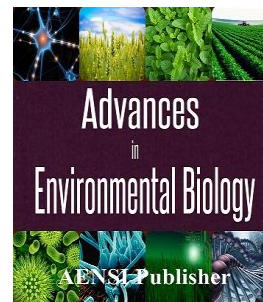




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## Fundamental approaches for Development of Trust in line with development of e-citizen in Zahedan

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### ABSTRACT

The present paper aims to examine fundamental approaches for development of trust in line with development of e-citizen in Zahedan. The statistical population consists of citizens of Zahedan, of which 310 individuals have been selected as sample group using Cochran formula and simple random sampling. A questionnaire has been used as research instrument that validity of it was confirmed based on views of members of faculty board of universities and scholars, and Cronbach's alpha coefficient (0.7) has been used to determine reliability of the questionnaire. Ranking the factors affecting trust and the development of e-citizen indicated that technical-infrastructure factors are ranked the first and financial credit factors are ranked the last. Further, findings indicated that there is a positive significant relationship between citizens' view on the factors affecting development of trust and development of e-citizen and the variables including the extent of computer use, extent of familiarity with concept of e-citizen, extent of familiarity with various types of e-services, extent of interest to use e-services, extent of using various types of e-services, education status and extent of satisfaction with various types of e-services. Findings from stepwise regression indicated that the variables including extent of computer use, extent of using various types of e-services, extent of familiarity with computer, extent of interest to use e-services were entered into the equation, and 59.1% of variance of citizens' view on factors affecting development of trust and development of e-citizen were defined via these variable.

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## INTRODUCTION

Today, having knowledge of computer and the required skills such as computer, internet and other modern ICT instruments are of fundamental requirements in current society and also in future. In society of tomorrow, only the humans who have enjoyed knowledge of computer will have effective role [1]. Anyhow, growth and development of information and communications technology in the society and people's social life will cause transforming the society to an electronic society. In such a society, modern concepts and entities such as e-city, e-citizen, e-commerce, e-learning, virtual organization, e-communications and e-government are proposed. In a e-city or e-society, there will be the possibility for e-access of citizens to all offices and urban places and various information in a 24 hours a day and seven-day week by stable, reliable, secure and confidential means [2].

Congestion and density of large population, difference between night and day population in big cities and widespread pollution of air and space and problem of traffic and time have paved the way to find a solution to decrease sufferings of life in these cities. Creation of e- government is the response to the necessity of productivity in time and cost and ease of providing services and information in governmental sectors to the society. The governments oblige to seek creation of e-cities in order to give a response to this complexity Hence, understanding the factor which causes to accept a technology and creating the conditions which causes accepting information technology are the most research at area of information technology In this regard, the problem of citizen's trust has been widely accepted as an infrastructure for success of e-citizen, so that distrust has been deemed as a barrier to lack of development of e-commerce in various studies. Trust of citizen to e-government is a key factor of success for e-citizen

*Findings of research:*

Extent of effect of educational factors and notification in development of trust and development of e-citizen

Findings of research in table 1 concerning extent of effect of educational factors and notification in development of trust and development of e-citizen in view of citizens under study indicate that the items "training specialized force in the context of e-citizen" and "increasing skill level of citizens in the context of e-citizen and information technology" have been in turn ranked the first, and the items including "holding conferences and meetings to define theoretical backgrounds and executive approaches of e-citizen" and "creation of e-centers in the context of providing consultancy services for e-citizens" have been in turn ranked the last.

**Table 1:** Ranking extent of effect of educational factors and notification in development of trust and development of e-citizen

Items	Mean	Standard deviation	Coefficient of Variation	Rank
training specialized force in the context of e-citizen	3.34	1.18	0.354	1
increasing skill level of citizens in the context of e-citizen and information technology	3.17	1.12	0.355	2
Notification throughout the society to introduction various e-services and their advantages	3.06	1.09	0.356	3
Culturalization among citizen about use of e-services and e-citizen	3.31	1.19	0.358	4
Increasing training people's familiarity with computer and internet use through mass media	3	1.11	0.371	5
Development of education centers of communication and information technology	2.95	1.13	0.385	6
Providing education in the context of e-citizen in schools	3.07	1.25	0.408	7
holding conferences and meetings to define theoretical backgrounds and executive approaches of e-citizen	2.54	1.05	0.416	8
creation of e-centers in the context of providing consultancy services for e-citizens	2.74	2.08	0.759	9

Extent of effect of legal-policy making factors and notification in development of trust and development of e-citizen

Findings of research in table 2 concerning extent of effect of legal-policy making factors and notification in development of trust and development of e-citizen in view of citizens under study indicate that the items "localizing experiences of other countries in the context e-citizen" and "conducting strategic studies in the context of e-citizen" have been in turn ranked the first, and the items "implementation of e-city based on academic model and planning" and "set of suitable rules and regulations in the context of e-citizen" have been in turn ranked the last.

**Table 2:** Ranking extent of effect of legal-policy making factors and notification in development of trust and development of e-citizen

Items	Mean	Standard deviation	Coefficient of Variation	Rank
localizing experiences of other countries in the context e-citizen	2.96	1.11	0.374	1
conducting strategic studies in the context of e-citizen	2.65	1.02	0.384	2
Paying attention to security standards in various ranges of e-city	2.89	1.12	0.387	3
Design strategic vision and policy for development of e-citizen	2.63	1.02	0.388	4
Exercise incentive policies to develop e-citizen	2.85	1.14	0.4	5
implementation of e-city based on academic model and planning	2.81	1.13	0.404	6
set of suitable rules and regulations in the context of e-citizen	2.72	1.12	0.412	7

Extent of effect of infrastructural-technical factors in development of trust and development of e-citizen

Findings of research in table 3 concerning extent of effect of infrastructural-technical factors in development of trust and development of e-citizen in view of citizens under study indicate that the items "increasing number of personal computers" and "improvement of design and structure of urban units in a way to be in harmony with structure of e-city" have been in turn ranked the first, and the items "increasing the number of centers for providing computer and internet in the society" and "frequent switching of internet" have been in turn ranked the last.

**Table 3:** ranking extent of effect of infrastructural-technical factors in development of trust and development of e-citizen

Items	Mean	Standard deviation	Coefficient of Variation	Rank
increasing number of personal computers	3.85	1.09	0.284	1
improvement of design and structure of urban units in a way to be in harmony with structure of e-city	3.47	1	0.288	2
Increasing speed of internet	3.95	1.06	0.29	3

Updating existing information in information database	3.86	1.13	0.293	4
Increasing the number of companies which provide e-services to raise competition between companies and improving e-citizens	3.7	1.09	0.294	5
The possibility for ease of access to internet	3.85	1.13	0.295	6
Creation of common electronic network between various organizations and organs for ease of use	3.56	1.07	0.301	7
Increasing quality of e-services provided for citizens	3.61	1.13	0.314	8
increasing the number of centers for providing computer and internet in the society	3.84	2.57	0.67	9
frequent switching of internet	3.51	3.29	0.938	10

Extent of effect of protective-supportive factors in development of trust and development of e-citizen

Findings of research in table 4 concerning extent of effect of protective-supportive factors in development of trust and development of e-citizen in view of citizens under study indicate that the items "creating interactive information between public and private entities" and "providing services for support from e-services and e-citizen" have been in turn ranked the first, and the items "continuous supervision by government on implementation of e-services" and "expansion of e-services and information in Persian language for users' ease of use" have been in turn ranked the last.

**Table 4:** ranking extent of effect of protective-supportive factors in development of trust and development of e-citizen

Items	Mean	Standard deviation	Coefficient of Variation	Rank
1	0.344	1.02	2.97	creating interactive information between public and private entities
2	0.353	1.11	3.16	providing services for support from e-services and e-citizen
3	0.375	1.16	3.10	Asking citizens' views on e-citizen and e-services
4	0.376	1.14	3.03	expansion of e-services and information in Persian language for users' ease of use
5	0.816	2.55	3.12	continuous supervision by government on implementation of e-services

Extent of effect of credit financial factors in development of trust and development of e-citizen

Findings of research in table 5 concerning extent of effect of credit financial factors in development of trust and development of e-citizen in view of citizens under study indicate that the items "encouraging private sector for investing in the context of e-citizen" and "lower price of high-speed internet" have been in turn ranked the first, and the items "supervision on tariff of e-services" and "granting subsidiary to the companies which provide e-services" have been in turn ranked the last.

**Table 5:** Ranking extent of effect of credit financial factors in development of trust and development of e-citizen

Items	Mean	Standard deviation	Coefficient of Variation	Rank
1	0.389	1.15	2.97	encouraging private sector for investing in the context of e-citizen
2	0.4	1.25	3.13	lower price of high-speed internet
3	0.404	1.19	2.95	Allocate sufficient budget by government for development of e-citizen
4	0.412	1.21	2.94	granting subsidiary to the companies which provide e-services
5	0.88	2.66	3.02	supervision on tariff of e-services

Extent of effect of psychological factors in development of trust and development of e-citizen

Findings of research in table 6 concerning extent of effect of psychological factors in development of trust and development of e-citizen in view of citizens under study indicate that the items "creating high commitment and motivation in authorities for suitable development of e-citizen" and "creating motivation in companies providing e-services and representing necessary encouragements for them" have been in turn ranked the first, and the items "creating a sense of security in users of e-services" and "changing citizens' attitude towards development of e-citizen" have been in turn ranked the last.

**Table 6:** Ranking extent of effect of psychological factors in development of trust and development of e-citizen

Items	Mean	Standard deviation	Coefficient of Variation	Rank
creating high commitment and motivation in authorities for suitable development of e-citizen	3.25	1.14	0.352	1
creating motivation in companies providing e-services and representing necessary encouragements for them	3.35	1.22	0.366	2
creating a sense of security in users of e-services	3.33	1.25	0.375	3
changing citizens' attitude towards development of e-citizen	3.26	1.32	0.405	4

Ranking all the factors affecting development of trust and development of e-citizen

Ranking all the items relating to six factors affecting development of trust and development of e-citizen has been considered in previous sections. In this section, general ranking of all the factors affecting development of

trust and development of e-citizen is considered. As observed in table 7, factors infrastructural-technical factors and credit financial factors have been ranked the first and last, respectively.

**Table 7:** Ranking all the factors affecting development of trust and development of e-citizen

Items	Mean	Standard deviation	Coefficient of Variation	Rank
infrastructural-technical factors	36.90	9.94	0.269	1
Educational factors	27.11	8.6	0.317	2
Legal-policy making factor	19.53	6.36	0.325	3
Psychological factors	13.18	4.45	0.3381	4
Supportive-protective factors	15.40	5.21	0.3383	5
Credit financial factors	15.06	5.9	0.392	6

*Inferential statistics:*

The relationship between citizens' view on factors affecting development of trust and development of e-citizen and research variables In this section, overview of the relationship between citizens' view on factors affecting development of trust and development of e-citizen and some of research variables has been considered. For this, total score of citizens' view was obtained from sum of scores for six factors, and was examined as dependant variable. In this regard, the results from correlation test indicated that there is a positive significant relationship between respondents' view on development of trust and development of e-citizen and the variables including extent of computer use, extent of familiarity with concept of e-citizen, extent of using various types of e-services, extent of interest to use e-services, education level, the extent of familiarity with computer and extent of satisfaction with various types of e-services.

**Table 8:** The relationship between citizens' view on factors affecting development of trust and development of e-citizen and research variables

Variable	Correlation coefficient	r-value	Significance level
Age	Pearson	-0.075	0.202
Education level	Spearman	0.143*	0.015
Monthly income	Pearson	0.014	0.846
extent of internet use	Pearson	-0.001	0.993
extent of computer use	Pearson	0.23**	0.000
extent of familiarity with internet	Spearman	0.054	0.357
extent of familiarity with computer	Spearman	0.121*	0.039
extent of familiarity with English language	Spearman	0.046	0.437
extent of familiarity with concept of e-citizen	Spearman	0.181**	0.002
extent of familiarity with various types of e-services	Spearman	0.202**	0.001
Extent of satisfaction with various types of e-services	Spearman	0.147*	0.012
extent of interest to use e-services	Spearman	0.418**	0.000
Extent of using various types of e-services	Pearson	0.279**	0.000

\*\*Significant at 1% level

The relationship between extent of using e-services by citizens and factors affecting development of trust and development of e-citizen

the results from correlation test indicated that there is a positive significant relationship between extent of using e-services by citizens and factors affecting development of trust and development of e-citizen including "educational-notification", "legal-policy making", "technical-infrastructural", "supportive-protective" and "credit financial" at 1%, and no significant relationship was observed between this variable and psychological factors.

**Table 9:** The relationship between extent of using e-services by citizens and factors affecting development of trust and development of e-citizen

Variable	Correlation coefficient	r-value	Significance level
educational-notification factors	Pearson	0.293**	0.000
legal-policy making factors	Pearson	0.298**	0.000
technical-infrastructural factors	Pearson	0.242**	0.000
supportive-protective factors	Pearson	0.228**	0.000
credit financial factors	Pearson	0.193**	0.001
psychological factors	Pearson	0.069	0.234

\*\*Significant at 1% level

Comparing citizens' attitude towards factors affecting development of trust and development of e-citizen based on research variables

In this section, using comparison tests, citizens' attitude towards factors affecting development of trust and development of e-citizen based on research variables is considered. In this regard, t-test, f-test and Kruskal-Wallis test have been used, where the results from these tests have been represented in following:

*T-test:*

the results from t-test in table 10 indicated that there is no significant difference on citizens' attitude towards factors affecting development of trust and development of e-citizen based on gender and marital status, i.e. there was no significant difference between male and female individuals' and single and married individuals' attitude towards factors affecting development of trust and development of e-citizen.

**Table 10:** comparing citizens' attitude towards factors affecting development of trust and development of e-citizen based on selected variables(t-test)

Significance	t-statistics	Standard deviation	Mean	No	Groups	Level	Variable
0.210	1.258	33.36	128.33	180	Male	Gender	factors affecting development of trust and development of e-citizen
		29.66	123.62	112	Female		
0.210	1.258	28.91	125.26	90	Single	Marital status	
		33.37	127.09	202	Married		

*Kruskal- Wallis test:*

The results from Kruskal- Wallis test indicated that there is a significant difference on citizens' attitude towards factors affecting development of trust and development of e-citizen based on education level and job at 5% significance level.

**Table 11:** Comparing citizens' attitude towards factors affecting development of trust and development of e-citizen based on selected variables(Kruskal- Wallis test)

Mean	Education level	Significance level	Kruskal- Wallis test	Variable
103.5 135.03 136.93 160.23 149.92 158.75	-Under diploma -Diploma -Associate degree -Bachelor degree -master degree -phd	0.025*	8.633	Education level
133.31 175.60 102.38 144.32 114.26 151.70 74.17 114.33	-student -unemployed -housewife -staff -self-employed -physician -retired -professor	0.047*	14.230	Job
72.68 106.93 102.47	-Under 400000 -Between 400000-800000 -Higher than 800000	0.128	4.108	Monthly income

*F-test:*

The results from f-test indicated that there was a significant difference on citizens' attitude towards factors affecting development of trust and development of e-citizen based on

extent of computer use, extent of familiarity with concept of e-citizen, extent of familiarity with various types of e-services, extent of interest to use e-services, extent of using various types of e-services, and extent of satisfaction with various types of e-services at 1%, there was a significant difference on citizens' attitude towards factors affecting development of trust and development of e-citizen based on extent of familiarity with internet.

**Table 12:** Comparing citizens' attitude towards factors affecting development of trust and development of e-citizen based on selected variables(f-test )

Significance level	f-statistics	Standard deviation	Mean	No	Level	Variable
0.342	1.119	32.55	127.77	145	-under 30	Age
		29.88	128	93	-31-40	
		31.31	122.57	42	-41-50	
		42.71	112.66	12	-elder than 50	
0.045*	2.151	41.27	111.16	24	-very low	Extent of familiarity with internet
		29.64	121.8	26	-low	
		31.9	130.51	129	-average	
		29.48	124.81	71	-high	
0.00**	7.207	30.57	128.80	41	-very high	Extent of familiarity with computer
		39.98	106	15	-very low	
		28.79	97.44	18	-low	
		33.68	132.88	106	-average	
0.335	1.146	26.60	129.55	103	-high	Extent of familiarity with English language
		29.77	126.46	50	-very high	
		39.14	106	40	-very low	
		35.44	97.44	67	-low	

		30.68 24.39 23.77	132.88 129.55 123.46	126 40 19	-average -high -very high	
0.007**	3.627	38.63 45.74 29.69 24.90 24.75	122.5 122.02 130.55 128 121.1	24 43 89 108 28	-very low -low -average -high -very high	Extent of familiarity with the concept of e-citizen
0.001**	4.905	44.27 39.61 31.88 21.46 31.37	108.12 121.20 126.10 130.16 137.82	19 58 79 109 27	-very low -low -average -high -very high	Extent of familiarity with various types of e-services
0.004**	3.518	38.33 38.08 27.66 27.53 29.78	104 120.15 124.67 132.78 136.25	25 70 131 56 10	-very low -low -average -high -very high	Extent of satisfaction with various types of e-services
0.00**	20.715	32.20 26.36 31.49 27.47 23.70	86.17 100.37 120.4 136.71 139.36	17 24 80 134 36	-very low -low -average -high -very high	Extent of interest to use of e-services

factors affecting citizens' attitude towards factors affecting development of trust and development of e-citizen based on research variables

In this section, to examine factors affecting citizens' attitude towards factors affecting development of trust and development of e-citizen, stepwise regression was used. The results indicate that the variable "extent of e-services use" was entered into the equation in the first step, and value of multiple correlation coefficient and determination coefficient was obtained equal to 0.708 and 0.501, respectively. Indeed, this variable was reported with maximum effect in this context. In next steps, the variables including extent of internet use, extent of familiarity with computer, extent of interest to use e-services and extent of familiarity with various types of e-services were entered into the analysis, and finally 59.1% of the changes in dependant variable "citizens' attitude towards factors affecting development of trust and development of e-citizen" were defined via these variables.

**Table 13:** multiple regression to examine citizens' attitude towards factors affecting development of trust and development of e-citizen

Step	Variable	Correlation coefficient	Determination coefficient
1	Extent of e-services use	0.708	0.501
2	Extent of internet use	0.736	0.542
3	Extent of computer use	0.753	0.568
4	Extent of interest to use e-services	0.761	0.579
5	Extent of familiarity with various types of e-services	0.769	0.591

**Table 14:** value of effect of variables affecting citizens' view

Variable	B	Beta	T	sig
Constant coefficient:	43.872	-	6.003	0.00
Extent of e-services use	4.727	0.654	12.905	0.00
Extent of internet use	0.669	0.262	4.855	0.00
Extent of computer use	4.839	0.166	3.092	0.002
Extent of interest to use e-services	4.737	0.14	2.573	0.011
Extent of familiarity with various types of e-services	2.142	0.124	2.424	0.016

According to definitions above and results of table 15, the linear regression from regression will be as follow:

$$Y = 43.872 + 0.654X_1 + 0.262X_2 + 0.166X_3 + 0.140X_4 + 0.124X_5$$

Where

Y represents citizens' attitude towards factors affecting development of trust and development of e-citizen, X1, X2, X3, X4 and X5 represent extent of e-services use, Extent of internet use, Extent of computer use, Extent of interest to use e-services, Extent of familiarity with various types of e-services, respectively.

According to the results from table 15, it can observe that the variable "extent of e-services use" more than other variables affect citizens' view, and then the variables Extent of internet use, Extent of computer use, Extent of interest to use e-services, Extent of familiarity with various types of e-services in turn affect citizens' view.

Factors affecting citizens' e-services use

In this section, using stepwise regression, the factors affecting citizens' extent of e-services use were examined. The results from table above indicate that firstly "educational-notification factors" was entered into the equation.

The value for multiple correlation coefficient, was obtained equal to 0.658 and determination coefficient was obtained equal to 0.434. In other words, this variable had the most effect on citizens' e-services use. Then, the "infrastructural-technical factors" and "supportive-protective factors" were entered into analysis, and finally these variables defined about 62.6% of the changes in the variable of citizens' e-services use.

**Table 15:** multiple regression to examine factors affecting extent of citizens' e-services use

Step	Variable	Correlation coefficient	Determination coefficient
1	Educational factors	0.658	0.434
2	Technical-infrastructural factors	0.779	0.607
3	Protective-supportive factors	0.791	0.626

**Table 16:** value of effect of variables affecting citizens' view

Variable	B	Beta	T	sig
Constant coefficient:	8.826	-	5.411	0.00
Educational factors	5.546	0.539	14.14	0.00
Technical-infrastructural factors	1.496	0.422	11.32	0.00
Protective-supportive factors	0.275	0.143	3.835	0.00

According to definitions above, the linear equation from regression will be as follow:

$$Y = 8.826 + 0.539X_1 + 0.422X_2 + 0.143X_3$$

where

Y represents extent of citizens' e-services use; further, X<sub>1</sub>, X<sub>2</sub> and X<sub>3</sub> represent Educational factors, Technical-infrastructural factors and Protective-supportive factors.

It can observe that the variable "educational factors" affects extent of citizens' e-services use more than other variables, and then the variables "technical-infrastructural factors" and "Protective-supportive factors" affect extent of citizens' e-services use.

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