

# E-Trust Readiness Indexes Assessment at E-Transactions in the Context of B2C E-Commerce

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## Abstract

**Objectives:** In this study, it is tried to identify, classify and present the factors affecting the level of ETRI (E-Trust Readiness Indexes) of the companies that are active in the field of B2C e-commerce. **Methods/Analysis:** The values of these factors can be used as an indicator to assess the amount of readiness of the e-commerce company in order to be trusted in an online transaction, by the online customers or the other companies. To conduct this study, at first, the effective factors in the development, growth and maintenance of the e-trust in the e-commerce environment was extracted and then using the opinions and recommendations from professional experts, those factors were evaluated, rated and classified. **Findings:** The considered assumptions about the effect of these factors on the e-trust of online customers of the studied statistical society from their point of view, were collected using the method of information gathering by an online survey. The resulted data were analyzed by a structural equation model as well as LISREL software. It was found that those six factors that were studied, are actually the important effective factors in the level of e-trust readiness to an e-commerce company. In addition, this study was also examined by some of the experts in the field of e-commerce, and the evaluation results showed that the effective factors in the experts' perspective are similar to those proposed by the opinions of the studied statistical society. **Novelty/Improvement:** For the first time the issue of assessment and evaluating the level of ETRI (E-Trust Readiness Indexes) in the e-commerce companies of type B2C is defined and its method of estimation is provided by the author. The results of this research can be used as a new method for assessment of the e-commerce companies by the supervisor organizations in order to rate their readiness for being trusted by the online customers. The supervisor organizations regulate and organize the affairs between the e-commerce companies and customers. This index can also be considered as the rank of the company's reliability and trust readiness compared to other active companies, by using a combination the symbols of e-trust and the e-trust certificate.

**Keywords:** Assessment , B2C E-Commerce, ETR Index, E-Trust, E-Transactions, Readiness

## 1. Introduction

Today, the process of development of countries and globalization has made the e-commerce a modern solution and essential matter for online transactions or electronic trades between buyers and sellers, including consumers, customers, retailers or companies. Also setting up and development of electronic government to

facilitate government services for citizens in developing and developed countries is considered as a general and essential approach. The internet infrastructure or World Wide Web, with every time, everyone and everywhere motto, is viewed as the main basis for development of e-commerce and e-government. The internet is consisted of several information systems, enterprise solutions, spatial databases, hardware equipment, etc. whose vital

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pulse depends on interactive information flow between the internal and external components of the systems, and each interactive relationship occurs between at least two agents -human or mechanical. These interactions are effective and useful when they can be handled and managed by the superior agents. But many of these interactions take place in a risky environment and deal with numerous dangers. Therefore the risk-association factors appear in this context. The two words “trust” and “risk” are connected to every interaction or relationship between two agents, and are often considered as the environmental factors. It can be stated that these two are totally linked to each other and in other words the risk is the core of trust. Taking the risk into account, trust can be viewed as the score which reveals the amount of the existence of a positive and optimistic attitude in the confiding side towards the goodness and confidence of trustee in risky exchange conditions. So from this point of view, a new concept appears known as trust in the risky and dangerous conditions. The e-commerce environment is precisely the environment in which due to the non-existence of any kind of local meeting between the exchange parties, and also the impossibility of viewing the goods or services during the online exchange, there are some risk potentials for both correspondents. Hence for both correspondents of the exchange there will naturally be some special concerns about online interactions. According to the online or electronic nature of the exchange, in this context the term “online trust” or “electronic trust” appears for these kinds of environments. The e-trust concept implies that in an relationship or interactive system, one side as the confiding one is willing to accept the possible vulnerability against the other side as the online trustee, supported on established expectations about the latest behaviors of the online trustee.

In this research, the necessary mechanisms for systematic design and implementation is presented as the e-trust preparation. In this model, every company or organization that participates in e-commerce or electronic transaction always monitors and evaluates the amount of its e-trust preparation through a dynamic mechanism. In this model, if the score or rating of the company is lower than a specified limit compared to other competitors, this would mean that the company is vulnerable or successful compared to its previous situation. In the model of e-trust readiness, by using the companies electronic reputation, credibility and satisfaction of others, electronic certificates, membership in credible or credit making institutions, etc.

the e-trust readiness of companies is assessed and these effective factors can vary in each country.

## 2. Actually of Research

E-readiness is relatively a new concept in all organizations and developing countries. It has been given impulsion by the rapid rate of Internet penetration throughout the world, and the dramatic advances in the use of ICT in business and industry. In the literature, the term E-business readiness has different definitions. It could be defined as the degree of preparation of a nation or community organizations to participate in and benefit from the information and communication new technologies and their developments<sup>2</sup>. In today’s dynamic and turbulent business and marketing environment, the companies are forced to change their traditional methods of conducting business in order to compete in the borderless market of internet environment. The recent developments in the field of application of information technology have provided many opportunities to compete in the world markets. Since the e-commerce is a major factor in the companies’ success, they must review all their strategies again and try to enter into the new environment of electronic businesses quickly. Entrance into the online environment for the company entails some pre-requisites to gain the trust of customers to conduct electronic transactions. Although the term of measuring the e-readiness as the concept of a tool for measuring the spreading rate of information technology in the countries and organizations, including small and medium companies, can be an index for their useful and successful presence in the virtual world, and also since the small and medium businesses and companies have a vital role in the economy of all countries, including the developing countries, they should be taken more seriously into the consideration.

Although many of these companies have shown their strength and capabilities in creating potential job opportunities by utilizing the new capabilities created by information technology, but the rapid development of methods based on information technology has converted the opportunities of e-commerce companies into some sensitive and critical ones, such that every company could be in the risk of vanishing and corruption if it does not pay enough attention to these developments. One of major causes for this corruption and vanishing is the discontinuation or disappearance

of the customers' trust to their further interactions with that company. Although after the appearing of a customer oriented approach in the corporations, the public opinion of them is still to maintain their status by focusing on this approach, namely considering the customer as the company's main asset. But today in the online environment, the customer's trust is the most vital role for the company's strength and durability in a competitive world. This kind of trust has the potential of instant publishing, republishing, transmission and supply and has its own life cycle and is a valuable asset. Due to these features, the assessment of the concept of trust has caused the necessity for innovation of the term of assessing the amount of readiness for e-trust of the companies; along with the previous concepts such as evaluating the e-readiness of them.

In this study, a model is proposed to evaluate the amount of e-trust readiness in the e-commerce companies of type: company with customer. By taking into consideration the importance of the term trust in electronic transactions, the term of assessment of the e-trust readiness based on the concept of evaluating the amount of e-readiness is created and introduced. Electronic trust readiness is the concept of the capabilities and potentials of any active company in the field of electronic transactions activities, by which the trust of a customer to the company is created, maintained and protected, or in the absence of these potentials the trust is vanished or destroyed. Due to the reality that there is no comprehensive approaches to express and illustrate the factors involved in the concept of trust, after studying the available papers in the field of e-trust concept and categorization of the introduced factors related to the two aspects of static trust, which refers to the structure of trust, and dynamic aspect, which refers to the process of formation, creation, maintenance and loss of trust, it was clear that the impact of these factors in the calculation of the amount of trust is different from one environments to another environment. In order to verify this, a questionnaire was designed whose questions tended to assess the amount of importance of each of the introduced effective factors of trust from the online customers' and some of the experts' points of view. After collecting the questionnaires' data and analyzing the information it was revealed that in the study and calculation of the hidden effective factor influencing the electronic transactions, namely trust, one can distinguish between the different factors based on their amount of importance from the customers' points of view. The most critical effective

factors in structure of the e-trust of an online customer to an online seller that are taken into observation in this paper are as follows: Features, potentials and capabilities of the online vendor namely the one who is going to be trusted, or the trustee. Available evidences and documents to approve and confirm the online vendor by third parties, such that the customer or the truster can be able access and ensure about the ensure the authenticity and reliability of these certificates. Characteristics and specifications of the process of online transaction, Thus that it does not lead to create or exacerbate the uncertainty and increase the amount of risks taken by the online customer. In the following, the structure of trust, especially the e-trust will be further discussed.

### 3. E-Trust Concepts and Factors

Various definitions have been proposed for the term of trust. The lack of a single definition of trust is due to the fact that its concept is dependent to the field that it is discussed. We have referred to some of these definitions in the below<sup>1,3-5</sup>:

- Existing factors in the assessment of the amount of e-trust readiness of the companies
- By studying the computational models and assessing the level of trust in both of the interaction parties in electronic environments, especially in the environment of e-commerce, one can introduce some of the factors affecting the calculation of the trust as follows:
- The capability and reliance of the trustee in carrying out the required actions for gaining trust of the truster.
- The trustee must have a license or a certificate or permission from the authorities that issue the certificates for conducting the e-transactions.
- The trustee should have a credible introducer to facilitate the gaining of trust of the truster (the introducer is a third party).
- The trustee should have a considerable amount of in the electronic environment.
- The trustee and the truster should have some common qualities or common characteristics in the regarded field.
- The social situation and responsibility of the trustee should be clear and distinct for the truster.
- Prediction of the benefits and profits that the truster gains from trusting the trustee should be probable and guessable.

- The amount of risks arising from building trust between the parties should be predictable and estimable or guessable.
- The level and amount of importance of the acts that lead to the necessity of building trust
- Membership of the trustee in prestigious groups and being approved by those groups
- Reputation, experience and lifetime of the trustee

But among the factors of assessing the e-trust readiness of the firms which are referred to as trustee in our discussion, we should study and rank the factors that in the topic of building trust have a higher degree of influence or impact.

In order to extract the level of effect for each of the factors in the concept of building trust to an electronic trustee, the researcher after taking the introduced factors into account, have tried to classify the effective indices in the trust of online customers to the online seller. The index of the level of e-trust readiness of a business that is active in the e-commerce fields is referred by the abbreviation of E-Business ETRI (E-Trust Readiness Index) from now on. This index is a criterion for planning and comparison of the proficiency of the corporation in the field of online trust building.

## 4. Research Methodology and ETR Index

Conducting of this research like other researches involves the collection of data, opinions of experts and professionals in the field of information technology activities as well as the experts of online transactions about the amount of influence of each index on the level of trust. These information were collected during the establishment of research according to the opinions of the target society. Finally, after accomplishing the four stages of: preparing data sets (the information about current status of the company for each of the factors of trust), normalization of data (converting the index values to unit of measurement with the reference value of 100), re-scaling of the data (scaling of the data between 0 to 10) and deriving the weights of the indices and sub-indices (the weights have been determined based on the results of the sensitivity analysis for six key indicators 22, 16, 16, 12,16,18 respectively) that are listed and described in Table 1.

In this table, the main indices to assess the level of e-trust readiness of companies which indicate that to

what extent or percent they have the ability and potential to gain the trust of online customers for a company, have been classified into six major categories. These indices cover most of the effective factors of e-trust described in the previous section and each of them have some sub-indices whose weights indicate the amount of their importance in the building of trust.

The amount of EB (E-Business) ETRI index indicates the fact that to which extent an e-commerce company has the potential and readiness to gain the trust of online customers. The more close this index to 10 the more the capabilities of the company will be to build the online trust. In contrast, if the EB ETRI index is close to zero, it shows that the company lacks the necessary policies and schemes to build online trust. This index is measurable for every company. Thus the companies can be notified about the desirable, sensitive or nearly critical situations about the existence of trust to themselves from the customers' points of view –who are accounted as the main asset of the company- by calculating the amount of EB ETRI index. So they can provide necessary plans and schemes to reach the desirable situation.

## 5. Calculating the Value of ETRI

The first step: calculating the amount of sub-indices (calculating the values of indicators of the sub-index), the value of indicator.

Second step: normalization, the value obtained from the previous stage is divided by its ideal value. Table 1 shows the results obtained in this step. The obtained value of the process, normalization formula<sup>1</sup>.

Third step: indicators and sub-indices of ETRI are associated with a weight founded on the results of the sensitivity analysis performed in a previously computable sample period. Weight of the indicator and the obtained value at this stage.

Table- calculated values of sub-indices and weighted values of the indicators.

Fourth step: Calculating the values of sub-indices (calculate the final value of sub-index).

At this stage, the values obtained for the sub-indices are added each other in order to get the final values of sub-indices.

After calculating the amount of sub-indices, their weighted values are calculated based on their defined weights and finally, the ETRI index is resulted by adding the weighted values of sub-indices together.

## 6. Trust and Security in E-Commerce

Trust and security are two basic keywords in an electronic trading environment. The transactions at an electronic environment in comparison with the traditional trading environment, has two basic challenges namely, lack of possibility to verbally or face to face meeting between the transaction parties and lack of possibility to physically touch or sense the goods in trade during purchase. These challenges make the process of building trust between transaction parties in an electronic environment more complex and riskier. Management of this risky environment requires the establishment of security and trust in the e-commerce system. The term “security” in an online environment is referred to as the issues of protection of information and information systems. Trust is taken into consideration when in regard to a transaction, which is conducted from one party – individual or company- as the truster (who has some special psychological, personal, experimental or cultural characteristics which may affect the possibility of his/her/its trust to others) to another party –individual or company- as the trustee (who has the characteristics of eligibility, ability, benevolence, predictability and integrity of thoughts and opinions), the truster side tries to gain confidence that his/her/its overall expectations about the speech, promises, oral and written statements will be met by the other party. These two roles of trust can be undertaken by an individual, a company or even a product. In the electronic environment, unlike the real environment, the truster is a customer or person who conducts e-commerce activities through a website and on the other side, the trustee is the website itself<sup>1</sup>.

It seems that in spite of constructing the necessary infrastructures and relatively suitable business environment, the existence of some kind of mistrust to E-Transactions in the context of EC is one of the major causes for not growing of the E-exchanges adequately. Furthermore in all of the web based information systems, the system’s vital pulse mainly depends on the flow of interactive information between the internal and external components of the system. In these interactions trust has an essential role in creation, confirmation, continuity or maybe disconnection of the relationships. Of course in trade and marketing whose basis forms on the foundation of a legitimate relationship between the two correspondents of the exchange, trust is the most principal

factor for creation, confirmation and maintenance of the relationship, and its lack or any kind of disquietude in it may result in the disconnection. According to Nielsen 2004<sup>1</sup>, the real trust is achieved through the practical behavior of the company with its customers, staff and business partners. Thereupon it is impossible to avoid interactive connections in every existing aspect of the human life, including trade and commerce areas and also management, ruling and handling of the companies’ and people’s affairs.

So wherever there exists an interaction, it is critical to take into account the security and trust issues from both correspondents’ points of view (the truster and the trustee). This matter will gain confidence and trust in the context of interactions caused by the E-Transactions through E-Commerce. Otherwise any kind of inattention or neglecting in this regard will result in consequences such as increasing staff’s dissatisfaction or the loss of customers and providing competitors with a chance to take advantage and outstrip the company’s competitive position. It is clear that this type of loss in market share and disadvantage to other competitors is hardly tolerable. Establishing trust is considered to be a complex process in which it is required that the individual who has the intention of trust should be involved after multiple calculating processes, prediction and perception of the intentions and capabilities of the individual who is going to be trusted<sup>6</sup>. 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 truster, irrespective of the Ability to monitor or control that other party’<sup>7</sup>. Ability is ‘the skills competencies and characteristics that enable a party to have influence over some specific domain’<sup>7</sup>. Benevolence is ‘the extent to which a trustee is believed to want to do good to the truster’<sup>7</sup>. Integrity is ‘the truster’s perception that the trustee adheres to a set of principles that the truster finds acceptable’<sup>7</sup>. In Businesses understanding Trust and distrust on transactions, such as how they become visible or enhance and diminish and how they are related with between, is considered a great priority by practices and researchers because of their crucial affect<sup>8,9</sup>.

There are different types of trust in e-transactions, some of which may include<sup>1</sup>:

- **Calculus-based Trust**: Is that a person will trial to forecast the behaviour of the another person and based on that calculation and anticipation , the person will

determine which rate of trust will be given to other person.

- Knowledge-based trust: This rate of trust means that I've had sufficient experiment with you and knowledge of your behaviour that I have a pretty good idea of how you will react and behave in interactive with me. We've had sufficient interactions over time where there has been a consistent show of trustworthy behaviour that I believe I can trust to you with the every time type issues we experience together. This is the kind of trust that most of our day-to-day professional relationships.
- Reputation-based trust. Using reputation to establish trust, where past interactions or performance for an entity are combined to assess its future behavior. this trust levels uses the history of an entity's actions/behavior to computing trust, and may use referral-based trust (information from others) in the lack of (or in addition to) first-hand information. In the other case, work is being done to compute trust over social networks (a graph where vertices are people and edges denote a social relationship between people), or across paths of trust. Recommendations are trust decisions made by other users, and combining these decisions to synthesize a new one, often personalized, is another commonly addressed problem.
- Deterrence-based trust/Rules-based trust: This is the most principal, base rate of trust in all relationships. Rules-Based trust defines that there are rules in location that inhibit one person from taking benefit of, or harming other person. In reality in the world we have legal that governments our behaviour in trade and personal regulating. When we work in business we have covenants that vouch one party can trust other to hold up their end of the transactions. In corporate's we have procedures and policies that provide limitation for how we relation and treat each other, and if we breach those rules, usually there are outcomes awful.
- Identity-based trust: This level of trust means that trustee know truster hopes, dreams, goals, ambitions, fears, and doubts. Truster trust to Trustee at this level because over the policy of time truster have increased her/his level of transparency and vulnerability with trustee and trustee haven't taken advantage of truster. Trustee have proven himself to be loyal, understanding, and accepting. Identity-based trust isn't suitable for every relationship. This level of trust is generally used for the most important people in our lives such as our spouse, family, children, and close friends. Yet

with the proper limitation in place, this level of trust can unlock higher ranks of creativity, efficiency, effectiveness and performance in firms.

- Institution based-Trust: Means one believes, with sensations of relative security, that favourable situations are in location that are advantageous to situational success in a risky aspect or endeavor of one's life. This construct comes from the sociology tradition positing that people can rely on another because of structures, roles or situations that provide warranties that things will go well. Institution-based trust refers to beliefs about those protective structures, not about the people involved. Therefore, it focuses on an impersonal object. Perceptions of the existence of institutional trust can be in the shape of existence of structural trusts such as protection against the encryption of data or legal protections against violations as well as the understanding of a normal situation, namely the perception that the space of online transaction is a normal and desirable one. All of these factors finally lead to the conduction of a successful e-transaction.
- Policy-based trust: This kind of trust for establishing trust using policies and focused on managing and interchanging credentials and performing access policies. Using in policy-based trust usually assumes that trust is created simply by acquiring a enough amount of credentials pertaining to a specific section, and using the policies to grant that section certain access rights. The recursive issue of trusting the credentials is repeatedly solved by using a trusted third-party to serve as an potency for confirming credentials.
- General Trust models: There is a riches of research on modeling and defining trust, its prerequisites, components, conditions, and consequences. This models of trust are useful for investigation human and agenzized trust decisions and for operationalizing measurable models of trust. Work in modeling trust explains values or factors that play a role in computation trust, and leans more on work in sociology and psychology for a decomposition of what trust comprises. Modeling research ranges from simple access control polices (which specify who to trust to access data or re) to analyses of competence, beliefs, risk, importance, utility, etc. These subcomponents underlying trust help our understanding of the more careful and complex aspects of composing, capturing, and using trust in computational setting.

- Trust in information resources. Trust is an increasingly common theme in Web related research regarding whether Web re and Web sites are reliable. Moreover, trust on the Web has its own range of varying uses and meanings, including capturing ratings from users about the quality of information and services they have used, how web site design influences trust on content and content providers, propagating trust over links, etc. With the advent of the Semantic-web, novel work in trust is harnessing both the potential gained from machine understanding, and addressing the problems of reliance on the content available in the web so that agents in the Semantic Web can finally build trust decisions automatically. Origin of information is key to support trust decisions, as is automated detection of beliefs as different from target information.
- Third-party based Trust:

## 7. E-Trust Readiness Diffination and Factors

Trust is mentioned to as social wealth in social interactions. But trust in the e-business is a far more topic rather toward social wealth and it is observed as a segment of the firm's assets, because without trust, the capability to business online would fundamentally be not possible. The e-trust, whose sense is the wishing of the truster (online purchaser) to accept the vulnerability and risks against an internet seller based on positive anticipations about the future behaviors and characteristics of the vendor, is established with difficulties for an online salesman. The lifecycle of e-trust in internet transactions of type B2C has multiple phases which the first phase begins with full unawareness of the online purchaser about the online vendor and continues with establishment, maintenance (continuance) and eventually ends with destruction. Due to the principle that gaining reliance (trust) is a complex and difficult issue, its prevention and maintaining from harm has a lot of values for the online vendor.

By far, the researchers used the concept of “the amount of proper use capability of the organization or company in utilizing the ICT to gain more success and provide web based services” in order to assess the level of e-readiness of the organizations and companies.

In this research, by adaptation from the descriptions of the concept of e-readiness, the capabilities of an EC business to build, maintain, prevent from loss and finally,

rebuild the missing trust was describe as electronic trust readiness of the e-business companies<sup>1</sup>.

We named this novelty “E-Trust readiness evaluation/assessment” models of the EC company<sup>1</sup>. In this model, the necessary mechanisms for systematic design and implementation is presented as the E-Trust preparation (Figure 1). The main objective of this research was to recognize and introduce the CSF (critical success factors) of e-commerce firms are associated with using e-Trust effective factors.

In this model, every company or organization that participates in E-Commerce or E-Transaction always monitors and evaluates the amount of its E-Trust preparation through a dynamic mechanism. In this model, if the score or rating of the company is lower than a specified limit compared to other competitors, this would mean that the company is vulnerable or successful compared to its previous situation. In the model of E-Trust readiness, by using the companies electronic reputation, credibility and satisfaction of others, electronic certificates, membership in credible or credit making institutions, etc. The E-Trust readiness of EC companies is assessed and these effective factors can vary in each country.

We presented a new definition for the modern concept of assessment of the level of E-Trust readiness in EC companies as “The capabilities of the E-Commerce company in building E-Trust for the customers, maintenance of trust or prevention from loss” and provided a method for its estimation (measurement), and then we implemented this idea in 6 companies of the case studies.

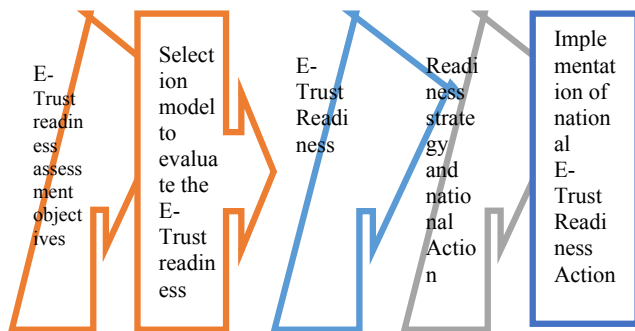
The idea of this method is proposed by the author and its implementation was accomplished for the first time. In order to assess the E-Trust readiness, the factors were categorized in 6 classes of corporate (Table 1) include:

- Companies or firms readiness factors (Table 2)
- Information security readiness (Table 3)
- Interpersonal or humans readiness (Table 4)
- Technical and infrastructure readiness (Table 5)
- Legal and laws readiness (Table 6)
- Live Chats, Forums, EC IN Social Networks (Table 7).

Afterwards, by adaptation from CID and APEC model of assessment of e-readiness<sup>10</sup>, a model was presented for measurement of the level of E-Trust readiness in the interval of 0 to 100 (Table 1). The weight and score value for these six factors was set to 22, 16, 16, 12, 16

and 18, respectively. The associated score of the company for each factor is calculated via the experts' answers to the related questions and current condition data of the company. The overall score of the company is calculated by summation of these five values and can be divided into five intervals of very poor, poor, average, good and excellent for E-Trust. The companies should make efforts to constantly improve their level of E-Trust readiness. Our studies showed that two companies are in good condition and two companies have an average condition and the other companies have a poor condition in the aspect of E-Trust readiness level.

MyE-Commerce Systems E-Trust Readiness Measuring Factors are include: Firms Readiness, Information Security Readiness, Interpersonal or Humans Readiness, Technical and Infrastructure Readiness, Legal and Laws Readiness, Live relationship with customers in Online chat rooms, Forums, Social Nets.



**Figure 1.** The process of E-Trust Readiness (ETR) Measuring stage of implementation<sup>1</sup>.

For measuring of E-trust readiness we should define goals and select models and then we have:

- Goals
  - Enhance Trust on EC companies
  - E-Trust Measuring and Controls in EC Systems and Companies
- E-Trust Readiness measuring Models
  - APEC & CID E-Readiness Models (adaptations)<sup>6</sup>.
  - E-Trust Readiness measuring ranges and results (0% - 100%)
  - E-Trust Readiness evaluation tools
  - (Questionnaire, According to Table 2, E-Trust readiness main Indexes and sub-indexes)
- $ETR = FR + ISR + IHR + TIR + LLR + FSC$  in each EC companies in every time
  - $ETR < 25$  Very poor, or  $ETRI < 2.5$

- 25-49 Weak, or  $2.5 < ETRI < 4.9$
- 50-70 Medium or  $5.0 < ETRI < 7.0$
- ETR 71-90 Good, or  $7.1 < ETRI < 9.0$
- 91-100 Top ETR or  $ETRI > 9.0$  to 10

The e-trust readiness of EC companies was defined as the capabilities of an EC company to build, protect, prevent from loss and finally, rebuild the lost trust<sup>1</sup>. By selecting the adopted model from APEC, the measure of e-trust readiness of 12 EC firms that are working in the fields of online transacting of goods and services was assessed and evaluated. The results of this research showed that among the studied companies only two websites were in a medium condition to the extent of 53% or  $ETRI = 5.3$ . The results of this study show that the process of building and maintaining online trust is a continuing process in the EC companies and in order to keep the strength and durability of the companies among their competitors, they should constantly aggress to assess their level of e-trust readiness. Because the e-trust is supposed to be a part of the company's assets, and in case of not paying enough attention to constantly assessing the trust, the may suffer some irreparable damages and losses.

## 8. E-Trust Readiness Assessment Main Indexs and Sub-Indexs

In this section, eight tables are provided. In Table 1, the weight of every of the six sets of criteria to evaluate a company's e-trust readiness is determined (Table 1). The six factors identified in Table 1, the factors used in this research to calculate a ETR for e-commerce companies have. How to choose the selection and weighting of these factors through in-depth researches have been navigated on the available resources and the use of expert opinion<sup>1</sup>.

**Table 1.** ETR (EC Companies E-Trust Readiness) Variable and rating value

	Main Indexes	Rating
1	Firms Readiness (Quality of Website/Web Portal, e-Service, Information, EC System)	%22
2	Information Security Readiness	%16
3	Interpersonal or Humans Readiness	%16
4	Technical and Infrastructure Readiness	%12
5	Legal and Laws Readiness	%16
6	Live Chats, Forums, EC in Social Networks	%18
		%100



In Table 2 specifications and features as the measure of each factors that are effecting companies in the ETR, which has been set.

**Table 2.** Firms Readiness Factors

	Scope of index (Sub-Index)	Rating
1	Layout & Functionality – Usability/ease of use	%3
2	Layout & Functionality - Customization	%2
3	Layout & Functionality – Information Relevance	%2
4	Layout & Functionality – Interactivity	%2
5	Usefulness and Buy with less (or one) click	%2
6	Reliability, Accuracy, No broken links	%2
7	E-Marketing Mix Quality (9Cs)	%9
		%22

In Table 3, the weight of all of the factors in information security in electronic commerce have been identified. The factors are affective the calculation of ETR on e-commerce companies.

**Table 3.** Information Security Readiness

	Scope of index (Sub-Index)	Rating
1	Information Security and Security Awareness	%4
2	Costumers’ Privacy policy	%3
3	Financial Security	%3
4	Third party recognition	%3
5	Implementation ISMS in company	%3
		%16

The fourth tables, shows the weight of every individual preparedness and human factors affecting e-commerce success have been identified. This sets of factors are affective for assessment of ETR on e-commerce companies

**Table 4.** Interpersonal or Humans Readiness

	Scope of index (Sub-Index)	Rating
1	Facility for consumers/users Readiness	%4
2	Staff Readiness and He/She appearance online profiles	%3
3	Consumers prior experience about e-seller (CAs)	%3
4	Facility for direct online relationship between Parties	%3
5	Knowledge and skills provided	%3
		%16

In Table 5, the weight of each Technical and Infrastructure Readiness factors affecting e-commerce success have been introduced. These sets of factors are affective for measuring of ETR indexes on e-commerce companies.

**Table 5.** Technical and Infrastructure Readiness

	Scope of index (Sub-Index)	Rating
1	Alignment of business strategies and the usage of EC	%3
2	Integrate existing systems (CRM, ERP.)	%3
3	Search facility	%3
4	Ease of using payment systems	%3
5	Structural Assurance (Trust seals, Verisign, TRUSTe,...)	%3
6	e-buyers Control and perceived completion success	%3
		%18

In Table 6, the weight of each Legal and Laws Readiness factors affecting e-commerce success have been introduced. These sets of factors are affective for measuring of ETR indexes on e-commerce companies.

**Table 6.** Legal and Laws Readiness

	Scope of index (Sub-Index)	Rating
1	Legal preparedness	%3
2	E-Commerce Awareness	%3
3	Responsiveness	%3
4	Ease of mechanisms for dispute resolution	%3
		%12

In Table 7, the weight of each Live Chats, Forums, EC IN Social Networks factors affecting e-commerce success have been introduced. These sets of factors are affective for evaluating of ETR indexes on e-commerce companies.

**Table 7.** Live Chats, Forums, EC IN Social Networks

	Scope of index (Sub-Index)	Rating
1	Live relationship with Costumers on Online chat rooms	%4
2	To being actively participated in the online forum	%3
3	To being actively in the online social networks	%3
4	Perfect websites supportable of mobile users	%3
		%16

**Table 8.** Critical Success Factors (CSFs) for enhancing E-Trust on EC companies Portals<sup>1</sup>

	Website design features	Definition and Properties
1	Technical functionality	Website functionality with respect to accessibility, stability, response time, beau-ideal and operation
2	Situational normality	A consumer's assessment of the website environment based on how normal or customary the situation appears to be with respect to comparable websites
3	Problem-solving orientation	Readiness and willingness to participate in and resolve problems that may arise before, during, and after a transaction
4	Information quality	A consumer's evaluation of the quality of the information content that a website covers
5	Overall appearance	A consumer's first impression of the website's general appearance
6	Usefulness	A consumer's subjective assessment of the utility offered by the website
7	Ease of use	A consumer's subjective assessment of the ease (Level of cognitive effort needed) of learning how to use the website
8	Structural assurance	Institutional security and privacy structures safeguarding transactional exchanges, protecting consumer's online surfing and buying activities and the proper use of consumer's private information
9	Forums and Chats	Establish ongoing live relationships in the online chat rooms, forums and Social Networks with customers
10	Knowledge and skills provided	The extent to which a consumer perceives that knowledge or new skills were attained through using the website
11	Willingness to customize	A consumer's perception regarding the willingness of the company to provide customized products or services ton its customers
12	Consumer control	A Consumer's perception of a certain degree of control over the e-environment, such that surfing and buying-related activities have been made with a minimum of intervention by the vendor
13	Consumer feedback mechanism	The extent to which consumer believes that the feedback mechanism in the website is able to provide information about other consumers' attitudes, perception of the vendor, and past transactions
14	Third-party recognition	Recognition or endorsement by notable and third-party agencies
15	Perceived completion success	A consumer's perception of successful completion of the shopping tasks - In the context of the first visit to website, the extent to which a consumer perceives that shopping results can be achieved and shopping problems can be solved on the website
16	Show Firms Address	Exact firm addresses show in the good viewable place of site for customers easy viewing
17	Enjoyment	A consumer's feeling of pleasure in the surfing and online shopping process
18	Searching Support	Powerful Keywords and Search methods in ES Websites
19	Update Information	To regularly update web content
20	MCC	Ensure the use of mobile e-commerce website and other communications channels

Finally, based on what has been presented above, the eighth table is shows a description of the electronic trust terms in Table 2 to 7. We named this expressions as the CSF (Critical Success Factors) of e-commerce in relation with the e-trust<sup>1</sup>.

## 9. E-Marketing Mix

Several definitions have been proposed for mixed marketing in the traditional business such as 4Ps<sup>11</sup>,

4Cs<sup>12</sup>, 5Ps and 10Ps, from which the most famous is 4Ps provided by Mr. McCarthy. But in the field of electronic markets also there are various definitions such as 7Cs<sup>13</sup>, 4Ps+2C2P2S<sup>14</sup>. We have generalized the 7Cs definition by Mr. Dennis (2004)<sup>13</sup> and proposed and implemented the 7Cs+2Cs = 9Cs. In result, we found that from the online customer's point of view (in our study), the 9Cs is more appropriate. Two factors added by us to 7Cs are: the privacy policy for online customers and multichannel coordination appropriate for comprehensive and up to

date utilized technologies such as mobile phones, internet and modern networks and tools, as well as personal computers and standard internet networks for supporting the e-commerce systems of the online vendor companies (Figure 2).

Mix Marketing elements	New elements
Convenience for the customer	Coordination of Multi Channelization
Customer value & benefit	
Cost to the customer	
Communication & customer relationship	
Computing & category management issue	Customer privacy policy & Security
Customer franchise	
Customer care & service	
7Cs Dennis et al's (2004)	2Cs
9Cs E-Marketing Mix	

Figure 2. 9Cs E-Marketing Mix<sup>1</sup>.

## 10. Conclusions

Studying the e-trust which is considered to be the essential element in completion of an e-transaction on the e-commerce platform, and causes the increase of lifespan of the customer for a company – has two approaches for assessment, namely assessment based on the trust structure and procedural approach. In procedural approach of trust, the lifecycle of e-trust in internet or virtual transactions is studied.

E-trust in the e-commerce of type B2C has numerous stages which the first phases begins with full unawareness of the online purchaser about the online vendor and continues with establishment and after establishment 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. The e-trust readiness of e-commerce companies was defined as the capabilities of an e-commerce company to build, maintain, prevent

from loss and ultimately, rebuild the lost trust<sup>1</sup>. By selecting the adopted model from APEC, the extent of e-trust readiness of 12 e-commerce companies that are active in the area of online sales of goods and services was evaluated and assessed. The results of this research showed that among the studied companies only two websites were in a good condition to the extent of 70%. The results of this study show that the process of building and maintaining online trust is a continuing process in the e-commerce companies and in order to keep the strength and durability of the companies among their competitors, they should constantly aggress to assess their level of e-trust readiness. Because the e-trust is supposed to be a part of the company's assets, and in case of not paying enough attention to constantly assessing the trust, the may suffer some irreparable damages and losses.

Future studies in the current field could be focused on the idea of automatic online trust of the parties of e-commerce transactions by using the models of trust based of computational mathematical algorithms and artificial intelligence.

The supervisory organizations of union activities, businesses and consumers can use the results of this research to build online trust, or give online trust. Additionally, the results of assessment of the level of e-trust readiness can lead to reducing the risks associated with the online trust. Also by calculation of EB ETRI index one can derive and announce the ranking of companies under study in the competitive field of online trust building. This ranking can have clear messages for the online customers to build their online trust to the e-commerce company.

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