Certificate, you can assure friends, business associates, and online services that the electronic information they receive from you are authentic. The most widely accepted format for Digital Certificates is defined by the CCITT X.509 international standard; thus certificates can be read or written by any application complying with X.509 [33]. ITU-T X.509 creates the framework for establishing digital identities – A key component for establishing security and trust for ICT applications in public networks (such as the Internet).
Combines Hash Algorithms (FIPS-180), Key Exchange, Public Key Encryption to provide Data integrity, Non-repudiation and Certificate-based Authentication. Digital credentials are established using ITU-T X.509 Digital Certificate Standard.

Digital signature: In the electronic world, hand-written signatures can be replaced by digital signatures. Like written signatures, digital signatures may be used to establish the identity of a party or to make legal commitments. In addition, digital signatures can also be used to guarantee that the contents of a file or message have not been altered. The E-Transactions Act provides for the recognition of digital signatures under Iranian E-Commerce law. In relational database applications, digital signatures are typically used to ensure data integrity and/or non-repudiation (i.e., proof of origin). Since digital signatures are semantically similar to paper signatures, they are used to streamline business processes by reducing or entirely eliminating the need to print, sign, transfer and store paper documents. The legal framework for holding signers accountable for documents they digitally sign is beginning to take shape [16]. For digital signatures to work, a trusted third party known as a Certification Authority (CA) is needed to issue digital certificates that certify the electronic identities of users and organizations. Before issuing a digital certificate, the CA performs an identity verification on the user or business entity. The CA acts like a trusted electronic notary, telling everyone who the valid users are and what their digital signatures should look like. With a certified electronic identity, an Internet user's digital signatures will then be recognized by parties involved in E-Transactions like Internet banking, online shopping and online information subscription services.

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The whole system of digital certificates, certificate servers and CAs is collectively known as a Public Key Infrastructure (PKI). Digital signatures based on digital certificates issued by licensed CAs are automatically considered to be trustworthy and recognized by the law. Just like written signatures, they can be used to sign contracts or to purchase goods and services. To prevent forgery, digital signatures are created using a personal secret code, known as the signing key, which is usually stored in a secure device like a smart card. It is important that the signing key be kept private at all times so that no one else can forge your digital signatures. Loss of a signing key must be reported to the CA immediately.

- Trust Seals (Trustmarks)
- **Trustmark:** A label or visual representation showing participation in a Trustmark scheme. A contributor to a Trustmark scheme can show a Trustmark if he see the Trustmark requirements.
- **Trustmark schemes:** Any body providing a Trustmark to B2C e-merchants after positive assessment on the basis of own criteria.

VI. TRUST MANAGEMENT AND TRUST AND RISK ON E-GOVERNMENT

Trust management is one of the challenging problems in the using e-transactions. Over the past most years, many researches have done various techniques to improve trust management issues such as identification, integration, personalization, security, privacy, and scalability in web. The classical trust management approach, firstly, was proposed as a solution to the inadequacy of traditional security mechanisms in larger decentralised environments. Roughly, a classical trust management system deals with deciding the so-called compliance checking problem: given a request together with a set of credentials, does the request comply with the local security policy of the provider? The same authors also developed tool-support in the form of PolicyMaker and later KeyNote for handling the trust management problem. In this paper, Weeks displayed a simple mathematical framework, and showed how this framework would instantiate to various existing trust management systems, including KeyNote, SPKI and some logic based systems, sometimes even leading to more efficient algorithms for the compliance checking problem[14]. Citizen Trust in government and technology is imperative to the wide-spread adoption of E-Government . We should analyze the impact of trust and risk perceptions on one's willingness to use E-Government services. (The authors propose a model of E-Government trust composed of disposition to trust: Trust Of the Internet (TOI), Trust Of the government (TOG) and perceived risk.) Results from a citizen survey indicate that disposition to trust positively affects TOI and TOG, which in turn affect intentions to use an E-Government service. TOG also affects negatively perceived risk, which affects use intentions as well. Implications for practice and research are discussed. *E-Government* builds *trust* between citizens and *government*. Trust in E-Government is an important idea that should be critically investigated to help citizen favorably share information and make online transaction with government. E-Governments are increasingly becoming a familiar fixture. Nations across the world are realizing the importance of E-Government , the main objective of most E-Government is to better serve citizens. However, citizen's likelihood to use E-Government is low. Lack of trust has been recognized as one of the most barriers to citizen for engaging in E-Government , involving the trust in the internet and the trust in the government. Technology Acceptance Model. The identifies these two main factors that determine citizen trust the E-Government based on technology acceptance model, and reviews its relevant studies that investigate the elements of E-Government trust. The relation between determinants and trust in E-Government. The role of Technology Acceptance Model in the development of trust in E-Government .Trusting Intentions means one is willing to depend, or intends to depend, on the other party with a feeling of relative security, in spite of lack of control over that party, and even though negative consequences are possible. This Trusting Intentions definition embodies 3 elements synthesized from the trust literature.

1. The possibility of negative consequences or risk or uncertainty makes trust important but problematic. One who trusts is exposed to greater potential harm from a breach of trust than the expected benefit if the trustee comes through.
2. A readiness to depend or rely on another is central to trusting intentions. By depending on another, one makes oneself vulnerable to the results of trustee freedom to act Freedom to act is assumed in trust relations.
3. A feeling of security means one feels safe, assured, and comfortable (not anxious or fearful) about the prospect of depending on another. The term “relative security” means one has different degrees of felt security or confidence about being willing to depend.

Feelings of security reflect the affective side of trusting intentions or is to feel easy in mind, confidence, or assured in opinion or expectation. Therefore, feelings of relative security involve degrees of confidence or certainty. Trusting intentions involves willingness that is not based on having control or power over the other party. This part of the definition implies that trust is not based on deterrence. Rather than trusting in controls, the trustor trusts in trust. Using control in the definition of trust helps link trust to the control literature, and provides a better on ceptualization of trust, since trust and control, though separate, are integrally linked (e.g.).

The trust antecedents are defined as:

- Trust is ‘the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the Ability to monitor or control that other party’ (Mayer et al., 1995, p. 712)[26].
- Ability is ‘the skills competencies and characteristics that enable a party to have influence over some specific domain’ (Mayer et al., 1995, p. 717)[26].
- Benevolence is ‘the extent to which a trustee is believed to want to do good to the trustor’ (Mayer et al., 1995, p. 718)[26].

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- Integrity is 'the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable' (Mayer et al., 1995, p. 719).[26].

In each category of E-Commerce e-transaction such as B2C, one party of transaction is the website that plays the role of online trustee and the characteristics of the trustee party can have an essential role in fulfilling the expectations of the other party, i.e. the online truster. By proposing this trust building package, the companies were asked to setup and install this solution at their sales portal if they like to. Such that by the beginning of the second year of the surveys, each online customer were asked after finalizing the online purchase process to feedback their opinion if they like to, about their E-Trust level to the company and referred goods or services by choosing one of the specified options. Since various models have been proposed to calculate the online trust value such as discrete and continuous sets, one can indicate these two cases for the discrete model: Measuring the trust value by the metric of { very untrustworthy, untrustworthy, trustworthy, very trustworthy},{-1,0,1,2} or the ranking set of {-1, 0, 1} known as the famous model of eBay.com website. Measuring the amount of trust by unit or rankings in the continuous interval of [0,1]. In this part of investigation we used the trust measuring method based on a discrete set {very trustworthy, trustworthy, untrustworthy, very untrustworthy} in order to measure the amount of customers' trust to the company or its goods and services. In other words, the online customer after each online purchase declares his/her vote about the amount of trust to the company and its product and service. Simultaneously, in the company's portal by using the extracted quantities from the customer, a rating is automatically assigned to him/her based on the available parameters on the customers' database. In this method, the ratings of customer to vendor and vendor to customer is assigned in the form of choices from the four-member set of {very trustworthy, trustworthy, untrustworthy, very untrustworthy}, which in this study we mapped it to the discrete set of {-1,0,1,2}. The amount of trust to a vendor will be equal to the total amount of its assigned ratings by each customer per each transaction in a specified period (e.g. monthly). Additionally, the amount of online vendor's trust to each online customer will be equal to the sum of assigned ratings to the customer by the online vendor per each transaction. In this context, the rating criteria for the vendor to customer may be different from the rating criteria of customer to vendor. Because in the online environment, like the traditional environment, the concerns of exchange parties are different from each other when it comes to trust.

VII. Conclusions and Recommendations for Future Research

E-Commerce websites frequency effect on business firms have. The company's attention to its electronic gateway does not cause distortion of your account and provides self-trust can foster trade and business bankruptcy in your will. Web gateway to a brand - products and services is the product manufacturer. Website without using your colors and go like the old window and the color you used in traditional business and will cause the customers are not willing to buy the product, but also against the best site if possible through the Internet for all People must not be considered and called application (User Friendly) not, there would be no success and therefore companies should result in Internet search firm footing their own. For many users, sites search (search engine) the entry point to the Internet. However, many sites mechanism to measure trust in their portal are. Although customers are sometimes reluctant to comment or unwilling to comment on the negative, or no negative votes. But survey data from the system, the parties to trust polls, is used to form parties. The influence of e-trust factors were also studied on the cyclic performance of companies, which pay attention to those factors and it was revealed, that taking into consideration the E-Commerce factors affect positively over the company's activity. Apart from that, trust, as a capital of companies that deal with E-Commerce and for the purpose of using it more profitably, a plan of continuously evaluating mechanism of e-trust readiness level was represented to companies that deal with E-Commerce, where the version of evaluating the effective factors of e-trust of this research were implemented, as creation, preservation and loss prevention means of e-trust for such companies. In accordance with the above ,in electronic trading platform, the two pillars of security and trust e-commerce and e-government systems are considered. Secure electronic transactions system, a system that users of the viewing angle, unable to trust them to use the system and attempting to purchase or request payment in electronic banking systems and other electronic services, electronic commerce or other services required customers or users conditions are less risky. Trust and security in electronic transactions system, subject to the mixed and are intertwined. At all levels of the State and e-commerce electronic elements, security and authenticity as an important attribute of the system without ensuring proper function and safe electronic transactions system, trust can not imagine. Since the set of processes electronic transactions in a system is located, so all system components in creating and maintaining trust and security and the impact each defect can also cause distrust in the on be. Cases identified to describe the "rules and regulations, cultural, social and economic infrastructure, infrastructure design technologies used in e-commerce, electronic government and implement the right e-commerce, website or portal used for e-commerce system for communication with customers virtual catalog and portal companies and organizations " are being presentable. E-commerce systems must be backed by legal right, such as spatial insurance companies insured by governments be trusted to do so in the context of electronic transactions and e-government and e-commerce increased in the interests of the people use these technologies governments will benefit and also provide services to people easily, and have the ability to serve the business environment is also developed electronic and e-commerce interests of everyone will benefit. Identified and introduced as factors affecting increasing trust in electronic transactions, a special role in the development of e-commerce has continued research to identify the most influential factor in increasing confidence in electronic transactions and the discovery and use instantaneous ways to measure trust, remarkable help to develop a comprehensive e-commerce and e-government will.

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