

# Determinants of E-Government Services Adoption from the African Students' Perspective

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**Abstract**—The patronage of e-government services (demand side of e-government) is vital to the successful implementation of e-government initiatives. The purpose of this study is to explore the predictors determining the willingness of African students in China to adopt and use e-government services. The Unified Theory of Acceptance and Use of Technology (UTAUT) will be used as the theoretical foundation for this research. Research instrument will be developed and administered to 500 African students in China. Factors such as performance expectancy, effort expectancy, social influence, facilitating conditions and culture will be investigated to determine its significant impact on the willingness to use e-government services. This study is a research in progress. The outcome of this study will provide valuable recommendations to improve the provision of public services through e-government.

**Keywords**—E-government, e-government services, predictors UTAUT.

## I. INTRODUCTION

THE objective of this research paper is to examine the willingness of African students in China to adopt and use e-government services. China is a rising power in the world due to its monumental achievement in the economy and infrastructure development over the last three decades [1], [2]. This has made China a very attractive country to the international community including African nationals that come to China for various reasons either to study/work or for business. The migration of these nationals to China means that they would have to enjoy basic public services while they settle in China. This provision of public services to Chinese citizens as well as foreign nationals could be delivered through the powerful medium of e-government. E-government is the provision of enhanced government public services to citizens and businesses using the appropriate Information and Communication Technologies (ICTs) with a purposed to ensure citizens have a convenient, reliable and unimpeded access to public services without a physical limitation [3]-[5]. The adoption of e-government in the public administration processes offers citizens the unique opportunity to engage and participate in open government through constantly interacting with public officials [6]. The World Bank considers e-government as the use of ICTs like Wide Areas Network, the Internet, and mobile computing to transform the interaction between government and citizens and businesses [7]. The use

of these technologies in the delivery of public government information and services can ensure the better delivery of government services to citizens, enhanced interactions with businesses and industry, and efficient government public sector management [7].

The adoption of ICT through e-government has the potential to reduce corruption, create a government that is more accountable and transparent, enhance bureaucratic and administrative challenges and deliver citizen centered services to meet the service expectation of citizens and businesses [8]-[11]. E-government services that citizens and businesses can enjoy from government agencies include but are not limited to passport applications/renewals, renewal of permits and visas, change of residential addresses and payment of utility bills [12].

The rest of the research paper is organized as follows: Research theoretical framework, research model, research hypotheses, future work, and conclusion.

## II. RESEARCH THEORETICAL FRAMEWORK

### A. UTAUT

UTAUT developed by Venkatesh [13] would be used as the theoretical foundation for this study. The UTAUT has been applied to study user behavioral attitudes towards the adoption and use of technology related applications such as e-government and e-commerce. It is made up of four major predictors of the behavioral intention to adopt and use any technology related application. The four major constructs of the UTAUT are performance expectancy, effort expectancy, social influence and facilitating conditions. The performance expectancy is considered as the extent to which the use of a technology will provide benefits to the user to undertaking an activity whilst the effort expectancy is the degree to which there is ease identified with use of a particular technology [13]. Social influence is the extent to which the perceptions or the actions of important personalities or families/friends impact the user's decision to engage in a particular technology [13]. The facilitating conditions are the extent to which the user believes that there are adequate resources and support to assist in the use of a technology related application [13].

The UTAUT theorized that the performance expectancy, effort expectancy, and social influence determine the behavioral intention to use while the behavioral intention to use and facilitating conditions determine the actual use of a technology [13]. The UTAUT has been applied extensively in various fields to understand the behavioral intention of users to adopt and use a particular technology such as e-government [14]-[17], e-commerce/business [18]-[22] and educational (e-

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learning) [23]-[25].

*B. UTAUT and E-Government Adoption*

The UTAUT has been applied widely to explore the user acceptance of e-government services. Table I shows the recent e-government adoption studies using the UTAUT model.

III. RESEARCH MODEL

The research model is illustrated in Fig. 1. Performance

expectancy, effort expectancy, social influence, trust in the internet, culture, facilitating conditions and perceived service quality have a direct significant impact on the willingness to adopt and use e-government services. Effort expectancy has a direct impact on the performance expectancy of e-government services. Also, social influence has a direct impact on the effort expectancy, performance expectancy and trust on the internet.

TABLE I  
UTAUT E-GOVERNMENT ADOPTION STUDIES

Findings	source
Examining the factors determining the use of e-government services (online Tax filing) in the Vietnam was demonstrated that performance expectancy, effort expectancy, social influence, information quality, system quality and service quality has a positive significant impact on the intention of the Vietnamese to use e-government services.	[26]
Using the UTAUT model it was revealed that confidentiality, trust, and attitude towards use was a major determinate of user satisfaction and the adoption of e-government services in the UAE.	[27]
Also in Jordan, it was shown that predictors such as performance expectancy, effort expectancy, social influence, facilitation conditions were significant predictors of the intention of Jordanian citizens to adopt and use e-government services	[17], [28]
In Turkey, it was again demonstrated that performance expectancy, social influence, facilitating conditions, the trust of the internet and trust in government were significant predictors of intention to use e-government services. Trust in both the internet and government were also a significant determiner of performance expectancy of e-government services.	[29]
Adapting the UTAUT model to measure the technology acceptance among intermediaries delivering government-supplied essential commodities to citizens in India, it was found that social influence, effort expectancy and performance expectancy were significant on the salesmen's adoption of a point of sale machines (e-government services).	[30]
UTAUT was modified to examine determinates of citizens' intention to use an e-tax filing and payment system (e-government services) in Thailand. The findings indicated that performance expectancy, facilitating conditions, social influence and perceived credibility were significant predictors of adoption of e-government services. While perceived autonomy and perceived competence were also significant predictors of performance expectancy and effect expectancy, perceived risk and effort expectancy was not a significant predictor of intention to use e-government services.	[31]

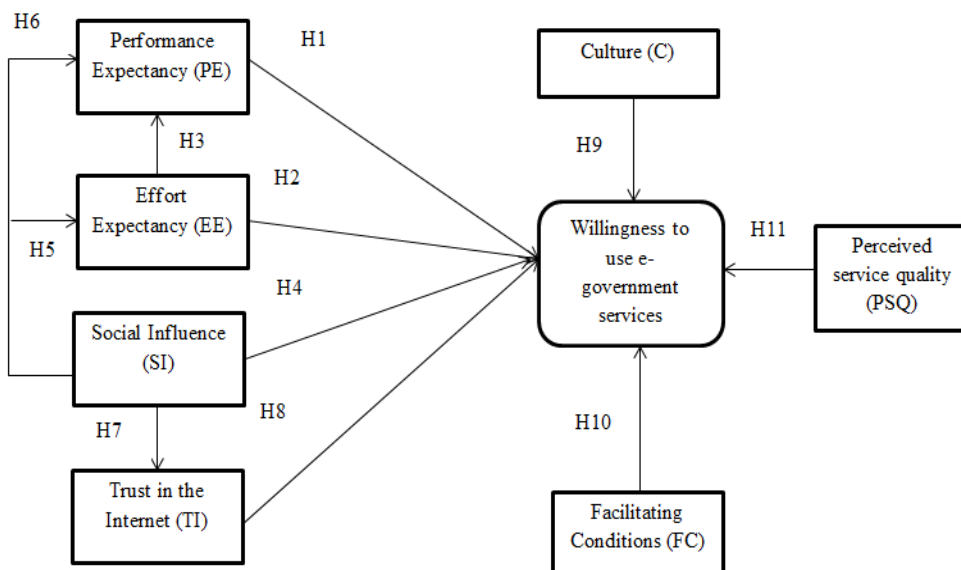


Fig. 1 Proposed Research Model

IV. RESEARCH HYPOTHESES

This research would investigate the following research hypotheses:

Hypothesis 1. **(H1)**: Performance expectancy of e-government services has a direct impact on the willingness to adopt and use e-government services.

Hypothesis 2. **(H2)**: Effort expectancy of e-government services has a significant direct impact on the willingness to adopt and use e-government services.

Hypothesis 3. **(H3)**: Effort expectancy has direct impact on the performance expectancy of e-government services

Hypothesis 4. **(H4)**: Social influence has a positive significant impact on the willingness to adopt and use e-government services.

Hypothesis 5. **(H5)**: Social influence has a direct impact on the effort expectancy of e-government services.

Hypothesis 6. **(H6)**: Social influence has a direct impact on the performance expectancy of e-government services.

Hypothesis 7. **(H7)**: Social influence has a significant direct impact on trust in the Internet.

Hypothesis 8. **(H8)**: Trust in the Internet has a positive impact on the willingness to adopt and use e-government services.

Hypothesis 9. **(H9)**: Culture has a positive direct influence on the willingness to adopt and use e-government services.

Hypothesis 10. **(H10)**: Facilitation condition has a direct impact on the willingness to adopt and use e-government services.

Hypothesis 11. **(H11)**: Perceived service quality has a direct significant impact on the willingness to adopt and use e-government services.

#### V. FUTURE RESEARCH

This research paper is currently in the design, development and implementation stage, and so future work would have to be undertaken for the successful completion of this study. A research design and development is considered as an outline of the methodology as well as the processes, the concepts to be measured and the selected method to assist in undertaking the expected research [32]. A future work will include the conduct of detailed literature review and research questionnaire instrument development. The developed research instrument will be pretested and piloted to about 5% of the targeted sample size for this study. The pre-testing and piloting are to ensure the instrument to be used for the data collection achieve a reasonable level of validity and reliability [32]. Pre-testing and piloting is a smaller/prototype of research conducted prior to the administration of the actual research survey. Pre-testing and piloting is an important element in both quantitative and qualitative research designs, since it can help the researcher identify possible errors prior to the main survey [33]-[35]. It also provides a better understanding with regard to the questions in the instrument by removing ambiguous phrases and sentences and essentially it adds some value and credibility to the research processes [36], [37].

The finalized instrument after the pretesting and piloting will be administered to the 500 potential respondents who are African students studying in China. The data capture and analysis will be done with SPSS. The analysis will be reported and published as a fully completed research.

#### VI. CONCLUSION

This study is one of the few studies focusing on the adoption of e-government from the perspectives of foreign nationals. The successful completion of this study would first, provide empirical evidence of the factors determining the willingness of African students in China to adopt and use e-government services, and secondly, improve service delivery through e-government to the African community in China.

#### REFERENCES

- [1] Tisdell, C. A., Thirty years of economic reform and openness in China: Retrospect and prospect. 2008, University of Queensland, School of Economics.
- [2] Managi, S. and S. Kaneko, Chinese economic development and the environment. 2010: Edward Elgar Publishing.
- [3] Schaupp, L. C. and L. Carter, The impact of trust, risk and optimism bias on E-file adoption. *Information Systems Frontiers*, 2010. 12(3): p. 299-309.
- [4] Joseph, R.C., A structured analysis of e-government studies: Trends and opportunities. *Government Information Quarterly*, 2013. 30(4): p. 435-440.
- [5] West, D.M., Improving technology utilization in electronic government around the world, 2008. 2008: Brookings Institution, Governance Studies.
- [6] McDermott, P., Building open government. *Government Information Quarterly*, 2010. 27(4): p. 401-413.
- [7] Worldbank. E-government 2015 (cited 2017 24th August); Available from: <http://www.worldbank.org/en/topic/ict/brief/e-government>.
- [8] Akman, I., et al., E-Government: A global view and an empirical evaluation of some attributes of citizens. *Government Information Quarterly*, 2005. 22(2): p. 239-257.
- [9] Hackney, R., S. Jones, and A. Lösch, Towards an e-Government efficiency agenda: the impact of information and communication behaviour on e-Reverse auctions in public sector procurement. *European Journal of Information Systems*, 2007. 16(2): p. 178-191.
- [10] Tolbert, C. J. and K. Mossberger, The effects of e-government on trust and confidence in government. *Public administration review*, 2006. 66(3): p. 354-369.
- [11] Watson, R. T. and B. Mundy, A strategic perspective of electronic democracy. *Communications of the ACM*, 2001. 44(1): p. 27-30.
- [12] Seo, D. and M. Bernsen, Comparing attitudes toward e-government of non-users versus users in a rural and urban municipality. *Government Information Quarterly*, 2016. 33(2): p. 270-282.
- [13] Venkatesh, V., et al., User acceptance of information technology: Toward a unified view. *MIS quarterly*, 2003: p. 425-478.
- [14] ME, A., Towards a UTAUT-based Model for the Study of E-Government Citizen Acceptance in Saudi Arabia. *World Academy of Science, Engineering and Technology, International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, 2012. 6(4): p. 376-382.
- [15] Alshehri, M., et al., The Effects of Website Quality on Adoption of E-Government Service: An Empirical Study Applying UTAUT Model Using SEM. arXiv preprint arXiv:1211.2410, 2012.
- [16] Alshehri, M., S. Drew, and R. Al Ghamdi, Analysis of citizens acceptance for e-government services: applying the UTAUT model. arXiv preprint arXiv:1304.3157, 2013.
- [17] Rabaa'i, A.A., The use of UTAUT to investigate the adoption of e-government in Jordan: a cultural perspective. *International Journal of Business Information Systems*, 2017. 24(3): p. 285-315.
- [18] Venkatesh, V., J. Y. Thong, and X. Xu, Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. 2012.
- [19] Lescevic, M., E. Ginters, and R. Mazza, Unified theory of acceptance and use of technology (UTAUT) for market analysis of FP7 CHOReOS products. *Procedia Computer Science*, 2013. 26: p. 51-68.
- [20] Chiemeke, S., et al., A Framework for Electronic Commerce Adoption: A Study in Kaduna State, Nigeria. *Science World Journal*, 2014. 9(3): p. 20-26.
- [21] Junadi<sup>a</sup>, S., A model of factors influencing consumer's intention to use e-payment system in Indonesia. 2015.
- [22] Tarhini, A., et al., Extending the UTAUT model to understand the customers' acceptance and use of internet banking in Lebanon: A structural equation modeling approach. *Information Technology & People*, 2016. 29(4): p. 830-849.
- [23] Tan, P. J. B., Applying the UTAUT to understand factors affecting the use of English e-learning websites in Taiwan. *Sage Open*, 2013. 3(4): p. 2158244013503837.
- [24] Marques, B. P., J. E. Villate, and C. V. Carvalho, Applying the UTAUT model in engineering higher education: Teacher's technology adoption. in *Information Systems and Technologies (CISTI)*, 2011 6th Iberian Conference on. 2011. IEEE.
- [25] Tarhini, A., A. B. Mohammed, and M. Maqableh, Modeling Factors Affecting Student's Usage Behaviour of E-Learning Systems in Lebanon. *International Journal of Business and Management*, 2016. 11(2): p. 299.
- [26] Lu, N. L. and V. T. Nguyen, Online Tax Filing—E-Government Service Adoption Case of Vietnam. *Modern Economy*, 2016. 7(12): p. 1498.
- [27] Rodrigues, G., J. Sarabdeen, and S. Balasubramanian, Factors that influence consumer adoption of e-government services in the UAE: A

- UTAUT model perspective. *Journal of Internet Commerce*, 2016. 15(1): p. 18-39.
- [28] Zawaideh, F. H., Acceptance of E-Government Services among Jordanian Citizen. 2016.
- [29] Kurfali, M., et al., Adoption of e-government services in Turkey. *Computers in Human Behavior*, 2017. 66: p. 168-178.
- [30] Chopra, S. and P. Rajan, Modeling intermediary satisfaction with mandatory adoption of e-government technologies for food distribution. *Information Technologies & International Development*, 2016. 12(1): p. pp. 15-34.
- [31] Bhuasiri, W., et al., User Acceptance of e-government Services: Examining an e-tax Filing and Payment System in Thailand. *Information Technology for Development*, 2016. 22(4): p. 672-695.
- [32] Dikko, M., Establishing construct validity and reliability: Pilot testing of a qualitative interview for research in takaful (Islamic insurance). *The Qualitative Report*, 2016. 21(3): p. 521.
- [33] Van Teijlingen, E. R. and V. Hundley, The importance of pilot studies. *Social research update*, 2001. 35(4): p. 1-4.
- [34] Tashakkori, A. and C. Teddlie, *Sage handbook of mixed methods in social & behavioral research*. 2010: Sage.
- [35] Watson, R., I. Atkinson, and K. Rose, Pilot studies: to publish or not? *Journal of Clinical Nursing*, 2007. 16(4): p. 619-620.
- [36] Sekaran, U. and R. Bougie, *Research methods for business: A skill building approach*. 2016: John Wiley & Sons.
- [37] Van Wijk, E. and T. Harrison, Managing ethical problems in qualitative research involving vulnerable populations, using a pilot study. *International Journal of Qualitative Methods*, 2013. 12(1): p. 570-586.