

The E-readiness Assessment Pattern Designing with an Approach to E-commerce (a Case Study Conducted in Sistan and Balouchestan Province of Iran)

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Abstract : *New commercial conditions have been created by E-commerce in many parts, including traditional ones. It is nowadays expected that profound changes to be created in the structure, management and the notion of commercial services by the internet during the next few years. Although e-commerce is in its infancy, its outcomes is now well-exposed in the way that some firms utilizes it to perform their main tasks such as identification of customers, presenting market products and services and even receiving and paying the payment. The readiness of the community to accept this new way is the condition to be entered the range of E-commerce. The initiating of new ways is therefore required to assess and evaluate the readiness of society to access the concerned technology so that the standard ways be applied to achieve this result in order the conditions to be continuously monitored. A model is firstly presented concerning the study of E-readiness to assess the E-readiness of the Sistan & Balouchestan province through evaluating the current models following this need and then the values of presented model's parameters in the province were extracted, and the required indicators of each parameters was calculated based on the survey conducted on some experts for the deployment of E-commerce in the next step; and finally, the achieved readiness of the province in the field of E-commerce deployment has been calculated using the current amount of indicators and the required values of each indicator and a formula has been presented to determine the amount of readiness based on the change made in each indicator, which it will guide the policy makers and planners in making the future decisions concerning the increasing of E-readiness of the province.*

Keywords: E-commerce, E-readiness assessment, the models and methodologies of E-readiness assessment, communication and information technology, organizations E-readiness, E-government.

1. Introduction

Sistan & Balouchestan province is the most extensive one of the country which has many economical capabilities that not enough attention has been paid to concerning the approach to new ways in the economical arena, and job opportunities and suitable executive guidelines can be provided in the province to increase the economical capabilities and decrease the unemployment rate according to the frontier special opportunities and its proximity with free water. Many changes and developments have been created by ICT in our current community in different aspects of community life including cultural, social and economic, etc. ones. One of the goals of

achieving to E-readiness with regard to the economic, social and technical conditions can be economic objectives such as maintaining digital competitive ability, creating infrastructure of ICT, expanding the applications of ICT in order to develop the economic potential of foreign investment and social objectives such as reducing the digital divide, making use of the qualified data by people and organization and building confidence in customers (Alvani, Sayed Mahdi & Yaghoubi, Nourmuhammad (2003), (Tamizi, Alireza & Akbari, Mohsen (2004).

One of the essential needs of planners and policy makers is being a comprehensive criteria for new technologies by government business, economical institutes and households. Statistics, measurable information and monitoring provide an appropriate opportunity for the policy makers and economical institutes and enable them to adopt appropriate policies. Consensus about the definitions of E-commerce and the terminologies associated with is the first practical step to provide appropriate E-commerce measurement criteria. The criteria for E-commerce measurement are designed after making an appropriate definition (Yaghoubi, Nourmuhammad (2007)).

2. E-commerce: Definition

E-commerce is direct sales of products and services by buyers and sellers through the internet. In other words, E-commerce is all aspects of traditional commerce and the market process that is performed by the internet (Hanafizade, Payam (2006), Sadeghi, Mahdi (2006), Nikbakhsh Tehrani, Muhammad Hasan, Azar Saberi, Mahdi (2001).

3. The Significance of E-readiness Assessment.

Considering the fact that digital divide is becoming increased among countries, the statesmen and economical institutes considered applying the ICT as one of their main priorities. To more efficient information and communication technology, and consequently an economic need of telecommunications infrastructure, access to ICT and legal and regulatory frameworks in applying ICT, a country should have sufficient E-readiness. Considering digital divide, it is required that all the above-mentioned needs be compatible with what considers the native requirements of the country with a coherent and achievable strategy. The statesmen can give priority E-readiness measurement to assess their current condition and identify the fields that are required to be supported by the government. It has been attempted in this article that the current models to be localized and an appropriate model be presented for considering the province's conditions based on the regional conditions of

Sistan & Balouchstan province. E-readiness assessment is the first step towards changing the objectives to the planned measures which it will lead to fundamental changes in how people live (Sanayei, Ali & Rezaie, Touraj & Tabibi, Sayed Komeil (2008), (Castle, E; Lazarus, D; Mitha, Y; Molla, A; 2001) (Dezhpasand, Farhad, 2005)).

It has been concluded, in the studies conducted on current assessment patterns of E-readiness, that these patterns can be applicable in a range broader than the scope of this paper, so the closest model has been selected as a sample and a new model is presented in consistent with the conditions studied by making changes in (Alemayhu, Molla & Licker, Paul, Bridges.org (2001), S (2005)).

Of the institutes so active in this regard is the Economist News Agency that annually issues the E-contextualization ranking report of the world's largest economies. According to the latest survey conducted by the institute, 70 countries have been assessed regarding the development and support of E-commerce and ICT . The Economist News Agency uses six groups of qualitative and quantitative criteria to perform ranking:

- Connectivity and technology infrastructure
- Business environment
- Social and cultural environment
- Legal environment
- Policies and visions of the government
- Customer acceptance and firm

The consideration methods of this organization includes a general and multifaceted model that tries to measure the significance of each economic, social and technological development of digital and E-commerce of the counties (APEC, 2000).

This research and the mentioned model is the closest model to consider the regional E-readiness which is used as the basis by adopting from this model and other models and making the related model adjusted. (<http://www.eiu.com>).

Some activities are randomly conducted within the country in this regard and E-readiness of some organizations, firms and cities have been considered to achieve some special objectives. Of these researches is “ E-readiness assessment model presented by stock exchange to implement E-government” (Bagherinejad, Jafar & Sttari, Haleh (2006)).

In the above-mentioned research, the scientist tries present a model in accordance with the conditions discussed by studying and understanding the regarded environment, and the obtained model has been implemented at the same environment and the amount of objective E-readiness has been studied and the strengths and weaknesses has been identified which are lead to suggest some strategies to improve conditions.

Another research conducted in this regard is studying the E-readiness of Kish city which the basis of this model is also Economist Intelligent Unit (EIU) discussed before, and the amount of E-readiness of Kish city has been studied by this model.

Kish Free Zone Organization has decided to annually study the amount of E-readiness of this island and extend this culture to the mainland in order to establish measures to evaluate IT development in the region and country. Hence, having agreed

with the High Council of Free Zones, the project has initially been expanded to other zones and then the obtained results will be available to exploit of the authorities in the mainland.

The preparation of the island has been studied based on three models including Harvard University (CID), the Economist journal (EIU) and the Institute for Productivity and Economic Cooperation in Asia (APEC). (CID 2000, APEC, 2000).

This report shows that high level of technology and basic infrastructure and high level of skills and human resources in Kish island are considered as its strengths. On the other hand, the poor condition of digital economy for being lack of necessary financial structures such as credit cards for digital business startup and the difficulties and obstacles in the laws and rights governing the digital import, as well as poor access to high speed and low cost internet are of weaknesses of Kish island (Khazaeli, Matyam and Salimi, Sepehr (2008)).

4. The Research Conceptual Framework

The conceptual framework for the research infrastructure needed for e-commerce and the study area (province) have been studied include: (Hassan Beigi, Ebrahim (2005) (Ghasemzadeh, Fereidon & Oxely, J.E and Yeung , B. (2001)), (2005), (Safari, Hussein, 2002).

- Connectivity and technology infrastructure
- Social and cultural environment
- Business environment
- Public and private organizations

4.1. Connectivity and Technology Infrastructure

The requirement for implementing and promoting E-commerce for being publicized and pandemic is creating an appropriate and stable communication contexts. These contexts aimed for creating a network communications in a virtual environment must have required quality for creating stable and appropriate communication to make it so easily be used in electronic transactions. (Inma (Rodríguez,Ardura) and Antoni Meseguer, Artola 2010, Javidannejad, Houman (2002), Tenenbam, Androu. S (2005), Tamizi, Alireza & Akbari, Nohsen (2004), Jalali, Aliakbar ; Zare, Amin & Amiri, Babak (2005)).

4.2. Social and Cultural Environment

Culture building is one of the major indexes to enter E-commerce (Sanayei, Ali; Rezaie, Touraj & Tabibi, Sayed Komeil (2008). The second issue is adjusting the tools and methods of E-commerce with people's culture, spirit and knowledge, because people are accustomed to traditional methods for years and may not be easily ready to abandon them. They still like direct shopping, watching closely the product of window shop and even touching the product, they do not trust to smart cards and consider website as a luxurious and non-essential means and do not trust them and believe that these system services are superficial and non-functional, and if this culture and trust to technology and the advantages of this new way is not tangible for the general public, it will be impossible to expect that the general public will be inclined towards it. In fact, the infrastructure and culture of a country should be changed in a way that other traditional methods are considered obsolete and

useless for many commercial business (Batonda, G & Perry, C. 2003).

Therefore, before we think of being accessed to new technologies, the capabilities and expectancy should be provided for its accession. One of the significant and effective factors influencing the institutionalization and application of E-commerce generally in the country and specifically in Sistan and Balouchestan province is the issue of culture. One of the essential and fundamental contexts for any change and using new technology in a society is making cultural context in that society. Because making essential and fundamental changes, regardless of culture and cultural and social infrastructures in a society is so difficult, if not impossible, and it will be faced with many problems (Brodie, R, 1999, Organization for Economic Cooperation and Development, 2005).

Therefore, for making any fundamental change, paying attention to culture is essential. An appropriate context for making these changes is created by recognizing the cultural elements and making an appropriate plan.

4.3. Business Environment

One of the significant aspects of business environment is the context in which the business is made on; therefore, the appropriate environmental conditions must be provided with that means of trade , especially in modern business practices occurred in a virtual environment, the conditions of this environment that is vary with the traditional method is so important. Therefore, creating a context and business environment appropriated with this method is required for implementing the E-commerce, including these cases should be prepared: transaction security in virtual environment, methods of handling money in a secure virtual environment, providing credit cards and so on (Fatemi Shariatpanahi, Hajar; Geranmaye, Shirin (2002), Doney,P.M and Cannon , J.P (1997), Organization for Economic Co-operation and Development (2002).

4.4. Public and Private Organizations

Public and private organizations can play a major role in public social activities, and the significance of these organizations for implementing the projects that are required to public cooperation is therefore made clear. Therefore, for conducting and expanding business which general public play the main role, a comprehensive and an appropriate cooperation of the government and the related institutes are required, so that the need to form a successful E-commerce and its implementation is required that E-government be institutionalized in which public and private organizations play the main role in implementing and institutionalizing this significant issue (Yaghobi, Nourmuhammad (2007), Alvani, Sayedmehdi and Yaghoubi, Nourmuhammad (2003), Mohd Khalid, N. and Abdul Karim, M.R (2003)).

Therefore, having considered and conducted library studies, interviewed with experts, E-commerce infrastructures are divided into four branches constituted the preliminary conceptual model of the research shown in Figure 1.

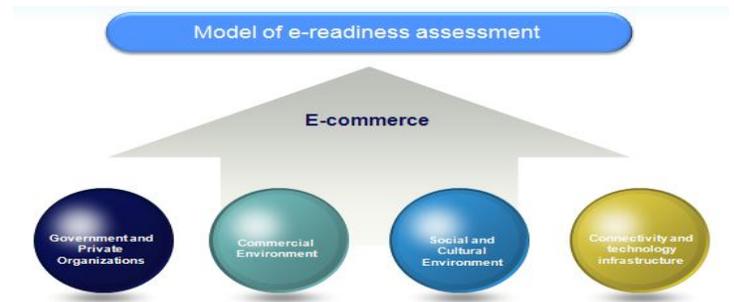


Figure 1: Research Conceptual Model

The establishment and development of E-commerce in the province of Sistan and Balouchestan is required this province to be prepared concerning the related infrastructures. Therefore, it has been attempted that these infrastructures to be properly identified in order the factors affecting the E-commerce to be delineated in one hand, and some approaches be presented to improve them through detailed analysis on the other hand, and also some important aspects to be determined by other aspects.

5. Research Methodology

For doing this research, a questionnaire is used to gather information concerning the study of E-commerce infrastructures in Sistan and Balouchestan province to access a model for considering the E-commerce infrastructures in Sistan and Balouchestan province.

The questionnaire designed to access an appropriate model for measuring the infrastructures in this research is derived from the current models concerning studying the amount of world's E-readiness, which the criteria and indicators are deduced in accordance with the situation of the province and the type of research that are appropriate with local conditions and it meets the demands and goals of researcher as much as possible (Molla, A. 2004).

It is worth mentioning that the indicators of this questionnaire has been designed based on interview, studying and the primary gathered data, studying other models and E-readiness and involving the province conditions during an interview with the experts and its reliability and ability have been tested (Openhaim, Abraham Naftali (1990), Sarmad Zohre; Bazargan, Abbas; Hejazi, Elahe (2004), Lamei, Abolfath (2000)).

The models provided in this regard are as follows (Yaghoubi, Nourmuhammad (2007), Hanafizade, Payam (2006)):

- CSPP model
- CID model
- APEC model
- WITSA model
- McNall model
- EIU model
- Mosaic model

5.1. The Necessity to Assess Regional E-readiness

Here it is important to note that although E-readiness assessment models used in practice have been proposed from

different aspects and for various purposes, they all have similar characteristics as the following:

- They are systematic and operational collections of measurable indicators.
- They have hierarchical structure
- They have the capability of self-evaluation.

Therefore, a model can be presented with a combinational view that supports our goals and are localized for Iranian and provincial situations. So here, there is a need to develop a new model for evaluating e-readiness of Iran's provinces that involve the province's conditions.

According to the criteria used in the current models and evaluating them, it is focused on the criteria used in prestigious E-readiness models which have a closer relationship to the subject of our research. (McConnell APEC (2000) & CSPP (1998), Mosaic, (1998) McConnell (20000) CID (2000) & WITSA (2000)).

5.2. Explaining the Benefits of the Developed Models

The researchers studied the factors affecting in a domestic transaction in developing this model by studying the current models and deduced a flexible model which can be changed and measured according to each region's conditions. Of the benefits of the developed model in this research which includes four environments is that the environments and indicators are weighted so that each environment and indicator is recognized in the model (Yaghoubi, Nourmuhammad (2007).

This model is an open one that can be added both environment and indicator (and the rate of each environment and indicator can be re-determined according to the conditions of the time by the expert's opinions and there is no restrictions in this regard and the results can be easily measured so that a qualitative concept is made numerical and it is a developed method that can be a guideline in studying about E-commerce.

6. Rating Indicators

The score of questions is firstly studied in analyzing the questionnaire's questions, and the questions that were lower than the average score have been removed from the model, and then each environment's indicators was ranked and the final model for the study is as follows (Lamei, Aboufath (2000)).

Table 1: the table of the presented criteria and sub-criteria model.

7. Accurate Determination of the Model

To accurately determine the measurement accuracy of the presented model by the researcher to each dedicated weighting response and considering these weights, each environment's weight is determined which the average weight of the environments is 73.71%; that is to say, the model calculates this amount of E-readiness accuracy (Sarmad, Zohre; Bazargan, Abbas; Hejazi, Elahe (2004)).

Table 2: Rating the Replies

Options	Very high	High	Moderate	Low	Very low	Unrelated
Analytical specific	5	4	3	2	1	0

code						
Weight	100%	80%	60%	40%	20%	0

Table 3: determining the accuracy of model measurement

Environments studied	The accuracy of assessing the readiness of the model (indices weigh average of each medium)
Connectivity and technology infrastructure	76.72
Social and cultural setting	74.41
Public and private organizations	55.90
Commercial environment	79.87
Mean	71.73

8. Conclusion

8.1 : the results of the second questionnaire analysis

To determine the sample size in study and determine the number of respondents " judgments sampling "is used. Due to the limited number of experts in the study in the province of Sistan & Balouchestan, Of the 38 questionnaires distributed 30 questionnaires were collected and analyzed which the study is based on.

According to the research environment devised in the conceptual model, the level of the province's readiness in every area compared to the localized model is as follows:

8.1.1. the connectivity environment and technology infrastructure

The total required minimums achieved from the expert's survey (mean frequencies multiply to the median of each range) in this environment is 644,63 and the total amount collected for each indicator is 243,43. The amount of readiness in this environment is 37.76% and by comparison to the model and based on the weight of this environment in the model, which is 36%, the amount of readiness was achieved 13.59% in this environment.

8.1.2. the social and cultural environment

The total of required minimums obtained in this environment is 443.69 and the total amount collected in each index is 234.07. the amount of the province's readiness in this environment is 52.75% and according to the weight of this environment(20%), 10.55 is ready compared to the model.

8.1.3. the public and private organizations environment

The total of required minimums obtained in this environment is 1096.18 and the total amount collected in each index is 623.28. the amount of the province's readiness in this environment is 56.85% and according to the weight of this environment, 14.21 (25%) is ready compared to the model.

8.1.4. commercial environment

The total required minimums achieved in this environment is 697.96 and the total current amount collected in each index is 417.30. Therefore, there is 59.78% readiness in this

8.2: determining the e-readiness of the province.

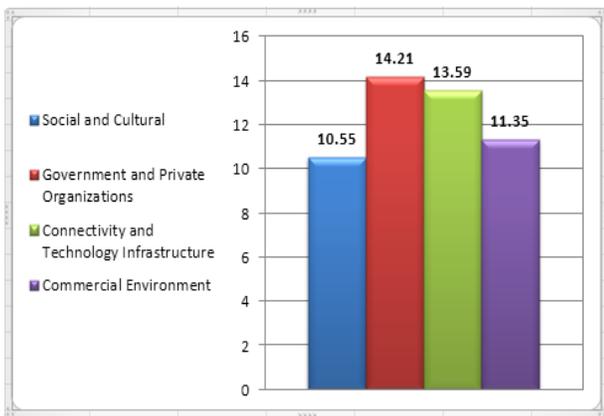
According to analyzing the results achieved, the readiness of the province based on the presented model is as follows:

Table 4: the amount of e-readiness in each environment

	weight of each environment	readiness obtained in each environment
Connectivity and technology infrastructure	36	13.59
Social and cultural setting	20	10.55
Public and private organizations	25	14.21
Commercial environment	19	11.35
Mean	100	49.70

The amount of the province's readiness is absolutely 49.7 % and according to the model's accuracy rate which is 71.73, the amount of readiness is 35.64%.

Diagram 1: readiness obtained in each environment



Another advantage of this model is identifying the current gap in each environment with the minimum requirement so that it can be predicted that how planning should be made according to the specified cost and what indices in which environments should be changed in order to achieve the maximum utilization regarding creating e-readiness.

In the presented formula, the amount of changes created in readiness can be observed in various cases by changing the

amount of each index (X) and using the information obtained in the table above (this information can be updated in various conditions by applying the model) and then make the most

environment and according to the weight of this environment (19%), the readiness of the community compared to the model is 11.35%.

efficient and effective decision. This formula makes help the beneficiaries of this model to choose the best context for investment aiming to increase the amount of e-readiness such that the amount of increasing each concerned indicator is put in the formula and the result indicates that how much effects of increasing the indices will have on the extent of readiness and hence the best context for investment which the maximum increase of e-readiness will be achieved can be chosen.

It is concluded that an open model can be presented to assess the province's E-readiness in any time, the indicators and environments can be increased or decreased given the circumstances and needs of today's society, and the significance and weight of each indicator can be calculated by making poll of the experts according to new recalculation condition and the model can be renewed according to the determined goal. In fact this model can be used as a method to continuously assess the amount of province's E-readiness, and it has the capability to be renewed while needed and being used in other provinces.

References

- Alvani, Sayed Mehdi & Yaghoobi, Nourmuhammad (2003), " Government Management and E-management", Qom, Qom High Education Institute, Culture and Management Journal, No. 3.
- Openham, Abraham Naftali (1990), " Questionnaire Designing and Measuring Attitudes", Translated by Karimnia, Marzieh, Mashhad: Astan Qods Ravazi Publications.
- Bagherinejad, Jafar & Satari, Haleh (2006), " Presenting a Model to Assess Stock Exchange E-readiness to Implement E-government, The First National Conference on Electronic Stock Exchange", http://www.civilica.com/Paper-SEB01-SEB01_002.html.
- Tamizi, Alireza & Akbari, Mohsen (2004), " the Study of ICT Development Criteria , A Case Study of Islamic Conference Member States", Tehran, University of Tehran, Management Knowledge Journal, No. 64.
- Tanebam, Andrew. S (2005), " Computerized Networks", Translated By Pedram, Hussein; Malekian, Ehsan; Zarepour, Alireza, Tehran: The Press Organization and Ministry of Culture and Islamic Guidance Publications.
- Javidannejad, Houman (2002), "E-payment Systems", Journal of Education, Research and Information. 92 (8).
- Jalali, Aliakbar; Zare, Amin & Amiri, Babak (2005), " The Experience of Some Selected Countries in Implementing E-commerce, Proceedings of the 3rd Conference on E-commerce, The Deputy of Planning and Economical Studies and the Ministry of Commerce".
- Jahangard, Binam (2004), " The Report of Takfa Program, Proceedings of the 2nd Conference on E-commerce, The Deputy of Planning and Economical Studies and the Ministry of Commerce".
- Husseinbeigi, Ebrahim (2005), " Rights and Security in Cyberspace", Tehran, International Research Institute for Cultural Studies of Contemporary Abar.

10. Hamzeh, Fereshte; Haghshenas, Asghar; Abzari, Mehdi (2007), " Studying and Identifying the Barriers to the Spread of E-banking Isfahan Banks", MA thesis, University of Isfahan.
11. Hanafizade, Payam (2006), " E-commerce: Definitions, Barriers, and Guidelines, Tehran: Jahad Deneshgahi, Sanati Sharif Unit.
12. Dezhpasand, Farhad (2005), " E-commerce Report in Iran", Proceedings of the 3rd Conference on E-commerce, The Deputy of Planning, Economical Studies and the Ministry of Commerce".
13. Dezhpasand, Farhad (2005), " The Steps of E-commerce Development in Iran and the World", Proceedings on the 3rd E-commerce Conference, The Deputy of Planning, Economical Studies and the Ministry of Commerce".
14. Sarmad, Zohre; Bazaegan, Abbas & Hejazi, Elahe (2004), " Research Methodologies in Behavioral Sciences", Tehran, Agah Publications.
15. Sokaran, Ouma (2002), " Research Methodologies in Management", Tramudnslated by Saebi, Muhammad; Shirazi, Mahud, Tehran, Press Center and Research Institute for High Education and Planning.
16. Salmani, Behzad & Nasrollahzade, Shadi (2005), " The Proposed Criteria for Measuring E-commerce in Iran". Proceedings on the 3rd E-commerce Conference, The Deputy of Planning, Economical Studies and the Ministry of Commerce".
17. Shibani, Binam (2004), " E-commerce and E-banking", Proceedings on the 3rd E-commerce Conference, The Deputy of Planning, Economical Studies and the Ministry of Commerce".
18. Sadeghi, Mehdi (2006), " Global E-commerce and Information Technology", Tehran, Sokhangostar Publications.
19. Sanayei, Ali; Rezaie, Touraj & Tabini, Sayed Komeil (2008), " The Factors Affecting E-commerce Acceptance from the Perspective of Small and Medium Enterprises", (Case Study: Free Trade-Industrial Region of Anzali).
20. Abdollahi Azgami, Muhammad (1996), " Designing and Implementing Secure Services for Computer Networks", MA thesis, University of Sanati Sharif.
21. Fatemi Shariat Panahi, Hajar & Geranmaye, Shirin (2002), " E-payment Security Systems", Journal of Education, Research and Information. 03 (9).
22. Feyzi, Kamran & Moghadasi, Alireza (2005), " E-government, Government Recreation in the Era of Tehran Information. Termeh Publications.
23. Lamei, Abolfath (2000), " Applied Research Methodology", Tehran, Tabib Publications.
24. Motamedi, Binam (2004), " Technological and Communicational Infrastructures", Proceedings on the 3rd E-commerce Conference, The Deputy of Planning, Economical Studies and the Ministry of Commerce".
25. Nikbaksh Tehrani, Muhammad Hasan & Azarsaberi, Mehdi (2001), " Getting Familiar with E-commerce and its Infrastructures", Tehran, Iran ISO Institute Publications.
26. Yaghoubi, Nourmuhammad (2007), " E-government Management Appoach", Tehran, Afkar Publications.
27. [Online].< <http://www.spac.ir/barnameh/273/p11.htm>>[12 Nov 2008].
28. [Online]. <<http://www.iranictnews.ir>>[5 April 2008.
29. [Online].<<http://www.sci.org.ir/portal/faces/public/sci>>[25 April 2008.
30. [Online]. < <http://www.itrc.ac.ir/> >[20 April 2008].
31. [Online]. < <http://www.ict.qov.ir/> >[2 April 2008].
32. Tung X. Bui, Ina M. Sebastian, Wayne Jones, Saisamorn Naklada .1999' E-Commerce Readiness in East Asian APEC Economies – A Precursor to Determine HRD Requirements and Capacity Buildin' Cheskin Research and Studio Archetype/Sapient. (1999) eCommerce Trust Study.
33. [Online] . <http://www.ecommerce.gov/apec/docs/readiness_background.html> [3 Agu 2007]
34. [Online]. < <http://www.eiu.com> > [16 jun 2007]
35. S. Ba and P.A. Pavlou,2002. 'Evidence of the Effect of Trust Building Technology in Electronic Markets: Price Premiums and Buyer Behavior,' *MIS Quarterly*, vol. 26, pp. 243-268, 2002.
36. [Online]. <<http://www.studioarchetype.com/cheskin>> [20 Sep 2007]
37. Molla, A.2004.'the Impact of e-readiness on ecommerce Success in developing countries: firm-level Evidence'. Institute for Development Policy and Management, University of Manchester, Precinct Centre, Manchester, M139QH, UK
38. R.Heeks,2002. 'e-Government in Africa Promise and Practice'. Vol.64(1), pp.15–27
39. Bridges.org (2001).Comparison of e-readiness assessment models, March 14 , 2001. www.bridges.org/ereadiness/report.html
40. [Online].< <http://www.spac.ir/barnameh/273/p11.htm>> [12 Nov 2008]
41. V.Maugis, S.Madnick, M.Siegel, N.Choucri, MIT, 2003 ' E-Readiness Assessment of Central Ministries and Departments'. Prepared for Department of Information Technology, eTechnology Group@IMRB,2003. Available at :<http://ebusiness.mit.edu/>
42. McConnell&WITSA, 2000, ' Risk E-Business: Seizing the Opportunity of Global E-Readiness',Available at:<http://mccconnellinternational.com/readiness/default.cfm>, <http://www.mccconnellinternational.com/ereadiness/ereadiness2.pdf>
43. McConnell ,2002. "Defining and Achieving Your E-Fitness Goals" Available at:<http://mccconnellinternational.com/>
44. Mosaic ,1998. 'An Internet Diffusion Framework', Communications of the ACM, Vol. 41, No. 10, pp 21-26, October, 1998. Available at: <http://www.agsd.com/mosaicgroup.html> , <http://mosaic.unohama.edu/gdi.html> ,<http://som.csudh.edu/facc/press/gdiff> ,<http://som.csudh.edu/fac/lpress/gdiff/question.htm>
45. WITSA, 2000 .'International Survey of E-Commerce', The World Information Technology and Services Alliance(WITSA) .<http://www.witsa.org/papers/EComSurv.pdf>
46. 'Digital divide narrows, according to the Economist Intelligence Unit's seventh annual e-readiness rankings ', 2006 . <http://store.eiu.com/index.asp>
47. Renu, Budhiraja.& Sameer, Sachdeva . December 2006.'E-Readiness Assessment (India)'
48. Mutula, S. M., & Brakel, P. V. 2006.' An evaluation of e-Readiness assessment tools with respect to information access: Towards an integrated information rich tool.' International Journal of Information & Management, VOL. 26, PP.212-223.

49. utula ,S.M. and van Brakel, P. (2006). "An evaluation of e-readiness assessment tools with respect to information access: towards an integrated information rich tool" ,vol. 37 No. 3, pp. 60-75.
50. Raymond, L. (2001). "Determinants of web site ...Vaezi , Seyed Kamal and Sattary, H. and Bimar ,I. (2009).' Comparison of E-readiness assessment models' Scientific Research and Essay Vol. 4 (5), pp. 501-512, May, 2009 .Available online at <http://www.academicjournals.org/SRE>
51. Ghasemzadeh, Fereidon & Safari ,Hossein, 'Transition to e-government'. Management knowledge winter 2002. VOL 14. NO,55
52. Batonda, G. & Perry, C. 2003, 'Influence of culture on relationship development processes in overseas Chinese/Australian networks', European Journal of Marketing, vol. 37, no. 11/12, pp. 1548-74.
53. Organization for Economic Co-operation and Development. (2005), "Guide to Measuring the Information Society", Paris. Available <http://www.oecd.org>
- M
54. Organization for Economic Co-operation and Development. (2002), "Measuring the Information Economy". Available <http://www.oecd.org>
55. The World Information Technology and Services Alliance (WITSA). (1999), "International Survey of Electronic Commerce", London.
56. Inma Rodríguez-Ardura and Antoni Meseguer-Artola. ' Towards a longitudinal model of ecommerce:environmental, technological and organisational drivers of B2C adoption'. The definitive version was published in The Information Society, Volume 26 Issue 3, May 2010.
57. Oxley, J.E. and Yeung, B. (2001). "E-commerce readiness: institutional environment and international competitiveness", *Journal of International Business Studies*, Vol. 32. No. 4, pp. 705-723.

Table 5: the current and required values and the weight of model's indices

environments	weight	current values	minimum amount required	environments	weight	current values	minimum amount required
Commercial environment	19			Public and private organizations	25		
Indice1	92.67	49.00	46.00	Indice1	87.33	90.00	59.41
Indice2	82.00	15.90	50.66	Indice2	78.00	28.63	40.00
Indice3	80.00	4.40	58.00	Indice3	79.33	76.00	65.88
Indice4	80.00	66.00	74.00	Indice4	43.33	30.00	31.17
Indice5	83.33	4.00	65.33	Indice5	42.33	40.00	59.41
Indice6	86.00	19.00	68.66	Indice6	48.17	31.65	35.58
Indice7	75.33	100.00	71.33	Indice7	48.33	5.00	46.17
Indice8	81.33	77.00	78.66	Indice8	41.83	5.00	59.11
Indice9	66.67	11.00	64.66	Indice9	40.83	80.00	60.29
Indice10	76.00	20.00	49.33	Indice10	27.83	40.00	65.00
Indice11	75.33	51.00	71.33	Indice11	32.23	60.00	57.94
Total	878.66	417.30	697.96	Indice12	41.67	5.00	49.70
				Indice13	47.50	75.00	43.52
				Indice14	50.17	0.00	54.70
				Indice15	37.33	80.00	59.41
				Indice16	88.67	10.00	61.76
				Indice17	80.00	0.00	59.11
				Indice18	66.67	5.00	46.17
				Indice19	80.67	28.00	54.11
				Total	1062.22	623.28	1096.18
environments	weight	current values	minimum amount required	environments	weight	current values	minimum amount required

Social and cultural environment	20			Connectivity and technology infrastructure	36		
Indice1	84.00	23.00	59.70	Indice1	90.00	26.60	67.33
Indice2	84.00	65.97	50.00	Indice2	79.33	63.82	53.33
Indice3	80.67	0.00	54.70	Indice3	72.00	0.00	41.33
Indice4	68.00	14.00	44.11	Indice4	76.67	15.40	75.33
Indice5	77.33	56.00	17.64	Indice5	73.33	18.26	74.66
Indice6	68.67	32.60	42.05	Indice6	72.00	2.41	66.00
Indice7	77.33	0.00	49.41	Indice7	77.33	74.00	78.66
Indice8	55.33	194.07	10.88	Indice8	67.87	15.00	57.33
Total	595.33		328.14	Indice9	86.67	16.70	70.66
				Indice10	72.00	11.24	60.00
				Total	767.20	243.43	644.63

8.3. Presenting the formula for calculating the level of readiness in case of any change in the index of each model.

<p>R - the readiness of each environment</p> <p>ER = the final readiness according to each model</p> <p>M = the current amount of each index</p> <p>L = the minimum amount required for each index</p> <p>N = the number of indices in each environment</p> <p>W = the weight of each index</p> <p>W_m = the weight of each environment</p> <p>x = the percentage of increasing the current amount in each index</p> <p>N_r = the number of environments in each model (there are four environments in this model).</p> <p>RT = e-readiness of the model to the scores achieved in each environment (assessing the readiness by calculating total error).</p>	$R = \left[\frac{\sum_{i=1}^n M_i \times 100 + \sum_{i=1}^n \left(\frac{x_i \times w_i}{100} \right)}{\sum_{i=1}^n L_i} \right] \times W_m / 100$ $ER = \sum_{i=1}^{N_r} R_i \times RT / 100$
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