

Diffusion of e-Government System in Pakistan; Analysis of Adoption by Government Employees of Pakistan

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Abstract- Governments around the globe are switching to electronic government (e-Government), which is the usage of Information and Communication Technology (ICT) for information sharing, delivering better and faster public services and various types of transactions with citizens, government institutions and businesses. Hence, it is crucial to investigate adoption of e-Government system among public employees which is an aspect of this area not much explored in Pakistan although likely to influence positively other stakeholders.

The study validates leading technology theory i.e. Diffusion of Innovation (DOI) in order to explore the diffusion trends of e-Government system among government employees' of Pakistan in terms of five significant determinants i.e. Relative Advantage, Complexity, Compatibility, Trialability and Observability.

Survey strategy is employed for this research using simple random sampling. Sampling frame consists of government organizations in Federal Government of Pakistan which are functioning on the e-Government system. By employing statistical analyses over the captured responses, it was found that Relative Advantage, Compatibility, Complexity and Trialability have a positive association with intention to adopt/diffusion of e-Government system among government employees' whereas Observability has no significant relationship.

This research is expected to contribute through investigations regarding determinants influencing e-Government adoption and diffusion in Pakistan's scenario as a developing nation and recognize the attributes which practitioners need to tackle in their endeavor to promote the adoption and diffusion of e-Government.

Keywords- Government, Government to Employee (G2E), Diffusion of Innovation, Intentions to Adopt, Relative Advantage, Compatibility, Complexity, Trialability, Complexity, Observability, Behavioral Intention.

I. INTRODUCTION

Governments around the world whether in industrialized or developing countries are switching from traditional functioning through manual working to e-Government systems. e-Government has improved the cumbersome nature of work to a more efficient one thus facilitating citizens in a true sense and also helped in improving the negative image of governments by making its processes transparent and effective. e-Government employs the latest information and communication technologies (ICTs) to revolutionize government dealings, facilities, democracy and enabling citizens' access to valuable information. It is the transformation of government to a more citizen centered one [i]. ICT provides an efficient and effective e-Government mechanism as it is the main driving force of e-Government technology [ii].

Diffusion of Innovation (DOI) theory was established in 1963 [iii]. DOI theory explains that at what pace an innovation is diffused in a population over time. Roger also explained that different innovations can follow different rate of adoptions owing to their characteristics. The main attention of the DOI theory is on the attributes of the innovation which directly affect its adoption [iv]. This model is widely used to determine the intention to adopt/ rate of diffusion of e-Government in many other countries like Nigeria, Mauritius, South Africa, Lorraine, Netherlands etc. The results of one country cannot be held true for another due to different conditions such as political, cultural values, ICT literacy and so on. Research is needed to conclude the aspects responsible for slow rate of diffusion of e-Government in Pakistan.

This model used in this research is the most suitable concerning the scenario of e-Government in Pakistan. It is the only model whose main focus is on characteristics of the innovation rather than users' perspective. DOI model is validated in this research to predict factors contributing towards diffusion of e-government in Pakistan by analyzing the government to employee perspective (G2E). Establishment of an

effective e-Government infrastructure and services among government departments will greatly improve the image of e-Government through enhanced transparency and efficiency. The goal of this research paper is to investigate the primary attributes which are accountable for influencing diffusion/ adoption of e-Government in Pakistan thus may be analyzed and manipulated according to findings

II. RATIONALE AND SIGNIFICANCE

In many developing countries, citizens distrust their government due to political instability, large scale corruption or history of dictatorship. Pakistan is one of the developing country facing many obstacles for efficient e-Government deployment such as political instability, fraud, poor educational systems and policies, low ICT literacy and uneven distribution of technology [i]. Pakistan started e-Government implementation in October 2002 by laying down foundations of Electronic Government Directorate (EGD) under Ministry of Information technology (MOIT) [v]. The United Nations Electronic Government Readiness Index (EGRI) for Pakistan in 2002 was 0.104 with a global ranking of 120 [ii]. EGRI and world ranking for e-Government of Pakistan has been going through many ups and downs owing to different factors e.g. political instability, low ICT literacy, lack of infrastructure etc. The UN ranking for Pakistan in 2014 is 158 with an EGRI of 0.2580 [vi].

The main objective of this research paper is to explore the key parameters responsible for the downfall of e-Government in Pakistan thus influencing the progress of Pakistan at many levels. It identifies various gaps in government to employees' (G2E) perspective which need to be addressed for smooth e-Government employment as when the foundations are strong, better structure will be provided resulting in satisfied stakeholders. DOI model can be considered to be the most suitable for analyzing the scenario of e-Government in Pakistan as it is the only model focusing upon characteristics of the innovation rather than users' perspective. This research will benefit the Government of Pakistan to a great extent in remedies of key hurdles which will pave the way for efficient and effective e-Government establishment.

III. LITERATURE REVIEW

World is advancing day by day and governments all around the globe are taking measures to switch to electronic services which is the employment of Information and Communication Technology for information sharing and various types of transaction among government and citizens, businesses, and other government organizations.

A. e-Government

The government has obligation to deliver better

and faster public service through Electronic Government (e-Government). The key basic principle of electronic government can be regarded as the improvement of government operations effectively and efficiently and improving communication and interaction within itself, citizens, businesses and other stakeholders [vii]. e-Government can also be regarded as a socio-technical system which is greatly influenced by the capabilities of the institution, their concerned policies and socio-cultural suggestions [viii]. It aids in reducing cost [ix] and lays down the foundations for trustworthy and efficient communication among all levels and sub-branches of e-Government [x]. e-Government can also be regarded as change in old-fashioned practices and switching to electronic ways of facilitating the citizens' in a true sense [xi].

A lot of mistrust issues have been seen among the citizens and governments of developing nations and it has been mainly attributed to illiteracy, corruption and lack of communication mediums [xii]. The world is advancing day by day with the adoption of new technological revolutions and increased levels of literacy, an awareness has been created and governments are re-engineering themselves to be more alert, reliable and as efficient as possible [xiii]. A need for re-structuring of government has arisen in the perspective of organization, practices and methods of service supply to approach the standard that e-Government truly offers [xiv].

1) Importance of ICT in e-Government

Government should identify the true importance and worth of ICT and should employ it in every field of life [xv]. ICT enables improved communication and knowledge sharing. It ensures effective and fast exchange of information among citizens and government and also within government departments, businesses and employees'. e-Government is also regarded as the efficient use of ICT to enable proficient and transparent government procedures, implementing democracy, making government operations error free and facilitating businesses and citizens in a true sense. This will aid in minimizing corruption from its roots resulting in major savings. Besides implementing ICT devices in government organizations for effective e-Government application, the ICT level of citizens, employees etc. should also be improved as ICT is the prime driving force of e-Government [ii].

2) Principles of e-Government

Following are the basic principles of e-Government which when implemented carefully will help in development of e-Government system leading to progress of country [ii].

- The main focus should always be citizens' and the applications should be developed keeping in mind their needs to facilitate them in a true sense.
- The various applications and facilities introduced by the government is made accessible to everyone so all can benefit from them.

- Social inclusion should be facilitated so that everyone takes a part in adopting and efficiently utilizing e-Government services.
- The information provided should be accurate and up to date and it should be shared responsibly.
- Government resources should be efficiently and effectively utilized to make e-Government a success.

3) Stems of e-Government

There are four basic stems of e-Government which are employing ICT to assist relationship between government and other stakeholders. Many researchers have further divided them into further sub-types. The four basic types are [xvi]:

• Government-to-Citizen (G2C)

The primary concern of this branch of e-Government system is to make the files and necessary information available online for citizens' use at government portals [xvii]. A fruitful and understanding relationship is established between government and citizens' (G2C) when the citizens' also interact with the government as a member in democratic process i.e. e-Democracy and e-Voting. This area underwent a lot due to innumerable reasons such as insufficient measures, lack of Internet facility, ICT illiteracy etc. thus creating a hurdle in the success of G2C services.

• Government-to-Business (G2B)

The main focus of this stem of e-Government system is to interact with private division to acquire services and goods and to synchronize dealings with private corporations with the help of ICT e.g. e-Procurement. By employing G2B e-Government in the routine procedures for procurement becomes translucent and cost and time efficient [xviii]. The award of contract and provision of licenses for operating business becomes efficient and transparent which gives rise to unbiased competition among local business thus refining a country's business atmosphere [xvi].

• Government-to-Government (G2G)

The main focus of this branch of e-Government system is providing services to different tiers of governments by creating a harmonious relationship among all. It has the ability to bring forward stakeholders from all levels of government whether national, local or state/ provincial and is considered as the backbone of Electronic Government [xi]. e-Government implementation also ensures resource sharing among different government departments for a faster, resource efficient and quality decision making process.

• Government-to-Employees (G2E)

The research focuses upon this vital stem of e-government so it is explained in detail. In G2E, employees are empowered in a true sense with responsibility to facilitate citizens and business to counter their problems. G2E can be regarded as the

primary stem because employees are working at back end to satisfy other stakeholders so the employees should go online before any other stakeholder [xix]. G2E is the least explored and researched branch of e-Government and some researchers also look upon it as an internal part of G2G [xx]. The success of e-Government and its diffusion hugely depends and is influenced by the procedures, readiness, the stakeholders and the employees' present in government organizations so they should be dealt intelligently [xxi].

This area if properly managed can lead to great results concerning the progress of e-Government. When the employees' will be fully equipped with the latest technologies, supported, trained by the government then a trust based relationship will exist with them which will positively affect the whole system through employees' performance. It improves efficacy and usefulness of government procedures [xxii]. G2E is considered as the most crucial stem of e-Government as its efficient working will have a direct impact on all the concerned stakeholders and without its efficient functioning, one cannot expect the successful application of other e-Government branches.

B. Electronic Government in Pakistan

Pakistan being one of the developing countries, is facing many problems in adoption and diffusion of information technologies. This shift towards the information and communication technologies (ICT) was initially focused by Ministry of Science and Technology (MOST) and a new IT and Telecommunication (IT & T) division was formulated under MOST in March 2000. e-Government was considered to be most important part of first National IT Policy and Action Plan which was agreed upon by the Federal Cabinet in 2000 [xxiii]. Originally e-Government implementation was handled by Pakistan Computer Bureau (PCB). In 2002, an independent ministry for Information Technology was formulated by the Government of Pakistan and IT & Telecommunication Division as made portion of Ministry of Information Technology (MOIT).

The primary goal of MOIT is to boost ICT capability of Pakistan in the 21st century. One of the major objectives of MOIT was Transformation to Electronic Government which has revolutionized the government processes all around the world. In October 2002, Electronic Government Directorate (EGD) was formulated by MOIT to specifically focus on successful implementation of Electronic Government [v]. In August, 2014 EGD and PCB have been merged under National Information Technology Board (NITB) as an attached department of MOIT for more efficient and successful implementation E-Government technology. Pakistan Government also signed an agreement with Pakistan Telecommunication

Company Limited (PTCL) in 2013 for ensuring transparent and effective E-Government [xxiv]. Electronic Government in Pakistan is still at a developing stage and despite much effort it has not been able to cope up with the demands of citizens.

C. UN e-Government Readiness Index (EGRI)

The e-Government readiness index shows the development pace of a country with respect to various factors which affect the e-Government development. e-Government Readiness Index also shows the ability and inclination of a country to switch to e-Government for ICT led development. The more established countries have given priority to their e-Government program whose success also shows their political, social and economic composition. To make e-Government services a success, minimizing the digital divide should also be focused as merely an access to the World Wide Web (WWW) will not solve the issue of poor acceptability of e-Government services. Table I below, shows the UN Global Ranking and EGRI of Pakistan from year 2002 to 2014:

TABLE I
PROGRESS OF E-GOVERNMENT IN PAKISTAN

Year	EGRI	Global ranking
2002 [ii]	0.104	120
2003 [xxiii]	0.247	137
2004 [xv]	0.3042	122
2005 [xxiv]	0.2836	136
2008 [xxv]	0.3160	131
2010 [xxvi]	0.2755	146
2012 [xxvii]	0.2823	156
2014 [vi]	0.2580	158

It can be seen clearly that there are regular ups and downs in the progress phase of e-Government in Pakistan from 2002 to 2008. Thereafter, EGRI and world ranking of Pakistan has been going down the road. It indicates insufficient support by governments and thus demands considerable amount of attention towards employees' perspective which will in turn influence other stakeholders.

D. Diffusion of Innovation (DOI) Theory

This theory given by Everett M. Rogers in 1963, is one of the initial theories concerning innovation diffusion [iii]. It was modified with time keeping in mind the continuously changing technological advancements [xxx, iv, xxxi]. The main emphasis of the DOI theory is on the attributes of innovation which directly affect its adoption [iv]. The main difference between DOI theory and other models that predict adoption is that DOI focuses on the characteristics of an innovation which can be improved to increase rate of adoption while the main focus of other models is on

user's attitude and feeling about an innovation. According to Roger, there are five variables which determine rate of adoption/ diffusion (D) of innovation [iv] comprising Perceived Attributes of Innovation, Types of Innovation Decision, Communication Channels, Extent of Change Agents' Promotion Efforts and Nature of Social System. Rate of Adoption is effectively explained (49 to 87% of Variance) by the Perceived Attributes of Innovation. [xxx]. Hence these Attributes are focused in research.

IV. RESEARCH FRAMEWORK

The main objective of this research is to explore the G2E perspective of e-Government through investigating key attributes which are influencing the diffusion of system in Pakistan. Diffusion of Innovation (DOI) theory proposed by Roger is used as reference model to identify various gaps which need to be addressed in G2E perspective for successful diffusion of e-Government. The corresponding research question that is drawn out is as follows: The theoretical framework explained above is shown in Fig. 1.

“How does attributes of innovation affect the Intention to Adopt/ Diffusion of e-Government (Employee perspective G2E) in Pakistan (ministries / divisions of federal government)?”

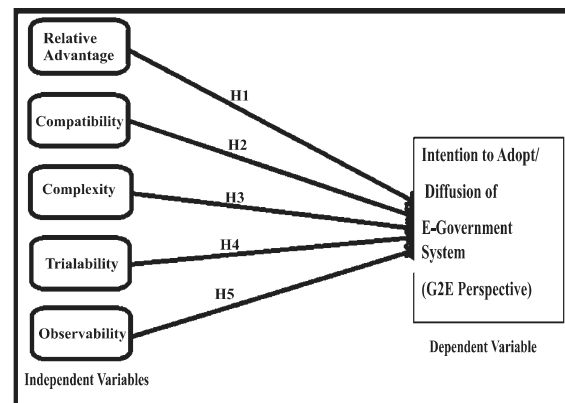


Fig. 1. Theoretical Framework.

A. Operational Definitions and Research Hypotheses

Operational definitions for the various constructs considered in the proposed theoretical framework are as follows:

• Relative Advantage

Relative Advantage (RA) is the extent to which the proposed invention is more useful than the concept or an innovation which it replaces. The advantage offered by the new innovation can be of any type e.g. reliability, time sharing, economic benefit, social status etc. The type of relative advantage offered can differ from an innovation to an innovation as it mainly depends upon the nature of an innovation and characteristics of the

adopters under concern. Customers want to know than that what kind of advantage the innovation offers and thus this information can be regarded as the heart of diffusion process. So relative advantage can result in decrease of discomfort and found to have a positive relationship with the rate of diffusion thus following hypotheses are formulated.

H01: "No relationship exists between Relative Advantage and intention to adopt/ diffusion of E-Government system (G2E Perspective)".

H1: "Relative Advantage will have a positive direct effect on intention to adopt/ diffusion of E-Government system (G2E Perspective)"

• *Compatibility*

Compatibility (Compat) can be regarded as the extent to which the proposed invention matches with the existing practices, past principles and requirements of the customers. The high degree of compatibility reduces the unforeseen threats related to an innovation in the minds of the potential adopters as it is perceived to be familiar. The innovation should be well-matched with sociocultural beliefs and values, previous ideas and requirements of the customer. Compatibility may be regarded as a less important construct than relative advantage but its effect is large and it is found to be positively related to the rate of adoption thus following hypotheses are formulated:

H02: "No relationship exists between Compatibility and intention to adopt/ diffusion of E-Government system (G2E Perspective)".

H2: "Compatibility will have a positive direct effect on intention to adopt/ diffusion of E-Government system (G2E Perspective)".

• *Complexity*

Complexity (Complex) is the extent to which the invention is thought to be ambiguous, hard to comprehend and use. Any new innovation can be categorized into two types i.e. either complex or simple. An innovation should be simple enough to the extent that customers shall be able to comprehend its advantage, usefulness and learn how to use it which will in turn yield high rate of adoption. Complexity of an innovation was found to have a negative relationship with the rate of diffusion as it creates difficulty and a major obstacle for innovation usage in the eyes of the adopter whereas a less complex innovation appears to the adopter as more useful thus achieving high rates of adoption. Following hypotheses are formulated to explain this phenomenon:

H03: "No relationship exists between Complexity and intention to adopt/ diffusion of E-Government system (G2E Perspective)".

H3: "Complexity will have a negative direct effect on intention to adopt/ diffusion of E-Government system (G2E Perspective)".

• *Trialability*

Trialability (T) is the extent to which the new innovation should be tested for a limited period of time

before its widespread launch. In this way the ideas or innovations are launched step by step or in installments which increases its chance of achieving high rate of adoption. It removes any form of ambiguity in adopters mind and it also gives a meaning to the innovation that how it works under different conditions and environments thus improving rate of adoption. Trialability of an innovation was found to have a positive relationship with the rate of diffusion and is more important for the early adopters. Following hypotheses are formulated to explain this phenomenon:

H04: "No relationship exists between Trialability and intention to adopt/ diffusion of E-Government system (G2E Perspective)".

H4: "Trialability will have a positive direct effect on intention to adopt/ diffusion of E-Government system (G2E Perspective)".

• *Observability*

Observability (O) is the extent to which the positive outcome of an innovation is easily noticeable to everyone. The results or usefulness of some innovations is easily observed by everyone whereas the results of some innovations are not clearly visible, no matter how useful they actually are. If an innovation is useful but its results are hard to observe than it can be regarded as a useless innovation which hinders its rate of adoption. The software base innovations have a slow rate of adoption generally as its usefulness is not clearly observable. Observability of an innovation was found to have a positive relationship with rate of diffusion of an innovation and thus following hypotheses were formulated.

H05: "No relationship exists between Observability and intention to adopt/ diffusion of E-Government system (G2E Perspective)".

H5: "Observability will have a positive direct effect on intention to adopt/ diffusion of E-Government system (G2E Perspective)".

B. Research Design

- Research setting for this research is non-contrived as interference from the researcher is minimal and natural setting is used.
- The data has been collected at a single point of time making the study cross-sectional [xxxii] making it convenient to identify and analyze the relationships between the various determinants involved [xxxiii].
- The population to be considered for this research study was Government Employees of Pakistan. But due to budget and time constraints, sampling frame has been restricted to employees' of ministries and departments under Federal Government of Pakistan.
- Probabilistic sampling (simple random) linked with survey based strategies has been used to make deductions from the sample related to the population and conclude the research. A

confidence level of 95% with 5% error margin, the minimum size of sample should be 384 to achieve reliable results [xxxiii]. In order to achieve true results, the questionnaires were distributed among 633 employees of Federal Government of Pakistan. Around 517 questionnaires were filled and received back, from which 28 were ineligible. Therefore an overall response rate of 81.67 % was achieved.

- Survey strategy has been adopted to carry out this research. Research Choice is quantitative as various statistical analyses have been performed on numerical data to extract useful results [xxxiv]. Moreover, quantitative research comprises of specifying precisely both dependent and independent variables under study, making the interpretations and results more reliable [xxxv].
- The questionnaire used to collect primary data comprises of two main parts, with the opening section comprising six (6) questions related to the demographic details and the second part containing twenty four (24) questions measuring employee's adoption/ diffusion level of e-government system on five point Likert Scale. The questionnaire for Relative Advantage and Compatibility has been adopted from [xxxvi], Complexity from [xxxvii], Observability and Trialability from [xxxviii] and intention to adopt/ diffusion of e-Government system (G2E Perspective) from [xxxix].
- The questionnaire was verified by a number of subject and language experts to validate language and comprehensiveness of questionnaire and then it was followed by a pilot study though reliability was ensured by calculating Cronbach alpha shown below in Table II.

TABLE II
CRONBACH ALPHA FOR PILOT TESTING

Constructs	Cronbach's Alpha	No. of items
Relative Advantage	0.813	5
Compatibility	0.701	3
Complexity	0.798	4
Observability	0.737	4
Trialability	0.781	5
Diffusion	0.827	3

The items were found reliable and consistent as the results of the pilot tests were acceptable for further continuing the research. Therefore the questionnaire was further distributed for responses.

V. DATA ANALYSIS

In order to extract some useful inferences, data analysis is necessary which is now much easier to perform with the help of latest software such as Statistical Package for the Social Sciences (SPSS).

A. Descriptive Analysis

The table III refers to the results of descriptive analysis showing minimum, maximum values and the mean values of the dispersion in the data measured by standard deviation and the value of skewness to check whether the data is skewed within the range +1 to -1 to be considered as normal distribution. The values of kurtosis have also been mentioned, which depicts the peakedness of the curves, of the series of values used in the study.

TABLE III
DESCRIPTIVE STATISTICS

	Min	Max	Mean	Std Dev.	Skewness	Kurtosis
RA	1	4	1.75	.457	.474	3.07
Compat	1	4	1.88	.495	.548	1.68
Complex	1	5	3.10	.982	.025	-.98
O	1	4	2.21	.598	.191	.21
T	1	4	2.14	.550	.689	1.59
D	1	4	1.88	.463	.314	2.06

Fig. 2 below shows the normal Q-Q plots for the collected data against each construct of the model. It's very obvious from these plots that quantile values of the observations are mostly lying close astride the strait line with few outlier observations. Hence the sample data set for all the constructs is pretty normal to carry out the analysis through performing parametric statistical tests.

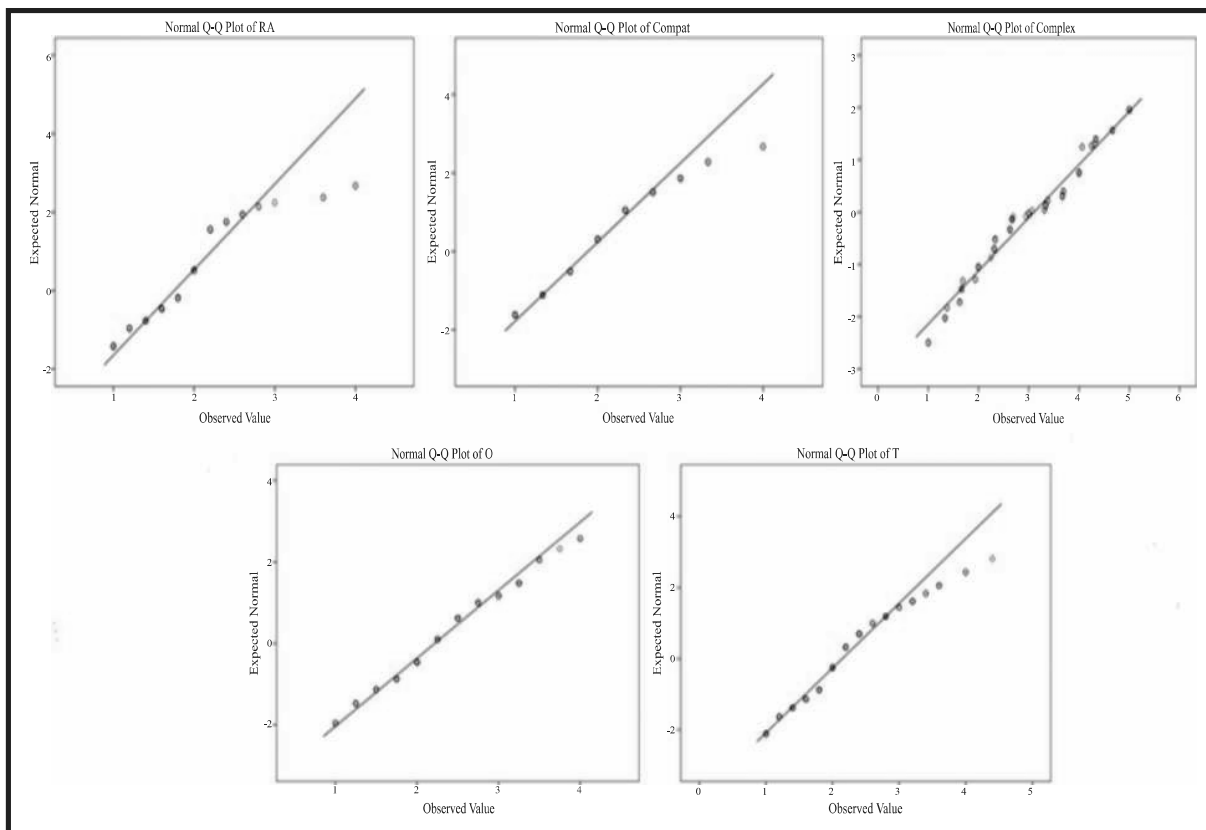


Fig. 2. Descriptive Statistics-Normality Tests Through (Q-Q Plots).

B. Inferential Analysis

Inferential data analysis using various statistical techniques to test the hypothesis mainly comprises two parts. The first part encompasses the assessment of association among the variable whether the relationship exists or not. The second part is more deliberate over the predictability of the dependent variable by the independent variables.

• *Correlation Analysis*

Statistical Correlation is the measure of association among different constructs, identifying

whether the relationship is weak or strong and positive or negative. At this point in the research the null hypothesis will be accepted or rejected based upon the r values and sig levels

Table IV below illustrates the relationship between the variables. All the independent variables are showing moderate strength of positive relationships with the criterion variable i.e. BI and also showing moderate positive association amongst each other with $0.7 > r > 0.3$ and $sig < 0.05$ resulting in rejection of null hypotheses.

TABLE IV
CORRELATION ANALYSIS – DOI CONSTRUCTS

		RA	Compat	Complex	O	T	D
RA	Pearson Correlation						
	Sig. (2-tailed)						
Compat	Pearson Correlation	.554**					
	Sig. (2-tailed)	.000					
Complex	Pearson Correlation	-.226**	-.085				
	Sig. (2-tailed)	.000	.090				
O	Pearson Correlation	.160**	.148**	.282**			
	Sig. (2-tailed)	.001	.003	.000			
T	Pearson Correlation	.229**	.225**	.210**	.631**		
	Sig. (2-tailed)	.000	.000	.000	.000		
D	Pearson Correlation	.608**	.573**	-.425*	.384**	.524**	
	Sig. (2-tailed)	.000	.000	.012	.000	.000	

• *Regression Analysis*

Table-V, the model summary of regression model shows value of R, known as multiple correlation coefficient, defined as the correlation among predicted and observed values of dependent variable,. The value of $R > 0.7$ indicates a strong positive association of the predictors with the criterion variable. Moreover the value of R Square which is coefficient of determination indicates that 60% of the variance in Behavioral Intention measured outcome can be accounted for by the model used for this research. The adjusted R Square narrates the predictive loss in R square value if the same model is applied to other similar samples.

TABLE V
MODEL SUMMARY OF REGRESSION MODEL

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	.777 ^a	.604	.598	.29410

a. Predictors: (Constant), RA, O, Complex, Compat, T

In the ANOVA Table VI below, the null hypothesis is that the model has no explanatory power and only if the $\text{sig} < 0.05$ of the F value then it lets rejection of the null hypothesis and allows to proceed further with regression analysis. Table-VI shows that $F = 99.500$ with $\text{sig} = 0.000$ which means that the model has sufficient explanatory power with regards to variance in Intention to adopt/ diffusion of e-government system (G2E Perspective) explained and accounted for by the

predictors, hence the model is fit to proceed further with the results of regression analysis and conclude the hypothesis testing process.

TABLE VI
ANALYSIS OF VARIANCE

ANOVA ^a						
Model		Sum of Squares		Mean Square	F	Sig.
1	Regression	51.636		8.606	99.5	.000 ^b
	Residual	33.905		0.086		
	Total	85.541				

a. Dependent Variable: D
b. Predictors: (Constant), RA, O, Complex, Compat, T

In Table VII T-value with its sig level is important which validates the predictability of dependent variable by the independent variable only if $\text{sig} < 0.05$. The overall tests and analysis performed predicted that, an instrumental relationship exists among independent and the dependent variables except for observability because the results of e-government during its launching and deployment phase are not much visible to the stakeholders: in this case employees working with conventional system, no matter how useful they actually are. If an innovation is useful but its results are hard to observe than it can be regarded as a useless innovation which hinders its rate of adoption. The software base innovations have a slow rate of adoption generally as its usefulness is not clearly observable.

TABLE VII
COEFFICIENTS FOR REGRESSION ANALYSIS

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
	B	Std Err	Beta			
1	Constant	.157	.098		1.603	.110
	RA	.334	.040	.330	8.268	.000
	Compat	.249	.037	.266	6.749	.000
	Complex	-.063	.017	-.134	-3.643	.000
	O	-.043	.033	-.056	-1.332	.184
	T	.357	.036	.424	9.956	.000

a. Dependent Variable: D

• *Summary of Inferential Analysis*

The results obtained for the concerned hypotheses are listed below in Table VIII.

TABLE VIII
SUMMARY OF INFERENTIAL ANALYSIS

Hypotheses	Results
Ho1	Not Supported
H1	Supported
Ho2	Not Supported
H2	Supported
Ho3	Not Supported
H3	Supported
Ho4	Not Supported
H4	Supported
Ho5	Not Supported
H5	Not Supported

VI. RESULTS AND DISCUSSION

To investigate the employees' intentions to embrace e-Government technology, this study was conducted using the Diffusion of Innovation model from which Perceived Attributes of Innovation were considered and this model was validated considering the scenario of e-Government (G2E perspective) in Pakistan. According to the results achieved, all the constructs influence Intention to Adopt/ Diffusion of e-Government system (G2E perspective) but when the combined effect was noticed Relative Advantage, Compatibility and Trialability were positively related to Intention to Adopt/ Diffusion of e-Government technology. Complexity was seen to have a negative relationship with Intention to Adopt/ Diffusion of e-Government technology (G2E perspective) while Observability were seen to have no profound association with Intention to Adopt/ Diffusion of e-Government technology. The outcome obtained from this study revealed several important findings for the fruitful acceptance and employment of e-Government

technology among Government employees of Pakistan.

If the technology is perceived to be useful by the government employees, then they will be more inclined to use/ adopt e-Government system. Thus government employees are ready to accept and adopt e-Government system because they believe that it offers a valuable advantage and usefulness in their work as it increases their efficiency. It was confirmed that if the technology is perceived to be complex by the government employees, then their willingness to use/ adopt e-Government technology will decrease. It shows that government employees are ready to accept and adopt e-Government system if it is easy to use and understand, in other words if it offers less complexity. Government should make the technology less complex for its efficient adoption. It was also seen that if the technology is well recognized by the employees' and its importance is already known to them so observability plays no major role in polishing their intention to adopt/ diffusion of e-Government systems. Trialability and Compatibility are considered to be very important constructs in DOI model and strong determinants for any technology. Trialability and compatibility are significant determining factors of Intention to Adopt/ Diffusion of e-Government in Pakistan's context, as the employees do realize its importance and it is compatible to their beliefs and trial usage also enhances their desire to use e-Government systems.

VII. CONCLUSION

This study was conducted to analyze Intention to Adopt/ Diffusion of e-Government system among government employees, through investigating the influence from Attributes of innovation based upon DOI theory and the previous literature. According to the results obtained, 60% of variance in Intention to Adopt/ Diffusion of e-Government system is explained/ influenced by the Perceived Attributes of Innovation investigated in this research. According to Roger (1983), Perceived Attributes of Innovation may explain 49-87% of variance in intention to adopt/ diffusion, hence considering the scenario of e-Government (G2E perspective) in Pakistan the theoretical framework stands validated with results falling within the prescribed range. Accordingly, Relative Advantage, Trialability, and Compatibility were found to be positively associated with the Intention to Adopt/ Diffusion of e-Government system. Observability was not found to be an important determinant which means whether the e- government system advantages are visible to the employees' or not does not hold much importance as compared to other determinants and Complexity shows a negative relationship for Intention to Adopt/ Diffusion of e-Government system.

VIII. RECOMMENDATIONS AND FUTURE WORK

Based on the statistical inferences and hypothesis testing carried out, promotion and diffusion of e-Government system among government employees of Pakistan is possible through extensive trainings on e-Government systems to acquaint the employees of its working. As e-Government is not yet fully implemented and is still in its initial phases, so to increase the awareness and acceptance, different seminars and workshops may be conducted for motivating users' to integrate the new trends in working lifestyle. The future researchers can include various government departments, citizens and businesses in order to diversify the research sample. The perception of employees will certainly change and alter with passage of time especially in case an awareness campaign is launched for the employment of e-Government system. Therefore the future research can be done as a longitudinal study in which researchers can identify all the changes and improvements in the perspective of employees after successful implementation of e-Government. Different moderating variables e.g. ICT knowledge, government policies etc. can be considered in future research. Future research work can employ other technology acceptance/ diffusion models to investigate the determinants affecting the efficient organization of e-Government systems in Pakistan.

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