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E-Government Adoption By Public Sector Employees In Dhaka.

MD SHUHEL MIAH [1*], ILHAM SENTOSA [2]

[1,2]UniKL Business School (UBIS), Universiti Kuala Lumpur, Kuala Lumpur, Malaysia
Corresponding author:
Email: md.shuhel@s.unikl.edu.my

Abstract:E-government essentially asserts the use of ICT, especially, use of internet to achieve better governments. Governments around the world, both developed and developing nations are trying to implement e-services. E-government is believed to enhance efficiency, transparency and facilitate the better work flow among public sector employees. However, the intentions of the public sector employees are influenced by several factors to adopt e-government. This study aims to identify the factors influencing the intention of the public sectors employees in Dhaka. TAM, DOI, UTAUT and UMEGA theories have been used to examine the factors. The factors which are derived from the literature are Perceived Usefulness, Perceived Ease of Use, Perceived Compatibility, Attitude, Social Influence and Performance Expectancy. Smart PLS 3.0 has been used as statistical tool to analyze the data and tests the conceptual model by using structural equation modeling. The finding of the study reveals the significant factors influencing the intention of the public sector employees in Dhaka. Research implications of this study are discussed.

Keywords: E-government, adoption, influencing factors, intention, public sector, employees

1. INTRODUCTION

Electronic government or (e-government) is about the utilization of information, communication Technology (ICT) for rethinking public administrations to make them more available, responsible, and powerful. It helps the viability and effectiveness of public organizations and builds their responsibility and straightforwardness in open dynamic (Glyptis, et al., 2020). Moreover, e-government supports the association of employees in public organizations. It raises the familiarity with citizens towards open projects. Subsequently, many governments throughout the world have been buckling down in executing different e-government activities for the improvement of government operation, enhance efficiency, managerial effectiveness, providing better services to the public (Yera, et al., 2020; Palaco, et al., 2019). In the event that the e-government driven organizations are executed adequately, the country will get more noteworthy advantages, and step by step will influence different territories of the administration. In e-government the all-out services are handled electronically, in this manner the administration is relied upon and expected to be improved gradually.

2. Background

By adopting e-government in a country will help in beating numerous weaknesses from various perspectives for example electronic cycle of activity will upgrade proficiency, chronicling archives that physically requires time, space and cash. While electronic upkeep of reports sets aside cash and time, recovery measure more advantageous than genuinely recovery of documents (Jacob Witarsyah, et al., 2019). E-government will likewise encourage organizations among government and citizens all the more adequately where citizen can access public services. These sorts of correspondences will improve government straightforwardness and guarantee responsibility to the citizens (Al-Refaie & Ramadna, 2020).

While, e-government has expanded straightforwardness and enhanced correspondence, it is also reduced the additional cost to government organizations. Alternately, citizen's reception of e-government driven organizations has much welcomed and agreeable in many nations. However, no investigations have endeavored to extensively comprehend the connection between benefit conveyances and use (Taamneh, Mohammed, Sahem Nawafleh & Shaker Aladwan, 2019). Regularly the discernment and desires for the client contrasts from the administration supplier in connection to key measurements, for example, productivity, usability, mindfulness, security, put stock in, enactment, accessibility, and openness. The assessment strategies, what's more, benchmarks at present utilized for estimating the administration clients' (citizen) discernment concerning above measurements frequently vary from those used to gauge the administration suppliers' (administration organization) impression of what constitutes best practice (Deng et al., 2018).Given the aforementioned arguments, the author suggests that the literatures which focus on e-government adoption 'collectively are

limited, as most scholars focus on one aspect only (i.e. either implementation or adoption) (Aljazzaf et al., 2020).

E-government, no doubt, has numerous benefits and it is essential to adopt e-government among public sector employees in Bangladesh like many other developing and developed countries (Chen & Aklikokou, 2020). However, appropriation of e-government among public area representatives neglected to a few elements. There is gap between the need of the e-government supported organizations and current circumstances in government are wide.

The purpose of this study to identify the factors affecting to adopt e-government among public sector employees in Dhaka. It is noticed that by effectively embracing e-government, the proficiency of this office can be duplicated from multiple points of view. It is believed that e-government has become a vital aspect of the current world and as of now Bangladesh Government is likewise moving towards digital Bangladesh. Developing nations like Bangladesh, there are numerous factors to embrace this e-government framework (Hariguna, Hung & Sukmana, 2019).

2.1 Literature Review

Developing e-government driven organizations internationally started in 1999, viewed as the start of the time of most punctual execution of e-government. Primarily as a data channel, governments around the globe started to build up web presence by giving government-related data through the Internet (Norris & Lloyd, 2006).

In the course of recent decades, governments have utilized data and correspondence innovations (ICTs) to coordinate their inside capacities and enhance their conveyance of administrations. Researchers and experts have conceptualized these different ICT patterns and alluded to them altogether as e-government (Manoharan & Ingrams, 2018). Researchers have examined the issues in embracing the new applications and frameworks that governments actualize in their countries. Nonetheless, few studies have provided details regarding the adoption of e-governments in the developing countries (Hernandez, 2019; Ibrahim & Zakaria, 2014).

ICT implementation in public sectors and other government organizations in the post bureaucratic model, forced to begin efficiency in the public sector and the productivity. In the mid-seventies and eighties, the IT literature in government associations was committed to computerization and automation (Dutton & Kraemer, 1979). With the internet and mass use of ICT toward the finish of a century ago government and policy management propelled the e-government (likewise called the electronic government, advanced government – particularly in U.S., electronic administration and similar) increment open assistance productivity, citizen interest and fair exercises (West, 2001) E-government and e-administration were first evolved in the Anglo-Saxon nations (United States of America, United Kingdom, Canada, and Australia) toward the end of 20th century (Roblek et al., 2020).

E-government driven organizations have solid potential in developing nations ' government framework for any nation including Malaysia. Not many studies shows that e-government can possibly change government itself , coming about expanding productivity, straightforwardness, responsibility and expanding trust of the resident of the nation.

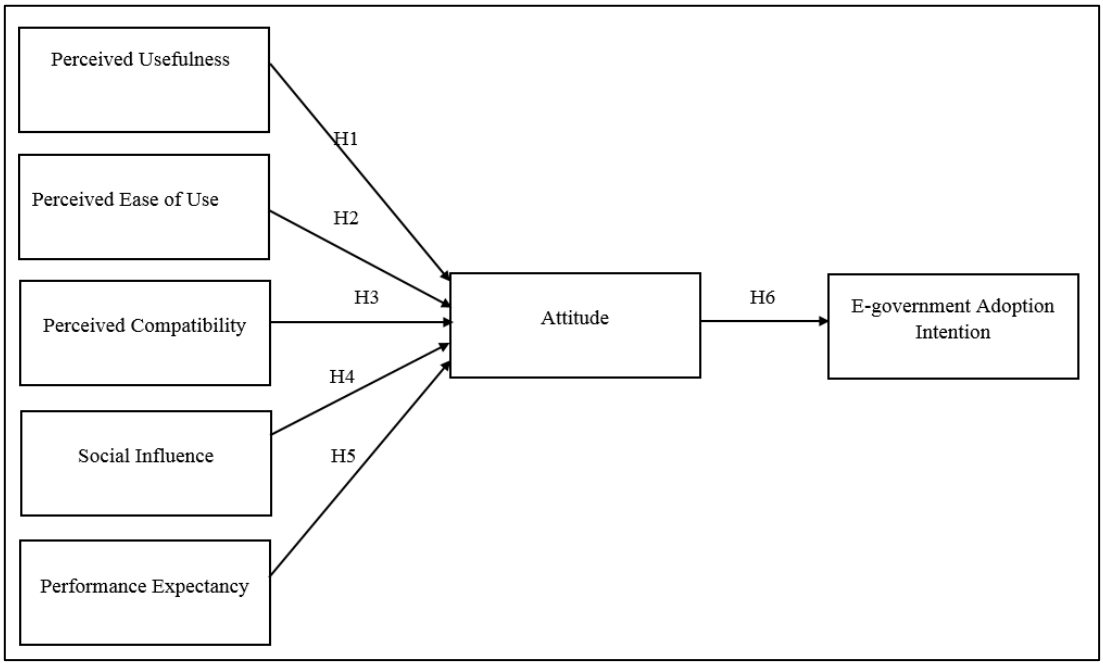

Fig.1: Research Frame work

2.2 Technology Acceptance Model

Technology acceptance Model or prominently known as TAM was developed by (Davis, 1989) as one of the most persuasive models of technology acceptance with two fundamental variables i.e. Perceived Usefulness and Perceived Ease of Use. Furthermore, Diffusion of of Innovation which is known as DOI is another significant models in technology acceptance Model developed by (Roger, 1995). Perceived Compatibility is of the variables in this model. Thirdly, Unified Theory of Acceptance and Use of Technology which is known as UTAUT was developed by (Venkatesh, Morris, and Davis, 2003) and unified model of e-government adoption (UMEGA) by Dwivedi et, al, 2017). This is very notable models for technology adoption and to identify the factors influencing technology adoption. This model is developed during the time fundamentally to contemplate technology adoptions. Numerous researchers, all over the world, have utilized the referenced speculations of TAM, DOI, UTAUT and UMEGA to inspect the factors influencing e-government adoption.

2.4 Hypothesis Development

H1: Perceived Usefulness has positive relationship with Attitude

The variable Perceived Usefulness (PU) indicates the behavioural intentions of the users to use information technology. Many literatures show that this is the primary determinant of intentions to use technology. PU also indicates all the services and benefits provided to the citizen by the e-government (Almukhlifi & Deng, 2018). Perceived usefulness is described as how much an individual trusts that using a particular system will update their movement execution (Sentosa et al., 2017). Consequently, it is believed that perceived usefulness has a positive relationship with attitude to adopt e-government by public sector employees.

H2: Perceived Ease of Use has positive relationship with Attitude

Perceived Ease of Use (PEOU) demonstrates how much the users anticipate that the objective framework should be liberated from endeavours (Davis, Bagozzi and Warshaw, 1989). To Davis PEOU has an immediate and positive connection in utilizing new technology by the employees. Davis likewise accentuates that PEOU is major compelling components that decides employees IT acceptance. Broad examination over the previous decade gives proof of the critical impact of PEOU, either legitimately or in a roundabout way through its impact on perceived ease of use (Sentosa et al., 2017). Subsequently, it is expected that PEOU has a positive relationship with attitude to adopt e-government by public sector employees.

H3: Perceived Compatibility has positive relationship with Attitude

Compatibility is the degree to which innovation fits effectively into the qualities and routine of a person. It also identifies with a man's capacity to collaborate with government through on the online or conventional techniques (Rogers, 1995). Compatibility is how much a development is seen as being steady with the current qualities, past encounters, and needs of potential adopters. Compatibility has a critical effect on subjects' goal to utilize e-government services (Carter & Bélanger, 2005). Therefore, it is said that perceived compatibility has a positive relationship with Attitude to adopt e-government by public sector employees.

H4 Social Influence has positive relationship with Attitude

Social Influence denoted the degree which determines the level of the perceptions of an individual from other people to adopt a new system (Venkatesh, Morris, Davis & Davis, 2003). Researchers have revealed that social influence has significant impact on the adoption and use of new technology. It is also noted that social influence has no significant effect on citizen's behavioural intentions or satisfactions which are key factors in technology adoption (Batara, Nurmandi, Warsito & Pribadi, 2017; Chan, Thong, Venkatesh, Brown, Hu, & Tam, 2010). So, it is believed that social influence is believed to have a positive relationship with Attitude to adopt e-government by public sector employees.

H5 Performance Expectancy has positive relationship with Attitude

It is noted that the idea of Performance Expectancy (PE) is derived from a number of factors such as PU (perceived usefulness), external motivations, competitive advantage, and outcome expectations (Isaac Kofi Mensah, 2019). PE is characterized as a degree to which an individual has faith in utilizing the structure or new technology will uphold the person to accomplish their objective, will quicken their employment execution (Chan, Strap, Venkatesh, Earthy colored, Hu, & Cap, 2010). PE is one of the significant variables of UTAUT that significantly affects conduct goal (Yang et al., 2017). Accordingly, it is believed that PE has positive relationship with Attitude to adopt e-government by public sector employees.

H6: Attitude has positive and significant relationship with Intention to use E-government

As stated in the literature 'attitude' is a person's positive or negative feelings about the performing target behaviour (Fishbein & Ajzen, 1975). In the context of TAM, attitude is essential variables (Ahmed et al., 2020). It is necessary to measure attitude towards implementations and perceptions regarding adopting new technology rather than implementations and attitude are directed towards technology because people could have a positive view about a technology without positive feeling towards its use. Therefore, Attitude has a positive relationship with E-government adoption Intention to adopt e-government by public sector employees.

3. Methodology

Quantitative approach was used to investigate to identify the factors influencing the intention to adopt e-government services by the public sector employees in Dhaka under local government division. The self-administered questionnaires were distributed among Dhaka South and Dhaka North City Corporation. These employees, particularly, in executive level are proving services to the citizens of Dhaka City. The employees are also provided with IT infrastructure, technological facilities especially access to the internet by the government to provide services to the citizens. The questionnaire consists of two sections. The first section (Section A) represents the demographic of respondents and second section (Section B) consists of 42 questions to measure the constructs of the study. Five demographic variables namely Age, Gender, Designation, Education level and work experience. Out of 37 indicators, five indicators of Perceived Usefulness (PU) were adopted from (Shajari & Ismail, 2014), five indicators of Perceived Ease of Use (PEOU) were adopted from (Shajari & Ismail, 2014), five indicators of Perceived Compatibility (PC) adopted from (Shajari & Ismail, 2014), Six indicators of Social Influence (SI) were adopted from (Stefanovic et al., 2016), six indicators of Performance Expectancy (PE) were adopted from (Tokdemir et al., 2017), five indicators of Attitude were adopted from (Dwivedi, Rana, Janssen, Lal, Williams, & Clement, 2017) and five indicators of E-government Adoption Intention were adopted from (Shajari & Ismail, 2014), respectively. Each indicators were measured on a four point Likert scale, ranging from Strongly Disagree (SD), Disagree (D), Agree (A) and Strongly Agree (SA). A four-point scale design is profoundly alluring when social desirability is suspected to influence the construct intended to be measured, subjects are heterogeneous in their abilities to segregate among classifications or when the interview administration technique makes it hard to utilize a bigger number of responses categorizes (Asún et al., 2015). Pilot test with 65 respondents was conducted to ensure the reliability and validity. Stratified sampling technique has been chosen for this purpose of this study. Stratified sampling is where total population is separated into strata (or subgroups) and a random example is taken from every subgroup. There are main nine division within Dhaka South and Dhaka North City Corporation. And data were collected randomly from all nine divisions' executive level employees. The guiding principle developed by (Krejcie & Morgan, 1970) as proposed by (Sekaran & Bougie, 2016) is a method to identify the sample size representing the entire population of 4444. Based on the target population of 4444, the sample size in accordance with would be 354 respondents. A total 450 questionnaires were distributed of which 428 were returned. After primary screening 403 questionnaires were found to usable for this current study.

Table 1: Demographic information of the respondents

Gender	**Frequency**	**Percentage**
Male	264	65.5%
Female	139	34.5%
Total	403	100.0%
Age group	Frequency	Percentage
25-30	154	38.2%
31-40	145	36.0%
41-50	74	18.4%
51-60	30	7.4%
Total	403	100.0%
Designation	Frequency	Percentage
Staff	359	89.1%
Departmental Head	44	10.9%
Total	403	100.0%
Education Level	Frequency	Percentage
Diploma	16	4.0 %
Bachelor	61	15.1%
Master's	317	78.7%
PhD	9	2.2%
Total	403	100.0%
Work Experience	Frequency	Percentage
0-5 years	144	35.7 %
6-10 years	126	31.3%
11-15 years	64	15.9%
16 years	69	17.1%
Total	403	100.0%

4.0 Data Analysis

Collected data were analyzed through SPSS and demographic information is shown in Table 1. Structural equation modelling (SEM) is a family of statistical models which pursue to explicate the relationships between multiple variables (Sentosa et al., 2019). The structural equation modelling observes the 'structure' of interrelationships articulated in a sequence of equations, comparable to a sequence of multiple regression equations. These equations represent all the relationships between constructs (the dependent and independent variables) elaborated in the analysis. Constructs are unobservable or latent factors signified by multiple variables (more like variables denoting a factor in factor analysis) (Romano et al., 2019). In this study, Partial Least Square which popularly known as VB-SEM is used to investigate theoretical model using PLS3.0. Even though there are some differences between terminology in PLS and SEM programs, the basic requirement of the structural model could be comparable (Hair et al., 2018, Sentosa et al., 2017). The model evaluation requires two inter-related models which are measurement model also knows as outer model and structural model also known as inner model.

4.1 Measurement Model Assessment

Convergent validity and discriminant validity were investigated in the measurement model. Evaluation of the measurement model which is alternatively known as outer model includes the assessment of relationships between observed variables and principle constructs. The measurement model should be tested for least internal consistency reliability, indicator reliability, convergent validity, and discriminant validity by applying standard decision rules from literature (Kante et al., 2018). PLS 3.0 has been used to check the internal consistency of the constructs. (Garson, 2016; Ghozali, 2015; Hair et al., 2018; Kante et al., 2018; Urbach & Ahlemann, 2010) suggest the value of internal consistency should be more than 0.60. All the scales of this current study demonstrated internal consistency value >0.70. For composite reliability more than 0.70 values are desirable. All the constructs should have >0.55 outer loading. For Average Variance Extracted (AVE), it has to be >0.5. To measure the discriminant validity as stated by (Henseler et al., 2014) is heterotrait-monotrait (HTMT). The correlations of indicators across constructs measuring different phenomena (Garson, 2016). HTMT value should be < 1(Garson, 2016; Urbach & Ahlemann, 2010). Table 2 shows the results:

Table 2: Combined results of Measurement Model

Constructs	Internal consistency	Composite Reliability	AVE	HTMT	Remarks
PU	0.783	0.846	0.527	0.154	All items are reliable and validated
PEOU	0.837	0.883	0.606	0.238	All items are reliable and validated
PC	0.842	0.886	0.610	0.190	All items are reliable and validated
AT	0.782	0.848	0.528	0.563	All items are reliable and validated
EAI	0.894	0.922	0.703	0.668	All items are reliable and validated
SI	0.866	0.906	0.647	0.137	All items are reliable and validated
PE	0.878	0.907	0.620	0.453	All items are reliable and validated

4.2 Structural Model Assessment

Once the reliability and validity of the outer model established, the next step is to measure structural model or inner model. Before assessing the structural relationships, collinearity must be examined to make sure it does not bias the regression results. This process is similar to assessing formative measurement models, but the latent variable scores of the exogenous constructs are used to calculate the VIF values (Hair et al., 2018). The assessment of structural model includes the significance of path coefficient popularly known as (R^2). (R^2) values explaining the variance of each endogenous constructs, (f^2) or effect size seeks to evaluate whether exogenous constructs have a substantive impact on endogenous constructs. It is important to determine the relevance and the extent to which the examined path changes the explaining power of the endogenous construct. Effect size (f^2) for each path model can be determined by calculating Cohen's (Cohen, 1988) (f^2). Effect size (f2) is the measurement of an independent LV has a substantial impact on a dependent LV. Values of .020, .150, .350 indicate the predictor variable's low, medium, or large effect in the structural model (Kante et al., 2018; Schmitz, Urbach & Ahlemann, 2010). Q^2 values larger than zero for a specific reflective endogenous latent variable indicate the path model's predictive relevance for a particular dependent construct (Hair et, al , 2018). Table 3 shows the summary results:

Table 3: summary Results of Structural Model

Constructs	VIF	R^2	F^2	Q^2
PC	1.184		0.351	
PE	1.424		0.151	
PEOU	1.211		0.090	
PU	1.481		0.034	
AT		0.465		0.224
EAI		0.405		0.432

4.3 Final Model

To investigate the significance of path coefficient, bootstrapping procedure (5000samples) were performed. The hypothesized relationships such as H1, H2, H3, H5 and H6 were proved significant; however, H4 was not supported. Figure 2 shows the results of the hypothesis testing, along with the structural relationships. The structural results indicate that the conceptual model of this study explains 63% of the variance to predict the factors influencing intention to adopt e-government services by the public sector employees. While the value of Q^2 is > 0, shows the predictive relevance. The recommendations of (Hair et al., 2018), estimations of F^2 is also considered.

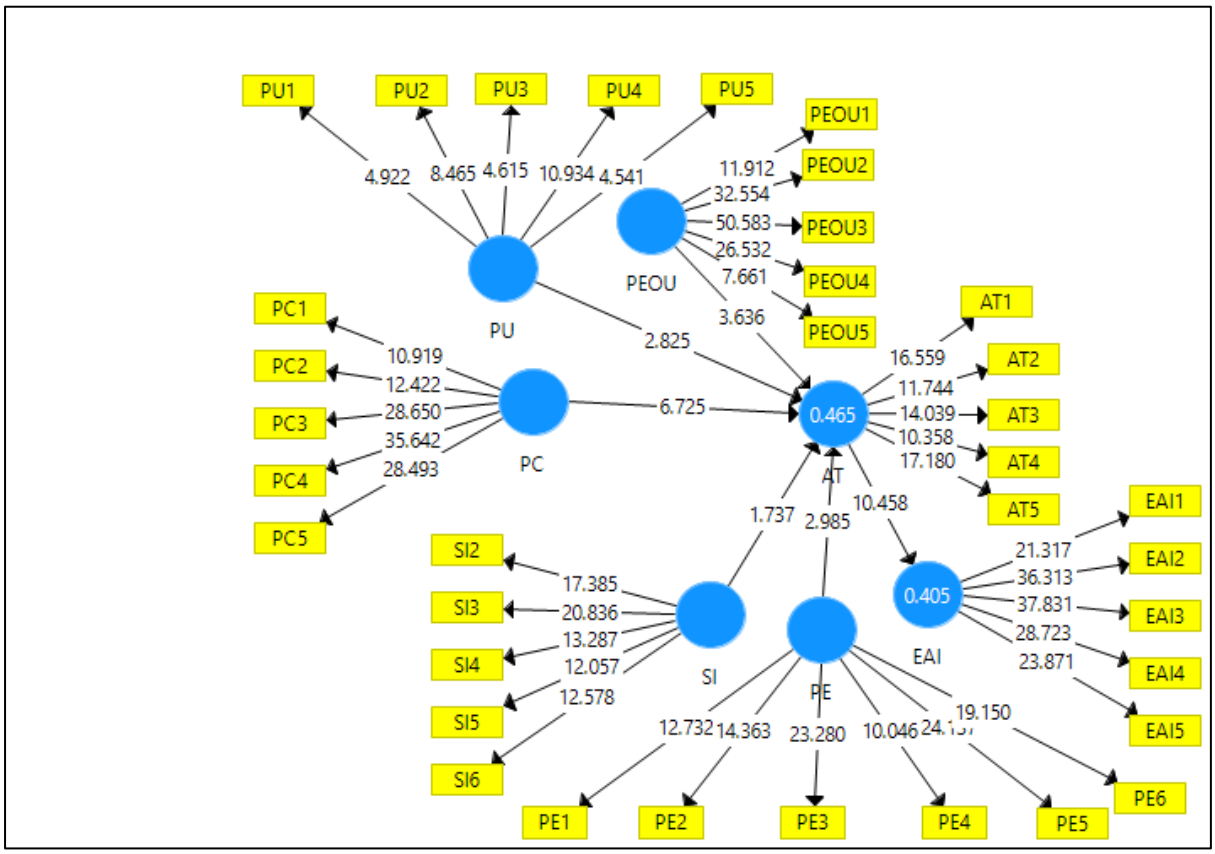

Fig.2: Hypothesized Relationships

Table 4: Summary of Hypothesis

Hypotheses	Path links	Path coefficients (ß)	P-value	Supported
H1	PU AT▶	2.825	0.014	YES
H2	PEOU AT▶	3.636	0.000	YES

H3	PC AT	6.725	0.000	YES
H4	SI AT	1.737	0.099	NO
H5	PE AT	2.985	0.001	YES
H6	AT EAI	10.458	0.000	YES

5. Findings and Discussion & Conclusion

The results of the formulated hypothesis show that 5 out of 6 hypotheses are fully supported while one is rejected. The first hypothesis H1 anticipated a positive relationship between Perceived Usefulness and Attitude to adopt e-government services by the public sector employees while the empirical support is (ß = 2.825, p <0.01). Various studies also support this findings (Cohen, 1988; Garson, 2016; Hair, Hult, Ringle & Sarstedt, 2016; Henseler et al., 2016; Kante et al., 2018; Urbach & Ahlemann, 2010). It is noted that Perceived Usefulness is a significant factor that influence the intention of the public sector employees to adopt e-government. Similarly, the second hypothesis or H2 Perceived Ease of Use (ß = 3.636, p <0.00), indicates a significant relationship between Perceived Ease of Use and Attitude to adopt e-government services by the public sector employees. This also indicates that Perceived Ease of Use is a significant factor influencing the intention of public sector employees to adopt e-government. In addition, findings of the (Henseler et al., 2016; Kante et al., 2018; Urbach & Ahlemann, 2010) supports this study. It is stated that Perceived Ease of Use influences public sector employees' intention to adopt e-government. H3 Perceived Compatibility (ß = 6.725, p <0.00) also shows a positive and significant relationship between Perceived Compatibility and Attitude to adopt e-government by the public sector employees. The results indicate better compatibility is associated with the adoption e-government by the public sector employees. This constructs has cultural, behavioural and social aspects that significantly influence the intention of public sector employees to adopt e-government. Next, H5 Performance Expectancy (ß = 2.985, p <0.00), also shows positive and significant relation between Performance Expectancy and Attitude to adopt e-government by the public sector employees. Usually, government employees are demotivated to adopt new technology due to complications and inconvenience, however, seeing the expedition in their performance, this construct significantly influence the intention of the public sector employees to adopt e-government. Next, H6 Attitude (ß = 10.458, p <0.00), shows that the relationship between Attitude and E-government Adoption Intention has a positive and significant relationship. This clearly indicates that positive attitudes are highly associates with the intention to adopt e-government services by the public sector employees. However, H4 Social Influence (ß = 1.737, p <0.09) doesn't support this hypothesis, indicating that Social Influence isn't a significant factor influencing the intention of public sector employees in Dhaka to adopt e-government services. Nonetheless, findings of this hypothesis is supported by (Isaac Kofi Mensah, 2019). This result also indicates that government officials are having very diminutive impression about the information technology at the work place. Therefore, government should take more initiatives to introduce information technology at the work place rather the traditional means of operation to provide service the citizens.

(Talukder, 2019) suggests that government employees should be provided with training and awareness programs to aware employees regarding new technologies and innovations. This will motivate and encourage employees and increase the sense of usefulness and perceived ease of use. (Mensah, 2020) suggests that information systems and analysts designers should design user friendly ICT system, android or IOS based apps to make employees to be compatible with new technologies. Government should focus on adequate training and support to their employees while implementing and using such IT system. Government should facilitate the IT resources and implement online services (Al-Ma'aitah, 2019). It is essential to enhance the IT skills of government officials. Government should investigate the ICT weakness and recommend required financial investments. In order to develop positive attitude among public sector employees government should focus on awareness. It is found that awareness is one of the most important factors that increase or decrease positive attitude of the employees. It is equally important to keep abreast employees regarding the latest information and technology. An introduction of e-government among public sector employees though seminars, exhibition, periodical bulletins can be done (Tan, Zhao & Zhang, 2020). A proper orientation of e-government among public sector employees will enhance their perceived usefulness, perceived ease of use, perceived compatibility, and performance expectancy, will increase performance expectancy, develop positive attitude. The orientation should include the benefits of e-government and how to use the services (Ziba & Kang, 2020).

The findings of the study will help the local government to develop regulatory framework and working policy to adopt e-government among public sector employees. Successful adoption will not only help the government employees but also ensure efficient services to the citizens of the country. Private organizations can also use this frame work to adopt e-government in their respective organization. This study has combined TAM, DOI and

UTAUT to examine the factors influencing intention of public sector employees to adopt e-government. Factors identified will increase the e-government literature. This study has some limitations as well. This study is conducted in quantitative method, in future, mix method can be applied. This study is conducted among public sector employees, further research, can be conducted among citizen.

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