



HAL
open science

Explaining Technology Adoption with Financial Motivation

Joseph Budu, Jefferson Seneadza, Edward Entee, Michael Fosu, Bismark Tei Asare, Charles Mensah

► **To cite this version:**

Joseph Budu, Jefferson Seneadza, Edward Entee, Michael Fosu, Bismark Tei Asare, et al.. Explaining Technology Adoption with Financial Motivation. International Working Conference on Transfer and Diffusion of IT (TDIT), Jun 2019, Accra, Ghana. pp.147-153, 10.1007/978-3-030-20671-0_10 . hal-02294708

HAL Id: hal-02294708

<https://inria.hal.science/hal-02294708v1>

Submitted on 23 Sep 2019

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

Explaining Technology Adoption with Financial Motivation

Joseph Budu^{1[0000-0002-0003-5807]}, Jefferson Seneadza², Edward Entee³, Michael Fosu⁴,
Bismark Tei Asare⁵, and Charles Mensah⁶

¹ Ghana Institute of Management and Public Administration, Accra, Ghana

² TechNation Ghana, Accra, Ghana

³ Edward Entee, University of Ghana Business School, Accra, Ghana

⁴ University of Cape Coast, Cape Coast, Ghana

⁵ Ghana Technology University College, Accra, Ghana

⁶ Withrow University College, Kumasi, Ghana

josbudu@gimpa.edu.gh

Abstract. Several theories and their variant extensions have been posited to explain or to suggest factors that influence technology adoption. However, these theories seem inadequate in certain scenarios. For instance, none of such technology adoption theories identify or account for the possible influence of external non-personal and non-technology incentives or rewards or compensation on persons faced with the choice to accept or use a technology. However, existing psychology research posits a positive correlation between the offer of financial motivation and the performance of tasks. Therefore, this paper purposes to explain the relationship between financial motivation and individuals' technology adoption.

Keywords: Technology Adoption, Financial Motivation, Developing Country.

1 Introduction

The acceptance and use of new technology is not an exhausted issue in information systems research. This observation is evidenced by the many theories and their variant extensions that attempt either to explain or to suggest factors that influence technology adoption (Dwivedi et al. 2011; Williams et al. 2009). Despite their utility, these theories still harbour some inadequacies which yearn for fixing. Specifically, these theories have the understood assumption that people will accept and use technology because of factors pertaining to the technology in question, social conditions, and some personal considerations. For instance, Technology Acceptance Model holds that perceived usefulness and perceived ease of use drive people's intention to use a technology (Davis, 1989). The Unified Theory of Acceptance and Use of Technology (UTAUT) also holds that individuals within an organisation adopt technology because of performance expectancy, effort expectancy, social influence, and facilitating condi-

tions (Dwivedi et al. 2017ab; Rana et al. 2016; 2017; Venkatesh, 2003; Williams et al. 2015). UTAUT2 also posits that private individuals adopt technology because of UTAUT's factors plus hedonic motivation, price value, and habit (Venkatesh, Thong, & Xu, 2012). The foregoing theories and their variables do not account for the potential for financial motivation to influence a private individual to adopt technology. Venkatesh et al. (2012) for instance, speaks of only hedonic motivation, thus overlooking non-hedonic extrinsic material motivation or rewards such as recognition programs, profit-sharing programs, pay increase, benefits and incentives (see Govindarajulu & Daily, 2004).

Consequently, these theories fail to explain technology adoption in contexts in which technology adoption could be considered a task. For instance, an advertising company contracts with individuals to install a digital advertising screen in their vehicles. In such a scenario, the factors posited by extant technology adoption theories become inadequate because these individuals may consider financial compensation before accepting such a technology in their cars. Further, existing psychology research posits a positive correlation between the offer of financial incentives and task performance (Becker, Clement, & Schaedel, 2010). Therefore, this paper argues that financial motivation can influence technology adoption. This study thus purposes to explain how financial motivation leads to individuals' adoption of technology.

Addressing consumers' economic motivations for accepting technology is not a minor issue because of the glaring evidence which points to positive correlations they have with task performance (see Becker, Clement, & Schaedel, 2010). This study makes two main contributions to technology acceptance research. First, the study provides alternate explanations for the acceptance and use of new technology. Given Fishbein & Ajzen's (1975) observation that many variables affect the choice of how and when users will use a new technology, focusing on only the extant factors is a way of blinding ourselves to other working factors like financial motivation. Therefore, this paper in responding to calls for alternative theoretical mechanisms in information technology adoption research (see Bagozzi, 2007; Venkatesh, Davis, & Morris, 2007; Venkatesh, 2016), argues that there is a propensity for people to accept technology not just because it is useful or easy to use, or other people are using it, but because of expected financial incentive. Second, using interpretive epistemology and critical realism ontology, the study presents a case study of a very unique situation in which financial motivation influences the uptake of a new technology. Further, an accompanying in vivo analytical technique is used to extend the frontiers of a traditional technology acceptance theory, the UTAUT (Andersen & Kragh, 2010). Given the theorising nature of the case study method and in vivo analytical technique, it is plausible to consider the ensuing explanations as improvements in existing explanations for technology acceptance.

2 Preliminary Literature Review

Several predictive and explanatory theories of technology adoption and/use have been advanced (see Rondan-Cataluna, Arenas-Gaintan, & Ramirez-Correa, 2015 for a comprehensive review of technology acceptance theories). Despite their usefulness, the myriad of extension and revision attempts suggest their seeming insufficiency to explain either the adoption of certain technologies, or of technologies in certain contexts and situations. For instance, Ozkan, Bindusara, & Hackney (2010) advance perceived advantage — the perception of a system's potential to reduce paperwork and be cost-effective — as an important factor in individual's adoption of electronic payment systems (see Venkatesh, Thong & Xu, 2012; Wang & Lin, 2012; Alotaibi, 2013; Slade, Williams & Dwivedi, 2014; Slade et al. 2015ab; Sheng & Zolfagharian, 2014; Kapoor et al. 2015; Liu, Zhao, Chau & Tang, 2015 for more examples of such extensions). Beneath such extensions lie the assumption of a separate human entity deciding to adopt and/use a certain technology. The context of this assumption is pertinent, hence, Venkatesh, Thong & Xu (2012) distinguishes between an individual's adoption of technology within an organisation, and the other outside an organisation i.e. a private consumer, in advancing the UTAUT2 model. Private consumers face peculiar situations like financial risk, price value and motivation (Sheng & Zolfagharian, 2014; Venkatesh, Thong, & Xu, 2012).

We may be tempted to forcibly classify such peculiar factors under UTAUT's facilitating conditions - individual's perceptions of the resources and support available to adopt technology (Venkatesh, Morris, Davis, & Davis, 2003). The implausibility of such attempt, however, is evidenced by the advancement of hedonic motivation and price value as factors for private consumer adoption of technology (Venkatesh, Thong, & Xu, 2012). Whilst there has been an attempt to extend technology adoption theories with motivation, the focus of such attempts have been insufficient with regards to all its possible forms. Venkatesh et al. (2012) for instance, speaks of only hedonic motivation, thus overlooking non-hedonic extrinsic material motivation or rewards. In fact, such forms manifest in several forms as recognition programs, profit-sharing programs, pay increase, benefits and incentives (Govindarajulu & Daily, 2004). The argument here then is that these material forms of motivation can influence private consumers who consider financial risk, and are looking for tangible benefits, to adopt some technology or vice versa.

Such an argument is not far-fetched if we further consider the private consumer in two forms; on one the one hand, the private consumer who is buying/adopting a technology for personal use and to achieve hedonic or even work-related satisfaction, and on the other hand, the private consumer who is acquiring/adopting a technology for financial gain. As Venkatesh et al. (2012) as already demonstrated the existence of hedonic motivation, let us consider its opposite. We know that a person will voluntarily act because of gaining a selfish reason after identifying a higher pay-off in a cost-

benefit analysis of acting; and a financial pay-off guarantees more action (Darrington & Howell, 2011, p. 43). We also know that financial incentives shape individual's preferences, and can even destroy her intrinsic motivation (Bowles, 2008). Therefore, direct financial rewards attracting individuals to share their internet service and act as hotspots is not at all trivial (see Becker, Clement, & Schaedel, 2010). Based on this argument, and attempting to move away from existing theories' limited explanatory or predictive possibilities, triviality and lack of practical value (Garača, 2011), this study aims at explaining that when private individuals perceive the adoption of a technology as a task, they need to be financially motivated.

3 Proposed Methodology and the Way Forward

The empirical study will be approached with interpretive epistemology (Walsham, 2006) which suggests the gathering of qualitative data. Interpretivism is important because private consumers may have different conditions that motivate them to adopt technology, and different conceptions concerning such conditions. Thus, the aim to understand how individuals view financial motivation, and why it influences them to adopt technology makes it important to capture subjects' interpretative meanings.

3.1 Research Approach

A case study approach (Cresswell, 2007) will be used to examine the influence of financial motivation in individual's adoption of technology. We observed this issue observation of the In-Taxi Ad Project (iTAP) executed by Tech Nation, an Australian/Ghanaian owned technology-based company operating in Ghana (Tech Nation, 2015). iTAP involves the installation of interactive headrest screens showing paid advertisement and free video clips to passengers who board commercial vehicles. Drivers who agree to the installation in their vehicles sign an agreement which guarantees monthly financial rewards for ensuring daily operation, and indemnity if the device is broken or lost. To this end this study explore how Tech Nation recruits commercial drivers, and what drivers consider before allowing Tech Nation to install the digital headrests in their cars. In operationalising this approach, purposive sampling will be used to select drivers who will be respondents; these drivers are those who have the screen installed in their cars.

3.2 Data Collection Methods

Data will be collected from meetings with Tech Nation management and staff, the company's website, and members of driver unions that Tech Nation has approached and installed their digital headrests. Documents like contracts, terms and conditions, and product descriptions and manuals will also be examined to ensure credibility of the interpretive epistemology to be adopted, and the veracity and dependability of the data.

Meetings. Face-to-face meetings will be held with the management and implementation or technical staff of Tech Nation to understand the rationale for giving financial rewards to taxi drivers who subscribe to iTAP, and the impact of such rewards on subscription.

Interviews. 30 taxi drivers who have joined iTAP, and 30 drivers in the same taxi terminals but have not joined iTAP will be interviewed to solicit their reasons for subscribing or otherwise, respectively. The interview data will be coded to reveal the perspectives of the interviewees concerning what influences their adoption decisions.

Website Content Analysis. Videos, audios, images, and text on Tech Nation's website will be analysed for information concerning iTAP. Such data will serve as triangulation and corroborative data for information gathered from interviews and meetings.

Document Analysis. Subscription contracts and service level agreements will be reviewed to verify payment amounts and risk management arrangements between the subscribing drivers and Tech Nation, as corroborative data.

3.3 Data Analysis

Analysis of this study's data will be approached with deductive reasoning (Ven de Ven, 2007). Deduction will be adopted to explain how material rewards influence the uptake of technologies by private individuals outside an organisational setting. The other reasons for technology adoption as proposed by version 2 of the Unified Theory of Acceptance and Use of Technology (see Venkatesh, Thong, & Xu, 2012) will also be identified from the data and coded using NVivo qualitative analysis software, and their inherent and contextual explanatory inadequacies discussed.

4 Conclusion and Directions for Future Work

This study proposes to explain how financial motivation contributes to the individuals' adoption of technology. This is an explanation which is largely missing in the technology adoption literature. Due to the peculiar contextual differences between individuals in an organisation, and those outside, future research needs to be interested in what factors could lead to individuals' adoption of technology. This paper in pursuit of explanations to fill this observed knowledge gap seeks to explain how financial motivation contributes to individuals' adoption of technology. Going forward, this study would execute the proposed methodology to collect empirical data. The data would be analysed to identify the extent to which financial motivation motivated individuals to allow digital headrests in their taxis to display advertisements and free videos to passengers. For theory, we hope this endeavour would contribute to a better explanation of factors that contribute to individuals' adoption of information technology. For practice, we hope that this study would illuminate how certain individuals

consider technology adoption a task, and hence their expectation of financial motivation.

References

1. Ajzen, I., & Fishbein, M.: *Understanding Attitudes and Predicting Social Behaviour*. Englewood Cliffs, NJ: Prentice-Hall (1980).
2. Alotaibi, M. B.: Determinants of mobile service acceptance in Saudi Arabia: a revised UTAUT model. *International Journal of E-Services and Mobile Applications*, 5 (3), 43-61 (2013).
3. Bagozzi, R. P.: The legacy of the Technology Acceptance Model and a Proposal for a paradigm shift. *Journal of the AIS*, 8 (4), 244-254 (2007)
4. Bateman, M. J., & Ludwig, T. D.: Managing distribution equality through an adapted incentive program with tiered goals and feedback. *Journal of Organisational Behaviour Management*, 23, 33-55 (2003).
5. Becker, J. U., Clement, M., & Schaedel, U.: The impact of network size and financial incentives on adoption and participation in new online communities. *Journal of Media Economics*, 23, 165-179 (2010).
6. Bowles, S.: Policies designed for self-interested citizens may undermine 'the moral sentiments': evidence from economic experiments. *Science*, 320 (5883), 1605-1609 (2008).
7. Cresswell, J. W.: (2007). *Qualitative Inquiry and Research Design*. Thousand Oaks, CA: Sage.
8. Darrington, J. W., & Howell, G. A.: Motivation and incentives in relational contracts. *Journal of Financial Management of Property and Construction*, 16 (1), 42-51 (2011).
9. Davis, F.: Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13 (3), 319-340 (1989).
10. Dwivedi, Y. K., Wade, M. R., & Schneberger, S. L. (Eds.). (2011). *Information systems theory: Explaining and predicting our digital society* (Vol. 1). Springer Science & Business Media.
11. Dwivedi, Y. K., Rana, N. P., Janssen, M., Lal, B., Williams, M. D., & Clement, M. (2017a). An empirical validation of a unified model of electronic government adoption (UMEGA). *Government Information Quarterly*, 34(2), 211-230.
12. Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. (2017b). Re-examining the unified theory of acceptance and use of technology (UTAUT): Towards a revised theoretical model. *Information Systems Frontiers*, 1-16. DOI: <https://doi.org/10.1007/s10796-017-9774-y>.
13. Fishbein, M., & Ajzen, I.: *Belief, attitude, intention, and behaviour: an introduction to Theory and Research*. Reading, MA: Addison-Wesley. (1975).
14. Garača, Z.: Factors related to the intended vuse of ERP systems. *Management*, 16 (2), 23-42 (2011).
15. Garbers, Y., & Konradt, U.: The effect of financial incentives on performance: a quantitative review of individual and team-based financial incentives. *Journal of Occupational and Organisational Psychology*, 87, 102-137 (2014).

16. Gardner, D. G., Van Dyne, L., & Pierce, J. L.: The effects of pay level on organisation-based self-esteem and performance: a field investigation. *Journal of Occupational and Organisational Psychology*, 77, 1-16 (2004).
17. Goomas, D. T., & Ludwig, T. D.: Enhancing incentive programs with proximal goals and immediate feedback. *Journal of Organisational Behaviour Management*, 27, 33-68. (2007).
18. Govindarajulu, N., & Daily, B. F.: Motivating employees for environmental improvement. *Industrial Management & Data Systems*, 104 (4), 364-372 (2004).
19. Kapoor, K. K., Dwivedi, Y. K., & Williams, M. D. (2015). Examining the role of three sets of innovation attributes for determining adoption of the interbank mobile payment service. *Information Systems Frontiers*, 17(5), 1039-1056.
20. Liu, F., Zhao, X., Chau, P. Y., & Tang, Q.: Roles of perceived value and individual differences in the acceptance of mobile coupon applications. *Internet Research*, 25 (3), 471-495 (2015).
21. Ozkan, S., Bindusara, G., & Hackney, R.: (2010). Facilitating the adoption of e-payment systems: theoretical constructs and empirical analysis. *Journal of Enterprise Information Management*, 23 (3), 305-325.
22. Rana, N. P., Dwivedi, Y. K., Lal, B., Williams, M. D. and Clement, M. (2017). Citizens' adoption of an electronic government system: towards a unified view. *Information Systems Frontiers*, 19(3), 549-568.
23. Rana, N. P., Dwivedi, Y. K., Williams, M. D., & Weerakkody, V. (2016). Adoption of online public grievance redressal system in India: Toward developing a unified view. *Computers in Human Behavior*, 59, 265-282.
24. Rondan-Cataluna, F. J., Arenas-Gaintan, J., & Ramirez-Correa, P. E.: (2015). A comparison of the different versions of popular technology acceptance models. *Kybernetes*, 44 (5), 788-805.
25. Sheng, X., & Zolfagharian, M.: (2014). Consumer participation in online product recommendation services: augmenting the technology acceptance model. *Journal of Services Marketing*, 28 (6), 460-470.
26. Slade, E. L., Dwivedi, Y. K., Piercy, N. C., & Williams, M. D. (2015a). Modeling consumers' adoption intentions of remote mobile payments in the United Kingdom: extending UTAUT with innovativeness, risk, and trust. *Psychology & Marketing*, 32(8), 860-873.
27. Slade, E., Williams, M., Dwivedi, Y., & Piercy, N. (2015b). Exploring consumer adoption of proximity mobile payments. *Journal of Strategic Marketing*, 23(3), 209-223.
28. Slade, E. L., Williams, M. D., & Dwivedi, Y. K.: (2014). Devising a research model to examine adoption of mobile payments: an extension of UTAUT2. *The Marketing Review*, 14 (3), 310-335.
29. Tech Nation.: (2015). About Tech Nation Ghana. Retrieved September 2, 2015, from Tech Nation website: <http://technationgh.com/about-tech-nation-ghana/>
30. Van de Ven, A.H.: (2007). *Engaged Scholarship: A Guide for Organisational and Social Research*, Oxford, New York, NY.
31. Venkatesh, V., & Bala, H.: (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, 39 (2), 273-315.

32. Venkatesh, V., & Davis, F. D.: (2000). A theoretical extension of the technology acceptance model: four longitudinal field studies. *Management Science*, 46 (2), 186-204.
33. Venkatesh, V., Davis, F. D., & Morris, M. G.: (2007). Dead or Alive? The development, trajectory and future of technology adoption research. *Journal of the AIS*, 8 (4), 268-286.
34. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D.: (2003). User acceptance of information technology: toward a unified view. *MIS Quarterly*, 27 (3), 425-478.
35. Venkatesh, V., Thong, J. Y., & Xu, X.: (2012). Consumer acceptance and use of information technology: extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*, 36 (1), 157-178.
36. Venkatesh, V., Thong, J. Y., & Xu, X.: (2016). Unified Theory of Acceptance and Use of Technology: a synthesis and the road. *Journal of the Association for Information Systems*, 17 (5), 328-376.
37. Walsham, G.: (2006). Doing Interpretive Research. *European Journal of Information Systems*, 15 (3), 320-330.
38. Wang, K., & Lin, C.-L.: (2012). The adoption of mobile value-added services. Investigating the influence of IS quality and perceived playfulness. *Managing Service Quality*, 22 (2), 184-208.
39. Williams, M. D., Rana, N. P., & Dwivedi, Y. K. (2015). The unified theory of acceptance and use of technology (UTAUT): a literature review. *Journal of Enterprise Information Management*, 28(3), 443-488.
40. Williams, M. D., Dwivedi, Y. K., Lal, B., & Schwarz, A. (2009). Contemporary trends and issues in IT adoption and diffusion research. *Journal of Information Technology*, 24(1), 1-10.