

Exploring the Factors associated with Employees' Intention to Use e-Government services in India

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A convenient sampling survey was conducted to test factors obtained from various literature reviews for this study. This facts finding study talks about a string of factors of compatibility, job fit, performance expectancy and facilitating conditions. The result of 110 respondents showed a mixed reaction of significant and insignificant towards the intention to use e-government services of public utility service sectors like railway, electricity, registration department etc. in India. Multiple regression analysis showed that the job fit and compatibility are significant predictors whereas the factors performance expectancy and facilitating conditions are insignificant predictors for employees' intention to use e-government system.

INTRODUCTION

The role of information and communication technologies (ICTs) brought about much-improved advantages to offer quick services to citizens. It plays a key role in transforming their performance in the field of government, business, politics, economics, and social. It helps the society to communicate effectively, interact actively, utilizing the resources efficiently and also provide more value-added services. The main purpose of ICTs is to act as a key to change the society; it enhances the quality services to the public. Most of the governmental organizations in both developed and developing countries implemented e-government system through ICTs.

ICT, once used as back-end processes to store only data has been assigned into the full-fledged operational system (Calvin et al., 2008). The power-packed ICT can provide a strong pitch for information and to retrieve the data when demanded by users anywhere at any time regardless of any device popularly referred to as 24 * 7 services. The indwelling current of ICT with its long-range benefits will certainly dislodge and dismantle the old thinking of the people and lead them to a digital era. Being in digital era our life is more associated and accompanied with "E" format, such as e-governance, e-democracy, e-government, e-learning, e-business, e-entertainment, e-commerce, e-library, e-auctions, e-market, and others. The impact of the notion of "E" changes everyone to the lifeline of electronic culture. The electronic system is originated from ICT, holding a long-range path and became the main source for

the public to obtain general certificates, personal documents, identity, commercial information, transfers, contracts, death notices, notary information, or facilitating the payment of taxes and dues etc (McLean and Tawfik, 2005).

The long researched innovative application of ICTs in private sector's success put an immense pressure on the public sector to rethink their way of working. To face the imposing challenges to accelerate the speed of economy the government feels the necessity to transform from the very old practice of traditional manual system to modern computerized system in all public sectors. To meet the ever growing and unending demands of the citizens' the best and the only unstoppable choice is introducing e-Governance. e-Governance can be possible only if it is driven by ICT.

LITERATURE REVIEW

E-Government

Many authors defined e-Government in different perspectives, but all are truly defined based on the time of that period. Davidow and Malone (1992) define e-government as a government that provides innovative services on the internet; in other words, it digitizes the activities of the government and provides information without geographical or time constraint through information and communication technology. Sprecher (2000) opined that e-Government can simplify and automate government process to the requirement of the citizens'.

Abramson and Means (2001) – e-Government can be defined as the electronic interaction (transaction and information exchange) between the government, the public (citizens and businesses) and employees. This idea has brought many changes in the operation of e-Government concerning with the people, government, and private organizations.

Zhiyuan (2002) introduces e-Government as "a way for governments to use the most innovative information and communication technologies, particularly web-based internet applications, to provide citizens and businesses with more convenient access to government information and services, to improve the quality of the services and to provide greater opportunities to participate in democratic institutions and processes. e-Government presents a tremendous impetus to move forward in the 21st century with higher quality, cost-effective, government services and a better relationship between citizens and government". Zhiyuan definition goes beyond the expectations in giving additional facilities encompassing to give answers, for interacting participants.

Verkijika & Wet (2018) climate the merit of e-Government as a powerful tool for any sort of Governments or Semi Government bodies or any discipline of organizations and institution to improve the capacity of administration. e-Government being an indispensable in the modern era has the strength to give a quick response to any elastic nature of information. The authors pointed out that the government initiatives failed because of its limited use of high potential government websites supported by revolutionized ICT. Survey findings conducted in Sub-Saharan Africa (SSA), scaled to a poor usability to the less advanced regions. This calls for the e-Government stand to rethink on the evolution, to bring the average and less advanced region citizens to E-culture.

After industrial revolution, the world has seen another ICT revolution that spurns the globe under its internet system. It is unspeakably a true one, millions and millions of people are attracted to this wonderful system. This revolution brought millions of users such as government, private and public sectors with remarkable advantages of using it. The advantages are seen in many fields such as economic growth, cost control, inventory check, and tabulating financial data with accuracy and generating a different type of reports from a single data. Therefore it holds the position such as database management, knowledge management (Liebowitz, 2004; Metaxiotis and Psarras, 2005), enterprise resource planning (Raymond et al., 2006) need driven management and value chain (Liu, 2005) or comparing e-government in other countries.

Adoption Factors

The ever-growing infinite challenges may be in the form of e-services, security concerns, trust, individual differences, reliability, accountability, capability, transparency and digital divide etc. These challenges register a severe impact on participation and build a strong obstructing block for the adoption of e-government services. Many researchers have critically examined and analyzed the underlying current factors that affect citizens' adoption or their willingness and use of e-government services. The study of adoption has twin objectives, adoption by the citizens' and adoption by the government. A number of researchers mobilized their energy in the last four decades have developed, adopted, tested, modified and validated many theoretical models suiting for various countries with their diversity and established their talent for the acceptance of IS (Venkatesh et al., 2003; Benbasat & Zmud, 1999; Hu et al., 1999).

The models have showed a complete agreement with various discipline and used to develop by IS researchers, include the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975); the Theory of Planned Behaviour (TPB) (Ajzen, 1985); the Technology Acceptance Model (TAM) (Davis, 1989; Davis et al., 1989); the Diffusion of Innovation Theory (DOI) (Rogers, 1962) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003).

Though these models were tested and adopted two decades ago still they have potential to assist the IS researchers to develop a most advanced and robust theoretical model with slight modification. This advanced model will become the most suitable one to implement e-government services. The existence of evolution of life continues to exist due to adaptability according to nature, i.e. it declares the processes of mightiest survive. The same concept demands the e-Government to adopt the adaptability to use the fullest capacity of ICT to offer the highest degree of its services to the citizens. The present world trend shows all the developed and developing countries shifted from traditional to e-Government system. If you keenly absorb the e-Government adopted by many countries defer from one another according to the nature of wants and demands of the people. There is bound to have some degree of disagreement in the implementation of e-Government depends upon their capacity to adopt supported by various factors like infrastructure, literacy, culture, income status, internet penetration, etc. There is a lot of variation exist in the implementation of e-Government due to the complexities involved in adopting the new system.

Performance Expectancy

Performance expectancy is defined "as the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh et al., 2003). Performance expectancy is the exception of his or her skilled capacity coupled with by using new system will strengthen their belief to attain a high degree of job performance. Therefore, the following hypothesis is derived.

H1: Performance Expectancy of e-Government service has a significant influence on intention to use the e-Government system.

Job Fit

Job fit is defined as "the extent to which an individual believes that using a technology can enhance the performance of his job or her job (e.g. obtaining better information for decision making or reducing the time required for completing important job tasks)" (Thompson et al., 1991). According to Tornatsky and Klein's (1982) in their innovation adoption theory, they found the factor job fit helps the employees to complete their task on quality assured time-bound framework. It has the impressive ability to measure the performance of an employee based on the newly implemented e-government system. The hypothesis H2 tests whether compatibility has a significant influence on intention to use the e-Government system. The proposed hypothesis H2 states that

H2: Job Fit of e-Government service has a significant influence on intention to use the e-Government system.

Facilitating Conditions

Facilitating conditions is defined as “the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system” (Venkatesh et al., 2003). Facilitating condition can be defined as an individual agreement with the atmospheric condition favoring him to have strong faith or belief in an organization and infrastructure to support the user system. The favorable condition is not the only factor but the user’s adequately trained IT knowledge will certainly push him towards the use of new technology. In this study, facilitating conditions is measured by identifying the ability of the person to access the online e-government system with the help of his or her past experience in the field of information technology. According to Venkatesh et al., (2003) argues that facilitating conditions construct is not a significant factor for predicting intention, but it can be used to identify factor for technology usage. Mahadeo (2009) opined that the factor facilitating conditions are considered to be a motivating factor for citizens’ intention to use e-government services. Therefore, the study proposes the following hypothesis.

H3: Facilitating Conditions of e-Government service has a significant influence on intention to use the e-Government system.

Compatibility

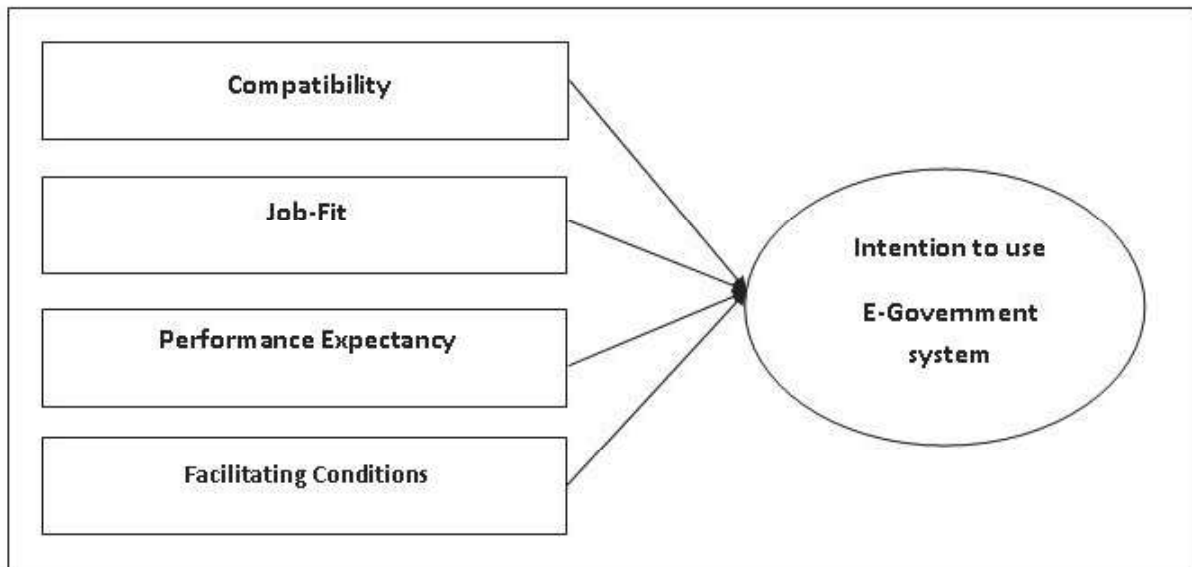
Compatibility is defined as “the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters” (Rogers, 1995). In this study compatibility mainly focus on the existing work practice along with the way of conducting the job with the new system. The computerized system, being a versatile one assists for establishing and measuring the ability of employee performance in comparison with the use of the traditional method. The proposed hypothesis H4 states that

H4: Compatibility of e-Government service has a significant influence on intention to use the e-Government system.

Intention to Use

Intention to use is defined “as a citizen’s intention to adopt and make use of a certain tool in the future “(Ajzen, 1988; 1991; Taylor & Todd, 1995; Venkatesh & Brown, 2001; Venkatesh et al., 2003). The measurement for intention to use includes the intention to use the technology, predict and plan to use the technology in near future. In this study, the factor intention to use is used to measure the behavioral intention of the employee to use e-government system. This theoretical model is designed based on the above-discussed factors. This model utilized four independent variables (performance expectancy, effort expectancy, facilitating conditions, compatibility) and one dependent variable (intention to use) to formulate the theoretical model for employees’ perspective (Figure 1).

**FIGURE 1
THEORETICAL FRAMEWORK**



Research Methodology

To test the research model for this study, a survey was conducted. A questionnaire was designed to gather the necessary information. Each item in the model has a corresponding question. Each item of the questionnaire was measured on a seven-point Likert scale with endpoints of ‘strongly agree’ (7) and ‘strongly disagree’ (1). The survey questionnaire was distributed among a total of 250 respondents. A total of 110 responses were obtained and used for all the analysis. The data was collected from specified public utility departments like electricity, railways, telephone and land & registration.

Employees’ questionnaire design followed three sections, the first section asks about the general information about the ICT and e-Governance training attended by the employees and second section consisted of statements aimed at ascertaining and measuring various factors which lead to employees’ intention to use e-Government system. The third section was aimed at collecting employees’ demographic data of the respondents.

The employees’ perspective of the e-Government system consists of four constructs of independent variables and one dependent variable. To test measure of the constructs namely intention to use, compatibility, job fit, performance expectancy and facilitating conditions taken from literature reviews are listed 18 variables are depicted in Table 1.

**TABLE 1
CONSTRUCTS AND THEIR SOURCES**

S.No	Variable Name	Authors	No.of Items
1	Intention to Use (IU)	Venkatesh et al (2003)	3
2	Performance Expectancy(PE)	Venkatesh et al., (2003)	4
3	Compatibility(C)	Karahanna et al. (2006)	2
4	Job Fit(JF)	Thompson et al., (1991)	3
5	Facilitating Conditions(FAC)	Venkatesh et al.,(2003)	6

DATA ANALYSIS AND FINDINGS

The following section provides insights on the frequency of e-Government system support in the public utility service sector along with their ICT experience are depicted in Table 2 and 3. In TABLE 4 briefly, explain the possible list of a hindrance for implementing the e-Government system in government departments.

Frequency of E-Government System Support in Public Utility Service Sector

Table 2 depicts the support of e-Government system in the public utility service sector. This frequency is based on formal ICT training given to the government employees as well as their ICT usage of the e-Government system in their working place. It is clear that out 110 respondents only 28(25.5%) got their ICT training for using the e-Government system. But for the item 'ICT training is necessary', the majority of the employees answered positively and scored appreciable percentage of 100 %. Many of the employees' replied that they have their official websites for providing necessary information. The variable 'impact of using online services' by the employees reflected in their opinion with a score of 100%.

TABLE 2
FREQUENCY OF E-GOVERNMENT SYSTEM SUPPORT IN PUBLIC UTILITY SERVICE SECTOR

Variables	Frequency			Percentage		
	Yes	No	Total	Yes	No	Total
Formal ICT Training	28	82	110	25.5	74.5	100.0
ICT Training is Necessary	110	0	110	100.0	0.0	100.0
Official Website	106	4	110	96.4	3.6	100.0
Services through website	30	80	110	27.3	72.7	100.0
Information hosted through official website	102	8	110	92.7	7.3	100.0
Impact of Online services	110	0	110	100.0	0.0	100.0

Frequency of ICT Facilities and E-Governance Preparedness

Below Table 3 specifies the frequencies of ICT facilities offered in the government office as well how the employees prepared for the new online system.

TABLE 3
FREQUENCIES OF ICT FACILITIES AND E-GOVERNANCE PREPAREDNESS

Variables	Frequency	Percentage
Utilization level of ICT facilities		
i) High	20	18.2
ii) Good	72	65.5
iii) Low	14	12.7
iv) Very Low	4	3.6
e-Governance Preparedness		
i) Completely Unpreparedness	26	23.6
ii) Completely Preparedness	84	76.4

The ICT utilization level in the government office specified to good by 65.5% of employees. The e-Governance preparedness by the employees is by 84% which refers their willingness for accepting the usage of the online system nowadays is rated as an essential standard to deliver their services to their citizens.

Frequency of E-Government Implementation Barriers

From the Table 4 it is very clear that in the government departments, there is lack of ICT experts to redress the major obstacles for implementing and using the e-Government system, and also the lack of technical skills of the employees. The above said two variables are the major obstacles in implementing the e-Government system in the public utility service sector.

**TABLE 4
FREQUENCIES OF E-GOVERNMENT IMPLEMENTATION BARRIERS**

Services	Frequency			Percentage		
	Yes	No	Total	Yes	No	Total
Lack of Technical Skills	72	38	110	65.5	34.5	100.0
Lack of Infrastructure and Logistics	38	72	110	34.5	65.5	100.0
Improper Attitude of the Officials	22	88	110	20.0	80.0	100.0
Policy and Regulatory Framework	30	80	110	27.3	72.7	100.0
Absence of ICT expertise	86	24	110	78.2	21.8	100.0

Reliability Analysis

Reliability helps to identify the internal consistency among the variables which are grouped together to measure the same construct. With the help of Cronbach's alpha, the reliability coefficient is measured to find the consistency of the entire scale. The generally agreed-upon lower limit for Cronbach's alpha is .70 (Robinson et.al, 1991). The Table 5 shows reliability score for the variables which is greater than accepted cut-off of 0.7(Nunnally, 1978) implies the constructs are internally consistent.

**TABLE 5
RELIABILITY ANALYSIS**

Variables	Cronbach's Alpha
Performance Expectancy	.725
Compatibility	.700
Job Fit	.783
Facilitating Conditions	.833
Intention to Use	.961

Factor Analysis

The validity of the employees' perspective of e-Government system scale is measured by content and constructs validity. The construct items were identified from the past literature of e-Government adoption studies. The construct validity of this scale is measured by conducting exploratory factor analysis.

TABLE 6
KMO AND BARTLETT'S TEST OF INTENTION TO USE E-GOVERNMENT SYSTEM SCALE

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.567
Bartlett's Test of Sphericity	Approx. Chi-Square	1626.145
	df	178
		Sig
		.000

Factor analysis was conducted to evaluate the consistency, stability of the model. Principal component analysis with varimax rotation was used to evaluate and identify the component factors. Results of the construct validity of measured items are described in Table 6. It shows the KMO metric and Bartlett's test for measuring sampling adequacy for the employees' perspective of e-Government system scale. The result shows that the KMO value obtained is 0.567, which is mediocre (Field, 2009). Bartlett test of Sphericity have the p-value of 0.000 which is less than 0.05, it states that the model is statistically significant for conducting factor analysis. The factor analysis result is shown in Table 7 which shows the factor loadings are greater than 0.5. The four factors with Eigen value greater than 1.0 were formed with a total variance explained of 61.320 percent.

TABLE 7
FACTOR ANALYSIS

Variables	Factor 1	Factor 2	Factor 3	Factor 4
PE1			.616	
PE2			.864	
PE3			.714	
PE4			.631	
C1		.772		
C2		.861		
JF1				.900
JF2				.902
JF3				.649
FAC1	.845			
FAC2	.795			
FAC3	.660			
FAC4	.810			
FAC5	.588			
FAC6	.505			
%of Variance	19.767	14.799	14.363	12.391
Cumulative %	19.767	34.566	48.929	61.320

Hypotheses Testing

The theoretical model of employees' perspective of e-Government system is tested by using multiple regression. The multiple regression techniques are used to analysis the most contributed independent variable to the explanation of the variance of a dependent variable. The hypotheses from H1 to H4 are tested by using multiple regression. The four independent variables namely performance expectancy, job fit, compatibility and facilitating conditions along with one independent variable intention to use were used in the multiple regression and the results are displayed in Table 8.

The larger F-value (45.230) suggests that the model fit is good. It can be seen that the R square value is 0.795 which indicates that the proposed model explains 79.5% of the variance in the dependent variable – intention to use the e-Government system. The probability value of p was found significant at 0.01 level ($p < 0.01$). The results of multiple regression analysis indicate that job fit ($\beta = .769$, $p = .000$) was found to be the most significantly related factor affecting the intention to use the e-Government system in India. Compatibility ($\beta = .170$, $p = .007$) was the second important factor followed by job fit.

These two factors have a significant effect on the intention to use the e-Government system in India. The factors performance expectancy and facilitating conditions are not significant predictors of employees' intention to e-Government system. Multicollinearity can be checked by using variance inflation factor (VIF) value if it exists above 10 for factors (Field, 2009). Table 8 illustrates that VIF for the model varied between (1.033) job fit and (1.126) for performance expectancy which set below the recommended level. As a result, the VIF suggests that the independent variables (performance expectancy, job fit, compatibility and facilitating conditions) do not have a high correlation with each other. Over the employees' study confirmed H2 and H4 are found significant whereas H1 and H3 are found insignificant.

TABLE 8
MODEL SUMMARY OF EMPLOYEES' PERSPECTIVE OF E-GOVERNMENT SYSTEM

Dependent Variable	Independent Variables	Unstandardized Coefficients		Standardized Coefficients Beta weights	t	Sig.	VIF
		B	Std. Error				
Intention to use e-Government system	(Constant)	3.578	.387		9.252	.000	
	Performance Expectancy	-.026	.029	-.055	-.878	.382	1.126
	Compatibility	.135	.049	.170	2.740	.007**	1.096
	Job Fit	.446	.035	.769	12.784	.000**	1.033
	Facilitating Conditions	-.039	.032	-.074	-1.221	.225	1.039
	F-value	45.230, p-value= .000**					
	R²	.795					
	Adjusted R²	.619					
**Significant (p < 0.01)							

CONCLUSION

In today's digital world governments around the world turned their attention to incorporate information and communication technologies tools into their day to day activities. Various thoughts of authors have one common goal that is to use the fullest capacity of ICT in public sector. India understood the potentiality of e-Governance on a perfect broad base covering all the aspects to give a satisfactory response to its simplicity in operations will definitely encourage and influence the Indian mass. For successful implementation and survival of e-Government system, it should have better adaptability, security, interactivity, compatibility, flexibility, simplicity, utility, and feasibility and also with a well-organized infrastructure to influence the people to come forward more and more to involve themselves in

the use of e-Government services. In the absence of any one of the elements said above the implementation of e-Government will not attain its goal. Despite dismissing all the barriers such language barrier, infrastructure, corruption, illiteracy, poverty, political instability etc, the Indian mindset prepared to accept and invite all the challenges and convert them in a successful way and show their courage to make all the impossible things possible.

The research-oriented theoretical model will serve as a strong base for making decisions by the practitioners (government institutions, government officials, and e-Government practitioners) at the time of developing a suitable system for e-Government. This model can be easily implemented by the government in various public departments because the proposed model is based on various well-established theories in the field of technology adoption. Being in the era of the digital world it is mandatory for the government to provide an online system for servicing both the citizens' as well as employees. India has huge human capital and IT wealth; hence government of India has to focus on building a successful e-Government system.

This study also reveals the factors contributing to employees' intention to use e-Government system by going through various e-government adoption literature. This study also recognizes four independent variables namely performance expectancy, compatibility, job fit and facilitating conditions and discover one dependent variable i.e. intention to use. The multiple regression analysis results showed that the model is clearly explaining 79.5% of the variance towards the dependent variable – intention to use the e-government system. The analysis shows that the factor job fit holds to be the most important predictor of employees' intention to use the e-government system in India. Compatibility was the second important factor followed by job fit

Research can be usually extended further for improvising and upgrading, and the research presented here has no exception. The research has focused on studying government employees' perspective in only limited public sectors. Researchers can further explore many other public services and bring out a more robust model for implementing e-Government system in a government department.

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