

# **Governmental Trust, Active Citizenship, and E-Government Acceptance in Lebanon**

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*This research investigates important issues related to e-government services utilization and adoption in a developing country. The purpose was to investigate the primary antecedents related to intention to use e-government services within the context of an emerging market. Lebanon is a small developing market that is making significant investments in e-government technology. The expectation is that it will help to improve quality of life and decrease corruption, which is often connected to governmental services that lack automated processes or transparency in payments. A population of 454 Lebanese citizens were field surveyed, with a final useable sample of 296 respondents. The strong predictive power of the model is an important contribution to understanding consumer consumption of e-government services in a developing country with a pervasive perception of corruption by citizens.*

## **INTRODUCTION**

According to the World Bank, e-government refers to the “use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends; better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions” (World Bank, 2003).

Governments today are continuing to invest heavily in e-services. However, in several countries, the tangible returns (e.g. increasing the citizen usage of public e-services) on these investments have not been as high as expected (Bhatnagar, 2010). In some cases where the economy is growing, governments can finance these programs from taxes, but in developing countries investment for such projects is often provided through public private partnerships, international non-governmental aid (NGO) organizations, and quasi-governmental organizations such as the World Bank (Bhatnagar, 2010; United Nations, 2012). The failure of e-government programs in developing countries (60% to 80%) and the low usage rate of e-service (6.3% in world) has led these groups to limit or review their investment in e-government (Heeks & Bailur, 2007; Bhatnagar, 2010). Thus, governments in developing countries need to change their strategies to increase e-service utilization to attract these investments. One recommendation to increase e-

services usage is the use of consumer education through training (Almahamid, Mcadams, Al Kalaldehy, & Al-Sa'eed, 2010; Patel et al., 2008; Weerakkody & Choudrie, 2005).

Lebanon, the developing country that is the focus of this study, is one of the oldest democracies in the Middle East and citizens are often proud in participating and engaging in civil and political issues. However, "Lebanon has a heterogeneous society characterized by the existing of 18 religious subgroups" (Harfouche & Robbin, 2012, p. 13). In Lebanon, only 15% of citizens have stated an intention to use public e-services (Harfouche & Robbin, 2012, p. 22). The primary purpose of this research is to investigate acceptance of e-government technology within a consumer context in the emerging economy of Lebanon. The objective is to build on the foundation of previous e-government research by incorporating constructs of trust in government, active citizenship, trust in the internet, and habit into a theoretically supported model in the context of an emerging market.

## **THEORY AND LITERATURE REVIEW**

### **E-Government in Lebanon**

The Lebanese Republic has a relative small area of 10,452 sq. km and the population is over 4.2 million with more than 10 million Lebanese living abroad. The Lebanese economy depends largely on services and is driven by tourism (mainly from the Arab countries and Lebanese expats) and the banking sector. The GDP estimation is 71.185 trillion LBP in 2013 (\$47.22 billion).

The United Nations' Electronic Government Readiness Index for 2014 ranked Lebanon in 89th place globally (United Nations, 2014). However, Lebanon has undertaken a series of initiatives over the past fifteen years to develop a vision, policy, and a strategy for e-government based on administrative reform. The overall objective of this strategy is to realize economic and social benefits and quality-of-life improvements for all Lebanese citizens.

One of the key objectives of e-government in Lebanon is to decrease corruption. Lebanon was recently ranked 123rd over 167 countries in 2015 in the Corruption Perceptions Index (CPI). "Wasta" or connections defined as "forces in interpersonal networks, every significant decision, and connections that pervade all aspects of business and social life" (Alawadhi & Morris, 2009, p. 589) is everywhere in Lebanon and is an important means of doing business. According to Harfouche & Robbin (2012, p. 14), "the Lebanese developed tools such as Wasta as methods that can assure trust in their daily transactions". Citizens are often confronted with paying bribes to government employees or intermediaries in order to complete a transaction with any agency or ministry in the republic. E-government transactions are intended to limit both Wasta and bribery (Alawadhi & Morris, 2009).

### **Technology Acceptance and E-Government**

The Technology Acceptance Model (TAM) (Davis, 1989) has been the most widely used model in e-government adoption research (Rana et al. 2012). Furthermore, it is used in 1,700 citations in the Social Science Citation Index and 5,000 citations in Google Scholar (Venkatesh & Bala, 2008), thus underscoring its impact on Information Systems as a discipline. However, TAM has reached a state of maturity due its simplicity and parsimony.

Extending beyond technology acceptance and further into the area of technology utilization, The Unified Theory of Acceptance and Utilization of Technology (UTAUT) synthesizes eight models to explain user acceptance of technology. The eight synthesized models were the theory of reasoned action (Ajzen & Fishbein, 1980), the technology acceptance model (Davis, 1989), the motivational model (Davis et al., 1992), the theory of planned behaviour (Ajzen, 1991), the model of PC utilization (Thompson et al., 1991), innovation diffusion theory (Rogers, 1995), and Social Cognitive Theory in technology (Bandura, 1986; Compeau & Higgins, 1995). UTAUT uses four constructs that include performance expectancy, effort expectancy, social influence and facilitating conditions. It also includes four moderators including experience, age, gender and voluntarism as determinants of intention and behaviour. **Table 1** displays a list of studies relevant to this research on the adoption of e-government using UTAUT.

Although UTAUT synthesizes many models, it is not easily adapted for studying consumer behaviour in the e-government context. According to Colesca & Liliana (2008, p. 141), “the model is best used to measure technology acceptance in companies”. Venkatesh, Thong, & Xu (2012, p. 157) also indicate that the model is “developed to explain employee technology acceptance and use”. Addressing this issue, Venkatesh et al., (2012) created UTAUTv2 by adding additional constructs to the original model that better suited consumer behaviour studies and removed voluntarism as moderator of the use of technology as a voluntary decision (Venkatesh et al., 2012). UTAUTv2 is a recent model not used in the e-government adoption studies and it a foundation for the research model in this study. As suggested by Williams et al. (2011), this study also extends UTAUTv2 within the e-government with additional variables relevant to an emerging market context. These variables include active citizenship, trust in the government, and trust in the internet as antecedents to theoretically relevant UTAUTv2 constructs.

**TABLE 1**  
**RELEVANT EMERGING MARKET LITERATURE ON E-GOVERNMENT AND UTAUT**

<b>Description</b>	<b>Method</b>	<b>Key Finding and Argument</b>
Wang, 2006	Field Survey Taiwan	Performance Expectancy is the strongest predictor of user intention to use an information kiosk. Effort Expectancy and social influence showed significant influence on individual intention to use information kiosk.
Dijk, Peters, & Ebbers, 2008	Field Survey Holland	Acceptance and use of government internet services is a matter of learning. People will stick to their habit of using traditional channels unless they happen to learn a better alternative. Knowledge of the availability of government services is a condition of actual use.
Al-Shafi & Weerakkody, 2009	Interview+ Field Survey Qatar	Performance expectancy, Effort expectancy and social influence showed significance to intent to use e-government.
Carter, Shaupp, Hobbs, & Campbell, 2011	Field Survey United States	Performance expectancy, Effort expectancy, Social Influence, Web Specific Self-Efficacy, and Perceived Security Control, are significant predictors of taxpayer’s intention to use an e-file system.
Schaupp & McBride, 2011	Field Survey United States	Performance expectancy, social influence, trust of the government, computer anxiety and optimism bias all have a significant impact on intention to e-file.
Al-Sobhi et al., 2011	Field Survey Saudi Arabia	Effort expectancy, trust of internet and intermediary showed significance. Performance expectancy and social influence did not show significance.
Ahmad et al., 2012	Field Survey Pakistan	Lack of knowledge in new e-government services was high (73.68%). Effort expectancy showed high significance.
Ahmad, Markkula, & Oivo, 2013	Field Survey Pakistan	Lack of awareness was identified as a major problem by a higher number of non-users. Lack of adequate assistance/facilitating conditions was significant. Performance expectancy, effort expectancy, facilitating conditions and social influence all showed significance.
Weerakkody, El-Haddadeh, & Al-Sobhi, 2013	Field Survey Saudi Arabia	Performance expectancy and effort expectancy have a significant positive effect on the behavioural intention

Description	Method	Key Finding and Argument
Voutinioti, 2013	Field Survey Greece	Effort Expectancy was the most important factor influencing citizen's trust.
Nasri& Abbas, 2015	Field Survey Kuwait	Performance expectancy, effort expectancy, facilitating conditions, and social influence were the primary drivers of the behavioural intent to use E-government services
Faaeq, Alqasa, & Al-Matar, 2015	Field Survey Iraq	Performance expectancy, effort expectancy, and effort expectancy showed significance. Social influence was not significant
K. M. Ahmad & Campbell, 2015	Field Survey Kuristan Region of Iraq	Social influence significant in both cases (informational and transactional e-government), Facilitating conditions significant in the first case

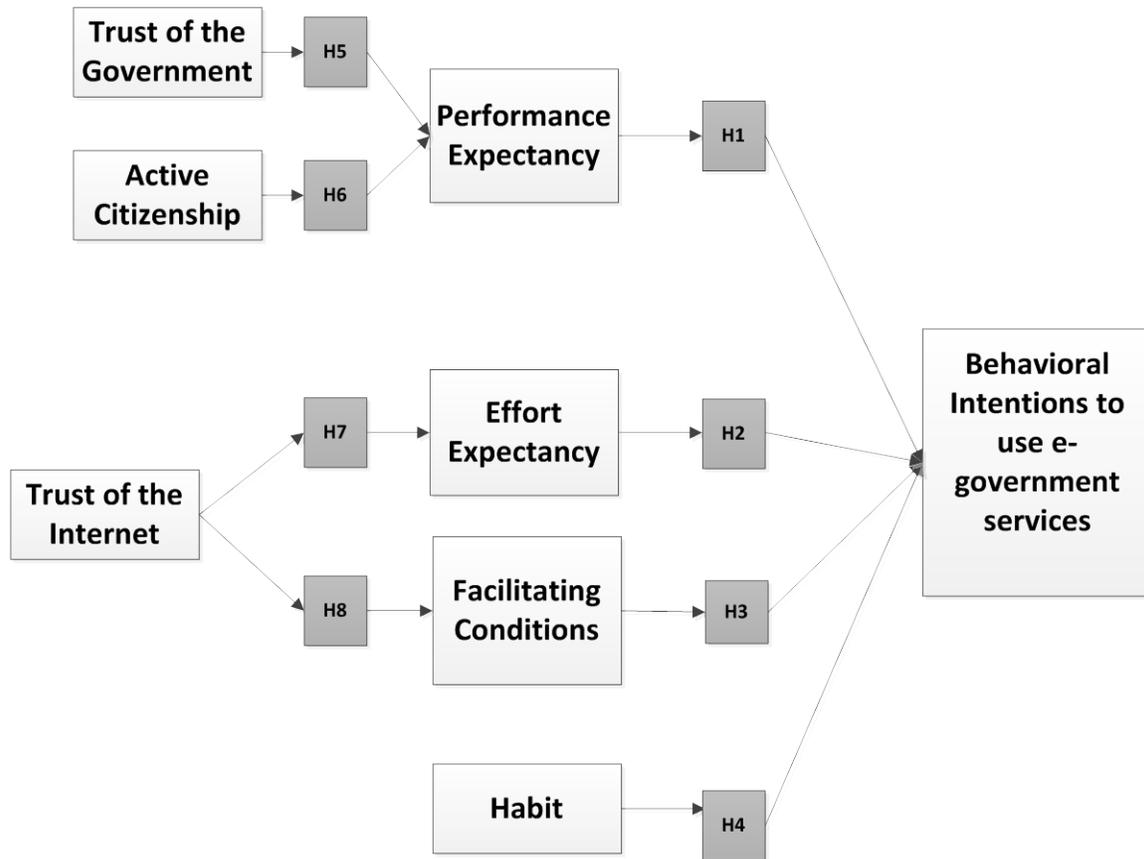
## RESEARCH MODEL AND HYPOTHESES

The research model within this study examines the relationship of three independent variables; trust in government, active citizenship, trust in the internet as antecedents to relevant UTAUT2 drivers of behavioural intent to use e-government services. **Table 2** shows key constructs of the model and their definitions as they have been adapted for this study. The research model for this study is illustrated in **Figure 1**.

**TABLE 2**  
**STUDY KEY TERMS AND DEFINITIONS**

Determinants	Definitions
Performance Expectancy	The degree to which using a technology will provide benefits to consumers in performing certain activities (Venkatesh et al., 2012).
Effort expectancy	The degree of ease associated with consumers' use of technology
Habit	The extent to which people tend to perform behaviours automatically because of learning (Venkatesh et al., 2012).
Facilitating conditions	Consumers' perceptions of the resources and support available to perform a behaviour (Venkatesh et al., 2012).
Trust of the Internet	Trust in the security measures, safety nets and performance structures of this electronic channel (Carter and Belanger 2008).
Trust of the Government	Perceptions regarding the integrity and ability of the agency providing the service (Carter and Belanger, 2008).
Active Citizenship	Participation in civil society, community and/or political life, characterised by mutual respect and non-violence and in accordance with human rights and democracy (Hoskins & Mascherini, 2009).
Behavioural Intentions to Use E-Government Services	Person's intention to perform various behaviours (Ajzen & Fishbein, 1975, p. 12).

**FIGURE 1  
THE RESEARCH MODEL**



**Performance Expectancy**

Performance Expectancy is defined as the degree to which using a technology will provide benefits to consumers in performing certain activities (Venkatesh et al., 2003). Performance Expectancy is found most significant in the adoption of technology in the organizational context (Venkatesh et al., 2003). In e-government acceptance studies, this construct is also a strong determinant of e-government adoption (Al-Shafi & Weerakkody, 2009; Carter et al. 2011; Ahmad et al. 2012; 2013; Weerakkody et al., 2013) . For example, in the context of the digital information kiosk, accessing information quickly and efficiently is a key determinant of performance expectancy (Wang, 2006). In a study on of e-file diffusion and usage in the US, performance expectancy also scores high because citizens are more likely to adopt the filing of their taxes online, since it is more efficient and faster channel than using a traditional accountant (Schaupp & McBride, 2011). The first hypothesis therefore states:

*H<sub>1</sub>: Performance expectancy has a positive effect on behavioural intentions to use e-government services.*

**Effort Expectancy**

Effort expectancy is defined as the degree of ease associated with the use of the system (Venkatesh, Morris, Davis, & Davis, 2003). Al-Sobhi et al. (2011) found that effort expectancy was the most influential construct related to the adoption of e-government services in Saudi Arabia. Effort expectancy

also showed varying degrees of significance in different studies for adoption of e-government services in Taiwan (Wang, 2006), Qatar (Al-Shafi & Weerakkody, 2009), the United States (Carter et al., 2011), Pakistan (Ahmad, Markkula, & Oivo, 2013) and Saudi Arabia (Weerakkody, El-Haddadeh, & Al-Sobhi, 2013). The second hypothesis of this study therefore states:

*H<sub>2</sub>: Effort expectancy has a positive effect on behavioural intentions to use e-government services*

### **Facilitating Conditions**

Facilitating conditions is one of the UTAUT2 construct and is the consumers' perceptions of the resources and support available to perform a behaviour (Venkatesh et al., 2012). This construct has been measured and validated as a predictor of usage in the e-government adoption context (Ahmad et al., 2012, 2013; Wang, 2006). It is relevant in this study because support resources are less available in developing countries (Nuq, 2012). The third hypothesis therefore states:

*H<sub>3</sub>: Facilitating conditions has a positive effect on behavioural intentions to use e-government services.*

### **Habit**

Habit is defined as the extent to which people tend to perform behaviours automatically because of learning (Venkatesh et al., 2012). In a study of e-government adoption in The Netherlands, Dijk et al. (2008) argue that citizens will stick to their habit unless they learn better alternatives than traditional channels (face to face advice from staff, making contact with a real person). Citizens generally prefer to use traditional channels while dealing with the government (Kunstelj, Juki, & Vintar, 2007). Hung, Chang, & Yu (2006) suggest studying habit in future research for the use of e-government. In the context of senior citizen adoption of e-government services, Sutanto et al. (2006) indicate that older people tend to develop habit and stick to it. However, Jaeger (2003) indicates that citizens can change their habit if they start to use e-government services and that "they tend to continue using e-government". Lankton & Wilson (2007) also recommend studying the effect of habit on the antecedents of e-services in future studies. The fourth hypothesis therefore states:

*H<sub>4</sub>: Habit has a positive effect on behavioural intentions to use e-government services.*

### **Trust of the Government**

Trust in government is defined as perceptions regarding the integrity and ability of the agency providing the service (Carter and Belanger, 2008). Lack of trust is considered a barrier to the adoption of electronic services in several studies. In an analysis of 78 papers on challenges and barriers on e-government adoption, Rana et al. (2013) find that trust is one the most frequently used keywords in e-government research. Fifty-five percent of respondents in the United Kingdom didn't trust the e-services offered by the government (Weerakkody & Choudrie, 2005, p. 38). Akhter, Kumar, Kumar, & Dwivedi (2011, p. 27) add the critical point that "if e-Government fails to develop perception of trust among citizens, it will not attain its full potential". E-government builds trust because it offers an "open and transparent government and more efficient service delivery could help restore that trust" (Tolbert & Mossberger, 2006, p. 354). In a study in South Africa, Mpinganjira (2015) found that trust in the internet and in government as a provider of e-services are important factors differentiating users and non-users of e-government services. In Lebanon, citizens sometimes bribe government employees to complete their necessary transactions because otherwise they do not trust that the transaction will be completed efficiently and on time. The fifth hypothesis therefore states:

*H<sub>5</sub>: Trust of the government has a positive effect on perceived performance expectancy.*

## **Active Citizenship**

Active citizenship is defined as participation in civil society, community and/or political life, characterised by mutual respect and non-violence and in accordance with human rights and democracy (Hoskins & Mascherini, 2009). The European Commission has defined an indicator The Active Citizenship Composite Indicator (ACCI) to measure active citizenship based on four operational dimensions of Protest and Social Change, Community Life, Representative Democracy, and Democratic Values. In Europe, this indicator has proven to be a useful tool for monitoring levels of citizenship. Active citizenship has not been measured previously in Lebanon. The topic is a priority to the Lebanese government because active citizenship is a critical response for social cohesion and reconstruction in conflict-affected areas (Akar, 2014). Encouraging active citizenship will help citizens avoid controversial issues mainly due to the plurality of a Lebanese society that has eighteen recognized sects, is known by its diversity, and has suffered civil war for several years.

Active citizenship implies empowered, engaged, participatory citizens (Fakhoury & Aubert, 2015). Olphert & Damodoran (2007) add that the active citizen's contribution throughout a process will likely increase his engagement and participation. The more the citizen is involved in a process, the more he will be to draw the benefits from them and to adapt them to his own needs and expectations. The sixth hypothesis therefore states:

*H<sub>6</sub>: Active citizenship has a positive effect on perceived expectancy.*

## **Trust of the Internet**

Trust of the Internet is defined as trust in the security measures, safety nets and performance structures of this electronic channel (Carter & Belanger, 2008). By definition, security is a main issue of trust while privacy is a strong antecedent (Lean, Zailani, Ramayah, & Fernando, 2009). Government is responsible to protect the security and privacy issue of their users/citizens and hence to improve their trust when using e-government services (Jaeger, 2003). Security and privacy issues were cited as a barrier for using e-government in thirty-seven percent and twenty-nine percent respectively in studies done between 2000 and 2004 for local government in the United States (Coursey & Norris, 2008). The internet, an important infrastructure for e-government services is still "a source of uncertainty for citizens" (Voutinioti, 2013, p. 3). That is, a lack of trust represents a strong barrier to the ease of use of the Internet due to security, privacy, and transparency concerns by users. The seventh and eighth hypotheses therefore state:

*H<sub>7</sub>: Trust of the Internet has a positive effect on effort expectancy.*

*H<sub>8</sub>: Trust of the Internet has a positive effect on facilitating conditions.*

## **METHOD**

This study was conducted in Lebanon with a representative sample of consumers who had already experienced and accessed the Internet through their PC or their mobile device. The research model was tested on two websites ([www.dawlati.gov.lb](http://www.dawlati.gov.lb) and [eservices.finance.gov.lb](http://eservices.finance.gov.lb)) and their mobile apps. The Lebanese Office of Minister for Administrative Reform (OMSAR) initiated the website [www.dawlati.gov.lb](http://www.dawlati.gov.lb) and its mobile apps. The purpose of the portal is to contribute to the quality and efficiency of government by providing citizens access to information and services and realize transparent, democratic government interaction processes thus reducing required paper documents and lessening citizen's visits to government offices through online administration services. In addition, other government agency web sites and services can be accessed through the portal giving them additional visibility. Informational content, e-forms, and e-services (including tracking a transaction) from three different entities are possible through the web and the mobile apps available in Apple, Android and Blackberry versions.

The website [eservices.finance.gov.lb](http://eservices.finance.gov.lb) is the portal for taxpayers to submit declarations, review their profiles, check for due amounts, and receive notification mails. Private organizations and individuals use this website to carry out their annual tax declaration through the internet. E-taxation was the first e-service launched in 2013 by the Ministry of Finance to enable taxpayers to file and process their tax transactions through the web. Tax inquiry is another e-service introduced by the Ministry of Finance to check the amount of the tax on build property.

### Measurement and Sample

This study utilized a field survey and validated measurements were adapted from prior research. Measurements from the UTAUT v2 constructs including performance expectancy, effort expectancy, habit, facilitating conditions, behaviour intention to use were adapted from (Venkatesh et al., 2012). The measurement scales for trust in internet and trust in government were adapted from (Carter & Belanger, 2008). Items were measured using a seven-point Likert scale, with the anchors being one for “strongly disagree” and seven for “strongly agree”. For the ACCI, we followed (Hoskins & Mascherini, 2009). Wording was modified slightly in some instances to fit the e-government services context in Lebanon. For a full list of questions within this measurement, please refer to (Hoskins & Mascherini, 2009).

The cross-sectional study was conducted via online survey utilizing Qualtrics software. A population of 454 Lebanese citizens received the request to participate with 296 complete responses, resulting in a 65.2% response rate.

## ANALYSIS AND RESULTS

### Validity

The results shown in **Table 3** indicate a strong Cronbach’s Alpha for all constructs confirming internal reliability and convergence of all constructs (Hair Jr., Black, Babin, & Anderson, 2010). To evaluate the discriminant validity, we compared the square root of the average variance extracted of each measurement construct with the correlations between factors (Fornell & Larcker, 1981). In each case, the square root of the average variance extracted exceeds the correlation of the other respective measurement constructs within the model confirming discriminant validity of the constructs.

**TABLE 3**  
**MEASUREMENT VALIDITY**

	<b>α</b>	<b>PE</b>	<b>EE</b>	<b>FC</b>	<b>HAB</b>	<b>TOI</b>	<b>TOG</b>	<b>BI</b>
Performance Expectancy	0.94	<b>0.904</b>						
Effort expectancy	0.92	0.775	<b>0.875</b>					
Facilitating conditions	0.89	0.662	0.719	<b>0.868</b>				
Habit	0.89	0.593	0.605	0.572	<b>0.834</b>			
Trust of internet	0.88	0.422	0.475	0.394	0.591	<b>0.850</b>		
Trust of Government	0.89	0.266	0.360	0.287	0.493	0.790	<b>0.859</b>	
Behavioural Intent	0.96	0.796	0.755	0.708	0.685	0.507	0.392	<b>0.953</b>

The square root the average variance extracted is inserted on the diagonal and printed in bold.

Note: ACCI is a composite indicator

### **Model Testing and Re-Specification**

The research model was tested using AMOS 23.0 structural equation modelling (SEM) software, and the initial model did not show strong fit. The chi-square/df statistic of the original model was 48.143, suggesting poor fit. As further indication of poor model fit, the goodness of fit index (GFI) was .569, below the .90 benchmark. The root mean squared error of approximation (RMSEA) was also .400, below the .080 benchmark typically used for acceptable fit of a structural model.

Because initial measurement models often fail to provide acceptable fit, an alternative is model generation (Anderson & Gerbing, 1988; Joreskog, 1993). When the initial model is rejected, then the model may be modified and tested again using the same data. Giving the complexity of SEM, Hooper, Coughlan, & Mullen (2008a) depict that it is not uncommon to find that the fit of a proposed model is poor. There are three distinct strategies for model development and modification; 1) Strictly confirmatory, 2) Model generation, and 3) Model comparison (Hoyle, 1995).

Model generation is used widely in practice but should be used with caution because it is important that any modifications made to the original model must be substantively meaningful and justifiable (Hoyle, 1995). As noted by Chin (1998), utilizing this method becomes more exploratory than confirmatory in nature and should be used only when it is based on strong theoretical grounds or performing appropriate cross-validation with a new data sample. While it was not possible to cross-validate this study with a new matching data sample, it does have a strong theoretical foundation. This study therefore qualifies to utilize model generation within the analysis. Model generation uses indices that identify relevant mis-specified parameters and error correlations (Hooper, Coughlan, & Mullen, 2008b; Nachtigall, Kroehne, Funke, & Steyer, 2003), which can predict which path if added to the structural diagram would decrease the chi-square fit statistics the most (Joreskog & Sorbom, 1984). Re-specification of the model in this study using this method with theoretically paths substantially improved the fit of the model. As a rule of thumb, modification indices indicating a reduction in the chi-square of 20 and above are employed in determining whether structural paths needed to be unconstrained (Cabrera, Nora and Castaneda, 1993).

Modification indices indicated that the variables of performance expectancy, effort expectancy, habit, and facilitating conditions had correlations in error variance. Initial discriminant validity testing showed a high correlation between these constructs, however the square root of the average variance extracted exceeded the correlations between the respective measurements. Byrne (2005) suggests that in situations particularly with respect to social psychological research, correlated errors make strong substantive sense and therefore should be included in the model. Malang (2014) also adds that if these parameters did not cause significant change on structural coefficients, then it is acceptable. After re-specification of the research model in this study, there was no significant change on the structural coefficients. Thus, the correlation of the errors variances noted above were justified (Hooper et al., 2008b).

Next, the results of the initial model testing implied a mediating effect between performance expectancy and effort expectancy. Al-Qeisi, Dennis, Hegazy, & Abbad (2015) measured and validated a mediating effect of PE between EE, thus providing theoretical justification for a relationship between PE and EE. Additional research also reports these links between the two variables (Al-Qeisi & Al-Abdellah, 2003; Al-Qeisi et al., 2014). Thus, adding a structural link between EE toward PE is theoretically supported and justifiable.

The initial model also suggested a link between trust of the internet and trust of government and trust of internet and habit. While these links were not originally hypothesized in this study, post-hoc research identified that Carter & Belanger (2008) measured and validated a relationship between trust of Internet and trust of government through a mediator (disposition of trust or as one's general propensity to trust others). Furthermore, Trust of Internet has been measured and validated as antecedents of behavioural intention to use e-services in several studies (Carter & Belanger, 2008; Powell, Williams, Bock, Doellman, & Allen, 2012; Weerakkody et al., 2013). In a study on e-banking, Ahmed, Asif, Manzoor, & Sulehri (2015) conclude that "the habits of consumer are changing since the development of Internet banking" as trust and security are factors that influence acceptance of e-banking service. Thus, there is

theoretical justification for an indirect parameter between Trust of the Internet and Trust of Government and Trust of Internet and Habit.

After re-specification, model fit improved significantly with a chi-square statistic of 32.599 (df = 12, n = 296), a chi-square/df ratio of 2.717, a goodness of fit index (GFI) of 0.974, and a root mean squared error of approximation (RMSEA) of 0.076. These fit statistics meet common criteria for SEM suggested by Hooper et al. (2008a), and the results are presented in **Table 4**. The structural model coefficients before and after re-specification are presented in **Table 5**.

**TABLE 4**  
**RE-SPECIFIED MODEL GOODNESS-OF-FIT**

Fit index	Criteria*	Results in this study
Chi-square/ Degrees of freedom	< 3	2.717
GFI	>0.9	0.974
AGFI	>0.9	0.921
CFI	>0.95	0.986
RMSEA	<0.08	0.076
NFI	>0.95	0.978

\*Hooper, D., Coughlan, J., & Mullen, M. 2008

**TABLE 5**  
**STRUCTURAL MODEL COEFFICIENTS BEFORE AND AFTER MODIFICATION**

	Beta /p-value Initial Model	Beta /p-value Re-Specified model
<b>PE &gt; BI</b>	0.544/0.000	0.408/0.000
<b>EE &gt; BI</b>	0.218/0.000	0.175/0.002
<b>FC &gt; BI</b>	0.249/0.000	0.191/0.000
<b>Habit &gt; BI</b>	0.324/0.000	0.219/0.000
<b>ACCI &gt; PE</b>	0.245/0.000	0.183/0.012
<b>TrustGov &gt; PE</b>	0.253/0.000	-0.19/0.592
<b>Trust of Int &gt; EE</b>	0.475/0.000	0.417/0.000
<b>Trust of Int &gt; FC</b>	0.394/0.000	0.350/0.000
<b>Trust of Int &gt; TrustGov</b>	N/A	0.768/0.000
<b>Trust of Int &gt; Habit</b>	N/A	0.602/0.000
<b>PE &gt; EE</b>	N/A	0.824/0.000
<b>Adjusted R2</b>	<b>53.1%</b>	<b>73.6%</b>

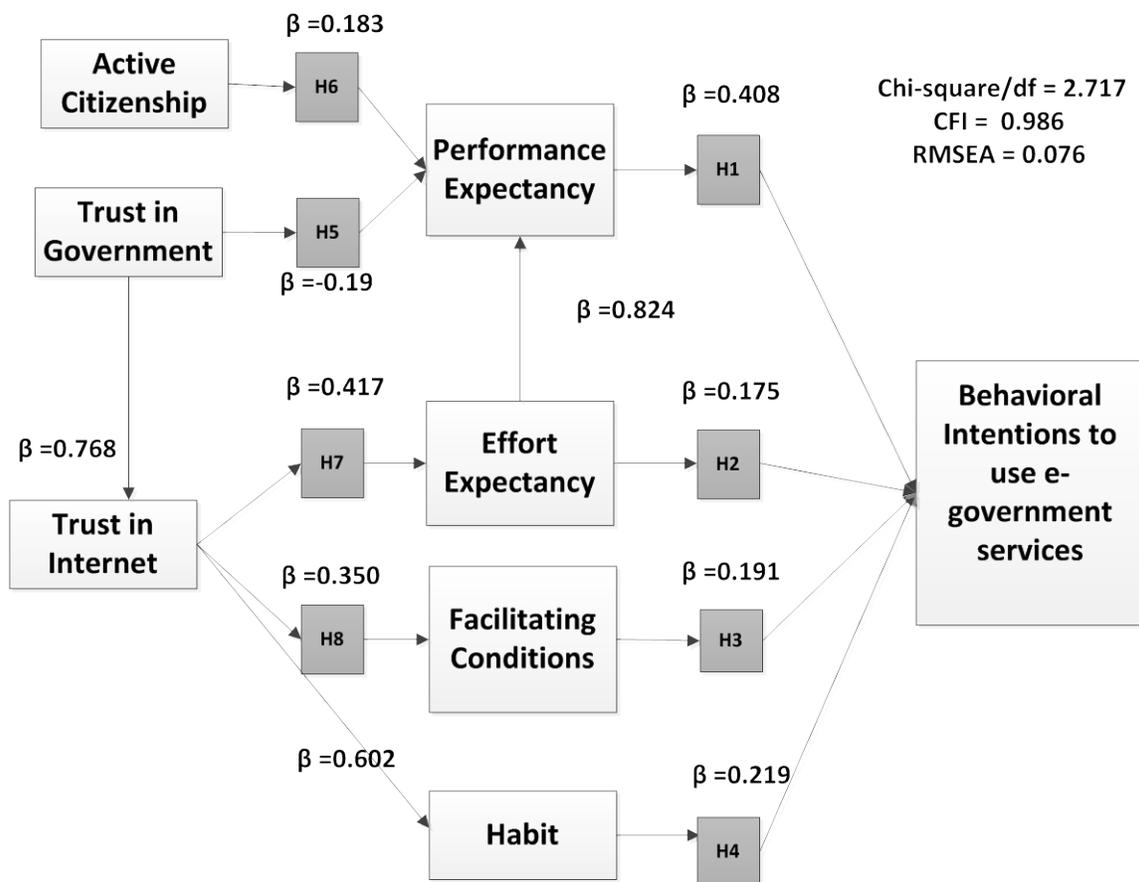
## RESULTS

The final re-specified structural model is presented in **Figure 2**. Within the sample population, the final model explains a substantial percentage of the variance in the relationship between effort

expectancy, performance expectancy, habit, facilitating conditions and the dependent variable of behavioural intentions to use e-government services. This supports and further validates previous research utilizing UTAUT and UTAUTv2 variables. Regarding individual variable, performance expectancy was the strongest predictor ( $\beta=.408, p=.000$ ). Habit ( $\beta=.219, p=.000$ ), facilitating conditions ( $\beta=.191, p=.000$ ), and effort expectancy ( $\beta=.175, p=.002$ ) also showed significance at moderately strong to moderate levels on the dependent variable of behavioural intention to use e-government services. H<sub>1</sub>-H<sub>4</sub> therefore all showed predictive significance and supported at strong to moderate levels individually.

Active citizenship showed a moderately low, but still positive predictive ( $\beta=.183, p=.012$ ) relationship to performance expectancy while trust of government showed a non-significant relationship to performance expectancy. Therefore, H<sub>6</sub> is supported at moderately high to low levels respectfully while H<sub>5</sub> is not supported. Trust in the internet showed significance at strong levels in predicting facilitating conditions ( $\beta=.350, p=.000$ ) and effort expectancy ( $\beta=.417, p=.000$ ). Therefore, H<sub>7</sub> and H<sub>8</sub> were supported. **Table 6** summarizes the hypothesis testing results. Ultimately, the research model showed very strong overall predictive ability (Adjusted R<sup>2</sup>=.73.6) within the sample population. All hypotheses were supported with significant positive relationships to the hypothesized dependent variables, albeit with varying degrees of strength.

**FIGURE 2  
THE FINAL MODEL**



**TABLE 6**  
**SUMMARY OF HYPOTHESIS TESTING AND RESULTS**

<b>Hypothesis</b>	<b>Results</b>
H1: Performance expectancy has a positive effect on behavioural intentions to use e-government services	Strongly Supported
H2: Effort expectancy has a positive effect on behavioural intentions to use e-government services	Supported
H3: Facilitating conditions has a positive effect on behavioural intentions to use e-government services.	Marginally Supported
H4: Habit has a positive effect on behavioural intentions to use e-government services	Supported
H5: Trust of the government has a positive effect on performance expectancy.	Not Supported
H6: Active citizenship has a positive effect on performance expectancy.	Marginally Supported
H7: Trust of the Internet has a positive effect on effort expectancy.	Strongly Supported
H8: Trust of the Internet has a positive effect on facilitating conditions	Strongly Supported

## **DISCUSSION AND IMPLICATIONS FOR RESEARCH AND PRACTISE**

This research provides guidance on how to improve e-government strategy and implementation plans and speed up the diffusion of e-services among citizens. It implies that e-government is not feasible without first a) achieving technical requirements necessary to launch and implement e-services to create positive facilitating conditions, b) creating trust in government and the internet, and c) building on facilitating conditions and trust to create changes in habit at the consumer level. Most importantly, it enriches the field of e-government research by tying it to active citizenship and trust in government. It investigates new antecedent variables and integrates them into a parsimonious model related to behavioural intent to use e-government services within the context of an emerging market developing country.

The study focuses on the country of Lebanon, as it presents a particularly good representation for a study with these objectives. It is a small developing country that is making significant investments in e-government technology with the expectation that it will help improve quality of life for its citizens and decrease corruption. Corruption is often linked to governmental services in developing countries that lack automated processes or transparency in payments. E-government services constitute one way in which the government of Lebanon is implementing systemic process with which to combat these issues.

The strong predictive power of the overall research model has implications for both researchers and practitioners who manage and implement e-government systems in developing countries such as Lebanon. Implications related to facilitating conditions, trust in government, active citizenship, and changing consumer habit are discussed below.

### **Facilitating Conditions**

This study confirms previous research suggesting that facilitating conditions are critically important to create an environment conducive to e-government consumption. Facilitating conditions include objective factors such as management support, training, and the provision of technical resources available for the citizens and provided by the government. Infrastructure is an important factor and is one of the six critical pillars for e-readiness (Guha & Chakrabarti, 2014). Internet connectivity and universal access for

all citizens are among the required facilitating conditions noted by many researchers on e-government (Akman, Yazici, Mishra, & Arifoglu, 2005; Carter & Bélanger, 2005, 2009; Carter et al., 2011; Fang, 2002; Komito, 2005). Safeena & Kammani (2013) indicate that citizens with full time internet access are more likely to be aware of and adopt e-government services.

Emerging market governments therefore need to be aware that providing a proper infrastructure and support for e- government is a pre-requisite for any change in consumer behavioural intent to use e-services. The first step toward effective implementation of e-government services is therefore a strong technical resource available for citizens. In Lebanon, ICT development has been consistently stalled by mismanagement and political tensions. The Lebanese government should consider improving the poor telecommunications infrastructure combined with a higher bandwidth, decrease prices for users and provide resources such as computers, mobile apps and internet access in public places within the reach of a largest possible number of citizens specifically in rural areas.

### **Trust in Government and Active Citizenship**

Trust in government and active citizenship showed significant positive influence on performance expectancy and intent to utilize e-government services. Warkentin, Gefen, Pavlou, & Rose, (2002) suggest that reducing consumer perceived risk in an e-government transaction is critical to increasing governmental trust in an e-government service. In e-government, perceived risk reduces intentions to exchange information and ultimately make a transaction (Pavlou, 2001).

This implies that if a developing country such as Lebanon has the goal of utilizing e-government services to fight corruption, it will need to implement clear and transparent processes focused on reducing perceived risk in the transaction. Combined with an effective communication plan to educate the consumer on the value and benefits of utilizing e-government services and an effort to improve the Lebanon's weak legal environment by liberalizing, regulating, and developing the telecommunications sector, this should increase trust in government and active citizenship related to performance expectancy. This would ideally include individual training opportunities that highlight low risk benefits, lower cost, transaction security, less bureaucracy, and time spent acquiring relevant government services electronically rather than in person. This will also help motivate, empower and engage citizens to participate, access and use e-government services.

### **Trust in the Internet**

Trust of the internet showed strong significant influence on effort expectancy, facilitating conditions, and habit within this study. This result further validates the results of Mpinganjira (2015) in a study completed in South Africa. Thus, without initial consumer trust in the internet particularly for financial transactions, many consumers will likely not consider utilizing e-government services or changing their current habits.

We suggest that the internet-enabled security of the e-government process is a key message that should be re-enforced consistently to any potential e-government consumer. For example, this could take the form of secure governmental computers provided at convenient locations that protect consumer data and information. In Lebanon, primarily OMSAR and the Cybersecurity Bureau have initiated several scattered initiatives. However, private and public administrations should consider joining forces in order to develop a national cybersecurity strategy, promote a national culture of cybersecurity, secure government cyberspace and improve regional and international coordination and cooperation.

### **Habit**

Habit also showed independent significance within the final model, but only at a moderate level. This implies that a hierarchical development process starting first with reducing perceived risk to increase trust in government and trust in the internet leads to higher performance expectancy, effort expectancy, and perceived facilitating conditions. While habit is important, the much stronger relationship between performance expectancy and behavioural intent suggests that addressing consumer habit should be secondary to the development of trust in government, the internet, and ultimately performance expectancy

in the consumer. While theory did not support modelling habit as a dependent variable related to performance expectancy within this study, the two did show a relatively high correlation. This implies that there is a possible moderating effect that would warrant future research.

### **Limitations and Future Research**

The most evident limitation of this study is that it was cross-sectional and only conducted in one developing country. This provided some benefits in methodological control, particularly in matching the sample population (Chin, 1998). However, it also limits the generalizability of the results beyond the suggested implications noted previously. Although the post-hoc re-estimating of the model for better fit was based on strong theoretical grounds (Chin, 1998), a cross-validation study with a new sample data would provide better generalization of the results (Browne & Cudek, 1989; Cudek & Browne, 1983). The method of model generation used within this study should therefore be used with caution because it is important that any modifications made to the original model must be substantively meaningful and justifiable (Chin, 1998; Hoyle, 1995).

While Lebanon is an excellent representative population of a developing country, there are significant cultural value differences related to technology on a country-by-country and even sub-cultural basis within countries. This does provide an avenue for future research. Warkentin, Gefen, Pavlou, & Rose, (2002) suggest that cultural dimensions will have an effect on e-government utilization. For example, future research theoretically linking high context versus low context information sharing at the individual level and trust in government relating to e-government adoption would be relevant to investigate.

This study also did not have the objective of creating a holistic model of behavioural intentions to use e-government services. While it did provide a significantly high predictive capability for the dependent variable, we suggest that there are other significant antecedent or moderating variables that warrant future research. For example, within the specific context of e-government services, additional research into the antecedents to trust in government, active citizenship, and trust in the internet would all provide benefits to researchers and managers alike. In addition, future research into the actual contextual utilization of e-government services is also warranted. For example, we suggest that this model could be extended in the future with additional dependent variables related to consumer preference to use specific types of e-government service and the psychological processes they utilize to make their decision.

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