

**DIFFUSION OF XBRL INNOVATION MODEL
OF ADOPTION AND USAGE**

BY

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**DIFFUSION OF XBRL INNOVATION MODEL OF
ADOPTION AND USAGE**

BY

AWNI ATALLAH AL-RAWASHDEH

**Thesis Submitted to the College of Business,
Universiti Utara Malaysia, in Fulfillment of the
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Kolej Perniagaan
(College of Business)
Universiti Utara Malaysia

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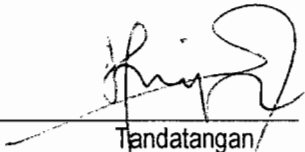
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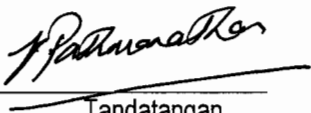
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فلذات كبدي جود وإيلاف وعبادة ...

أبو حمزة وأم حمزة والحديث عن فضلهما يطول

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ADMISSION

I, Awni Atallah Al-Rawashdeh, declare that this thesis, submitted in fulfillment of requirements for award of Doctor of Philosophy, in College of Business (the discipline of Accounting Information Systems, minor Interactive Data Format (“XBRL”) for financial reporting), Universiti Utara Malaysia, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Awni Atallah Al-Rawashdeh

March 2011

ABSTRACT

Motivated by the purported benefits of XBRL, yet its slow adoption by financial data consumers, the aims of this study are to determine the significant factors affecting the adoption and usage of XBRL amongst financial data consumers. However, currently no model addresses this problem from the viewpoint of financial data consumers, which is the focus of the proposed model. The model is developed by using technology diffusion and adoption theories such as Diffusion of Innovation (DOI), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Decomposed Theory of Planned Behavior (DTPB), Campeau Social Cognitive Theory (CSCT), Technology Acceptance Model (TAM), Technology Acceptance Model 1999 (TAM1999), Technology Acceptance Model 2 (TAM2), Technology Acceptance Model 2001 (TAM2001), unified theory of acceptance and use of technology (UTAUT) and use diffusion model (UD). The data was collected using an online survey approach. The findings of this study indicate that attitudinal and control factors are significant factors in explaining financial data consumers' behavior intentions to adopt XBRL. In term of usage, HTML & PDF users are significantly different in 11 out of 23 online services. All these findings can be used by the regulators or industry to further increase the adoption and usage of XBRL amongst financial data consumers.

ABSTRAK

Penggunaan XBRL adalah rendah di kalangan pengguna data kewangan walaupun ia memberi faedah yang banyak kepada mereka. Bertitik tolak dari situasi ini maka tujuan kajian ini adalah bagi mengenalpasti faktor-faktor yang mempengaruhi penerimaan dan penggunaan XBRL di kalangan pengguna data kewangan. Setakat hari ini tidak ada model yang boleh digunakan bagi menyelesaikan masalah ini daripada perspektif pengguna data kewangan. Justeru, fokus bagi model yang dibina oleh kajian ini adalah untuk membantu menyelesaikan permasalahan tersebut. Model yang dicadangkan dibina dengan menggunakan teori-teori penyebaran dan penerimaan teknologi seperti Diffusion Of Innovation (DOI), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Decomposed Theory of Planned Behavior (DTPB), Campeau Social Cognitive Theory (CSCT), Technology Acceptance Model (TAM), Technology Acceptance Model 1999 (TAM1999), Technology Acceptance Model 2 (TAM2), Technology Acceptance Model 2001 (TAM2001), unified theory of acceptance and use of technology (UTAUT) dan use diffusion model (UD). Data kajian telah dikutip dengan menggunakan kaedah tinjauan. Dapatan daripada kajian ini menunjukkan bahawa faktor-faktor sikap, kawalan dan normatif mempengaruhi secara signifikan niat tingkah laku pengguna data kewangan untuk menerima XBRL. Dari aspek penggunaan pula, pengguna HTML dan PDF adalah berbeza secara signifikan dalam 11 daripada 23 perkhidmatan atas talian. Semua dapatan kajian ini boleh digunakan oleh pihak berkuasa atau industri bagi meningkatkan penerimaan dan penggunaan XBRL di kalangan pengguna data kewangan.

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LIST OF ABBREVIATION

XBRL	=	eXensible Business Reporting Language
HTML	=	Hyper Text Markup Language
PDF	=	Portable Document Format
XBI	=	XBRL Behavior Intention
XAB	=	XBRL Adoption Behavior
MXA	=	Model of XBRL Adoption
PU	=	Perceived Usefulness
PE	=	Perceived Ease of Use
PRA	=	Perceived Relative Advantage
PC	=	Perceived Compatibility
PX	=	Perceived Complexity
PI	=	Peer Influence
SI	=	Superior Influence
TR	=	Training
EL	=	English Language
KN	=	Knowledge
SE	=	Self-Efficacy
FCR	=	Facilitating Conditions Resources

DOI	=	Diffusion of Innovation
TRA	=	Theory of Reasoned Action
TPB	=	Theory of Planned Behavior
DTPB	=	Decomposed Theory of Planned Behavior
CSCT	=	Campeau Social Cognitive Theory
TAM	=	Technology Acceptance Model
UTAUT	=	Unified Theory of Acceptance and Use of Technology
UD	=	Use Diffusion Model

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Financial data has become a key resource of most financial data consumers, companies and economies. Today's consumers' financial data are operating in the Internet financial reporting (IFR) form. The IFR such as portable document format (PDF) or Web pages formatted using Hyper Text Markup Language (HTML), has changed from traditional presentation format to interactive data such as eXensible Business Reporting Language (XBRL) (Doolin & Troshani, 2004; Hodge, Kennedy & Maines, 2004; Taylor & Dzuranin, 2010). More and more financial data consumers believe that XBRL is critical to their success (Plumlee & Plumlee, 2008; Boyer-Wright, summers, Kottemann, 2010; Debreceeny et al., 2010), however not many of them have turned this belief into actual usage (Henderson, Sheetz & Trinkle, 2009).

Traditional presentation format of data (non-XBRL data such as HTML and PDF) can have significant social and business impacts (Henderson et al., 2009). There is strong evidence that traditional presentation format problems, such as manual rekeying of data, time consuming and error-prone human interaction, high cost, lack of transparency (Hodge et al., 2004; Henderson et al., 2009), information asymmetry and lack of timeliness (Yoon, Zo & Ciganek, 2010) are becoming prevalent in the practical setting (Hodge et al., 2004; Naumann, 2004; Premuroso & Bhattacharya, 2008). Most

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REFERENCES

- Abdullah, A., Khadaroo, I., & Shaikh, J. (2009). Institutionalisation of XBRL in the USA and UK. *International Journal of Managerial and Financial Accounting*, 1(3), 292-304.
- Abraham, S., & Poels, G. (2009). A family of experiments to evaluate a functional size measurement procedure for Web applications. *The Journal of Systems & Software*, 82(2), 253-269.
- Adams, D. A., Nelson, R. R., & Todd, P. A. (1992). Perceived usefulness, ease of use and usage of information technology. *MIS Quarterly*, 16(2), 227-247.
- Agarwal, R., & Prasad, J. (1999). Are individual differences germane to the acceptance of new information technologies? *Decision Sciences*, 30(2), 361-391.
- Ajzen, I. (1985). From intentions to actions, In J. Kuhl, & J. Beckmann (Eds.), *A theory of planned behavior*: Springer series in social psychology (pp. 11-39). Berlin: Springer.
- Ajzen, I. (1988). *Attitudes, personality, and behavior*. Chicago: Dorsey Press.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.

- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, 32(4), 665-683.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Al-Gahtani, S. (2003). Computer technology adoption in Saudi Arabia: Correlates of Perceived Innovation Attributes. *Information Technology for Development*, 10(1), 57-69.
- Amoako-Gyampah, K. (2007). Perceived usefulness, user involvement and behavioral intention: an empirical study of ERP implementation. *Computers in human behavior*, 23(3), 1232-1248.
- Amoako-Gyampah, K., & Salam, A. (2004). An Extension of the technology acceptance model in an erp implementation environment. *Information & Management*, 41(6), 731-745.
- Anckar, B. (2003). *Drivers and inhibitors to e-commerce adoption: exploring the rationality of consumer behaviour in the electronic marketplace*. Paper presented at the 11th ECIS on New Paradigms in Organizations, Markets and Society, Napoli, Italy.
- Anderson, B., McWilliam, A., Lacohee, H., Clucas, E., & Gershuny, J. (1999). Family life in digital home- domestic telecommunications at the end of the 20th century. *T Technology Journal*, 17(1), 85-97.

- Anderson, B., & Tracey, K. (2001). Digital living: the impact (or otherwise) of the internet on everyday life. *American behavioral scientist*, 45(3), 456-475.
- Arnold, V., Bedard, J., Phillips, J., Sutton, S., & Fellow, P. (2010). *The impact of information tagging in the md&a on investor decision making: Implications for XBRL*. Paper presented at the European Accounting Association Annual Congress. Retrieved from <http://www.nd.edu/~carecob/Workshops/09-10%20Workshops/Arnold%20Paper.pdf>
- Arnold, V., Bedard, J., Phillips, J., Sutton, S., Fellow, P., & Fellow, P. (2008). *Understanding Professional and Non-Professional Investors' Information Requirements: Working paper*. Retrieved from <http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p118443.pdf>
- Atwell, R. C., Schulte, L. A., & Westphal, L. M. (2009). Linking resilience theory and diffusion of innovations theory to understand the potential for perennials in the US Corn Belt. *Ecology and Society*, 14(1), 30. [online] URL: <http://www.ecologyandsociety.org/vol14/iss1/art30/>.
- Bandura, A. (1977). Self-Efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, N.J.: Prentice-Hall.
- Bandura, A. (1995). *Self-efficacy in changing societies*: Cambridge Univ Press.

- Bandura, A. (2006). *Guide for constructing selfefficacy scales*. In F. Pajeras., & T. Urdan (Eds.). *Self-efficacy beliefs of adolescents* (pp. 307-337). Connecticut: Information Age Publishing.
- Barac, K. (2004). South african auditors' policies, practices and perceptions with regard to Internet reporting. *Meditari Accountancy Research*, 12(2), 1-19.
- Beattie, V., & Pratt, K. (2003). Issues concerning web-based business reporting: an analysis of the views of interested parties. *The British Accounting Review*, 35(2), 155-187.
- Beck, R., Beimborn, D., Weitzel, T., & König, W. (2008). Network effects as drivers of individual technology adoption: analyzing adoption and diffusion of mobile communication services. *Information Systems Frontiers*, 10(4), 415-429.
- Benbasat, I., & Zmud, R. (1999). Empirical research in information systems: the practice of relevance. *MIS Quarterly*, 23(1), 3-16.
- Benschop, Y., & Meihuizen, H. (2002). Keeping up gendered appearances: representations of gender in financial annual reports. *Accounting, Organizations and Society*, 27(7), 611-636.
- Bergeron, B. (2003). *Essentials of XBRL: financial reporting in the 21st century*: John Wiley & Sons Inc.
- Blount, L. W. L. (2009). Women Administrators in distance higher education- an exploratory study. *Advancing Women In Leadership Journal*, 27.

- Bosak, J., & Bray, T. (1999). XML and the second-generation Web. *scientific American*, 280(5), 89-93.
- Boudreau, M., Gefen, D., & Straub, D. (2001). Validation in information systems research: A state-of-the-art assessment. *MIS Quarterly*, 25(1), 1-16.
- Bovee, M., Ettredge, M., Srivastava, R., & Vasarhelyi, M. (2002). Does the year 2000 XBRL taxonomy accommodate current business financial-reporting practice. *Journal of Information Systems*, 16(2), 165-182.
- Boyd, G., & Teixeira, A. (2004). What in the world Is XBRL? *Chartered Accountants Journal Of New Zealand*, 83(1), 4-5.
- Boyer-Wright, K., Summers, G., & Kottemann, J. (2010). XBRL: Is it time? *Issues in Informing Science and Information Technology*, 7.
- Brace, N., Kemp, R., & Snelgar, R. (2003). *Spss for Psychologists: A guide to data analysis using spss for windows (Versions 9, 10 and 11)*, 2nd. Ed., New York: Palgrave MacMillan.
- Bradford, M., & Florin, J. (2003). Examining the role of innovation diffusion factors on the implementation success of enterprise resource planning systems. *International Journal of Accounting Information Systems*, 4(3), 205-225.
- Brown, F., & Willis, M. (2003). XBRL: Revolutionizing the corporate reporting supply chain. *Financial Executive*, 19(3), 70-71.
- Brown, S., & Venkatesh, V. (2003). Bringing nonadopters along: The challenge facing the PC industry. *Communications of the ACM*, 46(4), 76-80.

- Burns, A., & Bush, R. (2002). *Marketing Research: Online Research Applications*: Prentice Hall.
- Carr, M. (2008). Adoption and diffusion of Internet banking. *Advances in Banking Technology and Management*. New York: Hershey, 33-52.
- Carveth, R., & Kretchmer, S. (2002). The digital divide in western europe: Problems and prospects. *Informing Science*, 5, 239-249.
- Chan, S., & Lu, M. (2004). Understanding internet banking adoption and use behavior: A Hong Kong perspective. *Journal of Global Information Management*, 12(3), 21-43.
- Chang, J., Torkzadeh, G., & Dhillon, G. (2004). Re-examining the measurement models of success for internet commerce. *Information & Management*, 41(5), 577-584.
- Chang, M. (1998). Predicting unethical behavior: A comparison of the theory of reasoned action and the theory of planned behavior. *Journal of Business Ethics*, 17(16), 1825-1834.
- Chang, M., Cheung, W., Cheng, C., & Yeung, J. (2008). Understanding ERP system adoption from the user's perspective. *International Journal of Production Economics*, 113(2), 928-942.
- Chau, P., & Hu, P. (2001). Information technology acceptance by individual professionals: a model comparison approach. *Decision Sciences*, 32(4), 699-719.
- Chen, A., LaBrie, R., & Shao, B. (2003). An XML adoption framework for electronic business. *Journal of Electronic Commerce Research*, 4(1), 1-14.

- Chiu, C. M., Chang, C. C., Cheng, H. L., & Fang, Y. H. (2009). Determinants of customer repurchase intention in online shopping. *Online Information Review*, 33(4), 761-784.
- Choudrie, J., & Dwivedi, Y. (2005). Investigating the research approaches for examining technology adoption issues. *Journal of Research Practice*, 1(1).
- Compeau, D., & Higgins, C. (1995). Application of social cognitive theory to training for computer skills. *Information systems research*, 6(2), 118.
- Compeau, D., Higgins, C., & Huff, S. (1999). Social cognitive theory and individual reactions to computing technology: A Longitudinal Study. *MIS quarterly*, 23(2), 145-158.
- Cornford, T., & Smithson, S. (2006). *Project research in information systems*. London, UK: Palgrave
- D'Ambra, J., & Rice, R. (2001). Emerging factors in user evaluation of the world wide Web. *Information & Management*, 38(6), 373-384.
- Davidson, A., Robinson, A., & Malthus, S. (2006). Survey of chartered accountants show xbrl slow to catch on. *Chartered Accountants Journal* (68-70).
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 13(3), 319-340.
- Davis, F., Bagozzi, R., & Warshaw, P. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management science*, 35(8), 982-1003.

- Debreceeny, R. (2007). Research into XBRL - old and new challenges *new dimensions of businessreporting and XBRL* (pp. 3-15). Deutscher Universität-Verlag, Weisbaden: Springer.
- Debreceeny, R. (2009). Statement of interest-roger debreceeny. from <http://www.w3.org/2009/03/XBRL/soi/Debreceeny.html>
- Debreceeny, R., & Gray, G. (2001). The production and use of semantically rich accounting reports on the internet: XML and XBRL. *International Journal of Accounting Information Systems*, 2(1), 47-74.
- Debreceeny, R., Gray, G., & Rahman, A. (2002). The determinants of internet financial reporting. *Journal of Accounting and Public Policy*, 21(4-5), 371-394.
- Debreceeny, R. S., Chandra, A., Cheh, J. J., Guithues-Amrhein, D., Hannon, N. J., Hutchison, P. D. *et al.* (2005). Financial reporting in XBRL on the SEC's edgar system: A Critique and Evaluation. *Journal of Information Systems*, 19(2), 191.
- Deshmukh, A. (2004). XBRL. *Communications of the Association for Information Systems*, 13(16), 196-219.
- Deshmukh, A., Karim, K., Romine, J., & Rutledge, R. (2006). XBRL in the accounting curriculum: A survey of ais faculty. *Review of Business Information Systems*, 10(2), 75-90.
- Deutskens, E., De Ruyter, K., Wetzels, M., & Oosterveld, P. (2004). Response rate and response quality of internet-based surveys: An Experimental Study. *Marketing Letters*, 15(1), 21-36.

- Ding, R. (2008). *How does partner selection affect contractual design?: evidence from inter-firm cooperation*. Bradford University, School of Management.
- Dipiazza, S., & Eccles, R. (2002). *Building public trust: The future of corporate reporting*. Wiley.
- Dishaw, M., & Strong, D. (1999). Extending the technology acceptance model with task-technology fit constructs. *Information & Management*, 36(1), 9-21.
- Dommeier, C., & Moriarty, E. (2000). Comparing two forms of an e-mail survey: Embedded vs. attached. *International Journal of Market Research*, 42(1), 39-50.
- Doolin, B., & Troshani, I. (2004). XBRL: A research note. *Qualitative Research in Accounting & Management*, 1(2), 93-104.
- Doolin, B., & Troshani, I. (2005, June). *Drivers and inhibitors impacting technology adoption: a qualitative investigation into the Australian experience with XBRL*. Paper presented at the 18th Bled eConference eIntegration in Action Bled, Slovenia.
- Doolin, B., & Troshani, I. (2007). Organizational adoption of XBRL. *Electronic Markets*, 17(3), 199-209.
- Downey, L., Papageorgiou, V., & Stough, C. (2006). Examining the relationship between leadership, emotional intelligence and intuition in senior female managers. *Leadership & Organization Development Journal*, 27(4), 250-264.

- Dubelaar, C., Tsarenko, Y., & Gabbott, M. (2003). Performance measurement in the Australian on-line securities marketplace. *International Journal of Bank Marketing*, 21(6/7), 335-346.
- Dull, R. B., Graham, A. W., & Baldwin, A. A. (2003). Web-based financial statements: hyperlinks to footnotes and their effect on decisions. *International Journal of Accounting Information Systems*, 4(3), 185-203.
- Dwivedi, Y. K., Choudrie, J., & Brinkman, W. P. (2006). Development of a survey instrument to examine consumer adoption of broadband. *Industrial Management & Data Systems*, 106(5), 700-718.
- Dwivedi, Y. K. (2007). *Consumer adoption and usage of broadband*: IRM Press.
- ErnestChang, S., & Heng, M. (2006). An empirical study on voice-enabled web applications. *IEEE Pervasive Computing*, 5(3), 76-81.
- Etzioni, O. (1996). The world-wide web: Quagmire or gold mine? *Communications of the ACM*, 39(11), 65-68.
- Farewell, S., & Pinsker, R. (2005). XBRL and financial information assurance services. *The CPA Journal*, 75(5), 68-69.
- Farr, J., & Ford, C. (1990). Individual Innovation. In West M.A. and Farr J.L. (Eds.) *Innovation and creativity at work*, 63-80.
- Finch, J. (1986). Age. In *key variables in social investigation*, Burgess, R., (Ed.), Routledge, London.

- Gefen, D., & Straub, D. (2005). A practical guide to factorial validity using pls-graph: tutorial and annotated example. *Communications of the Association for Information Systems*, 16(5), 91-109.
- Ghani, E., & Jusoff, K. (2009). Determinants of preferred financial digital format by new zealand accounting practitioners. *International Education Studies*, 2(1), 167-178.
- Ghani, E., Laswad, F., & Tooley, S. (2009). Digital reporting formats: Users' perceptions, preferences and performances. *The International Journal of Digital Accounting Research*, 9, 45-98.
- Ghani, E., Mara, U., Laswad, F., Tooley, S., & Jusoff, K. (2009). The role of presentation format on decision-makers' behaviour in accounting. *International Business Research*, 2(1), P183.
- Ghani, E., Mara, U., Laswad, M., North, P., Zealand, N., Tooley, S. *et al.* (2008). *Do digital reporting formats assist professional users in overcoming functional fixation in recognition vs. disclosure?* Paper presented at the BAA 2008 Conference.
- Ghani, E. K., Laswad, F. a., & Tooley, S. (2007). *Users' perception of usefulness and ease of use of digital presentation formats.* Paper presented at the 5th Asia Pacific Interdisciplinary Research in Accounting (APIRA) Conference.
- Gilbert, G. N. (2001). *Researching social life*: Sage Publications Ltd.
- Gilligan, C., & Wilson, R. (2003). *Strategic marketing planning*: Butterworth-Heinemann Ltd.

- Gorsuch, R. (1997). Exploratory factor analysis: Its role in item analysis. *Journal of personality assessment*, 68(3), 532-560.
- Gray, G., & Miller, D. (2009). XBRL: Solving real-world problems. *International Journal of Disclosure and Governance*, 6(3), 207-223.
- Greenhalgh, T., Robert, G., MacFarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *Milbank Quarterly*, 82(4), 581-629.
- Grigorovici, D., & Constantin, C. (2004). Experiencing interactive advertising beyond rich media: Impacts of ad type and presence on brand effectiveness in 3D gaming immersive virtual environments. *Journal of Interactive Advertising*, 5(1), 1-22.
- Grossnickle, J., & Raskin, O. (2001). Handbook of online marketing: McGraw.
- Guadagnoli, E., & Velicer, W. (1988). Relation to sample size to the stability of component patterns. *Psychological Bulletin*, 103(2), 265-275.
- Hanna, R., Weinberg, B., Dant, R., & Berger, P. (2005). Do internet-based surveys increase personal self-disclosure? *The Journal of Database Marketing, Customer Strategy Management*, 12(4), 342-356.
- Hannon, N. (2003). XBRL: Edgar analyst changes everything. *Strategic Finance*, 84(7), 55-56.
- Harrison, A., & Rainer, R. (1992). The influence of individual differences on skill in end-user computing. *Journal of Management Information Systems*, 9(1), 93-111.

- Hartwick, J., & Barki, H. (1994). Explaining the role of user participation in information system use. *Management Science*, 40(4), 440-465.
- Henderson, D., Sheetz, S., & Trinkle, B. (2009). A Structural model of the determinants of XBRL adoption. Available at SSRN: <http://ssrn.com/abstract=1367232>.
- Herrero Crespo, A., & Rodriguez del Bosque, I. (2008). The effect of innovativeness on the adoption of B2C e-commerce: A Model Based on the Theory of Planned Behaviour. *Computers in Human Behavior*, 24(6), 2830-2847.
- Herrmann, T., Kienle, A., & Reiband, N. (2003). Meta-knowledge-a success factor for computer-supported organizational learning in companies. *Educational Technology & Society*, 6(1), 9-13.
- Higgins, L., & Harrell, H. (2003). XBRL: Don't lag behind the digital information revolution. *Journal of Corporate Accounting & Finance*, 14(5), 13-21.
- Hinton PR. Brownlow C, McMurray I. et al. *SPSS Explained*. 1st Ed. 2004
- Hodge, F. (2001). Hyperlinking unaudited information to audited financial statements: Effects on investor judgments. *Accounting Review*, 76(10), 675-691.
- Hodge, F., Kennedy, J., & Maines, L. (2004). Does search-facilitating technology improve the transparency of financial reporting?. *The Accounting Review*, 79(3), 687-703.
- Hoffman, C. (2006). *Financial reporting using XBRL*. IFRS and US GAAP Edition.

- Hoffman, C., & Strand, C. (2001). *XBRL essentials: A nontechnical introduction to extensible business reporting language (XBRL), the digital language of business reporting*: American Institute of Certified Public Accountants, New York.
- Hoffman, D., & Novak, T. (1996). Marketing in hypermedia computer-mediated environments: conceptual foundations. *The Journal of Marketing*, 60(3), 50-68.
- Holmes, J. H. (1997). *Discovery of disease risk with a learning classifier system*. Paper presented at the Proceedings of the Seventh International Conference on Genetic Algorithms (ICGA97).
- Huang, E., & Chuang, M. (2007). Extending the theory of planned behaviour as a model to explain post-merger employee behaviour of its use. *Computers in Human Behavior*, 23(1), 240-257.
- Huang, W., D'Ambra, J., & Bhalla, V. (2002). *Key factors influencing the adoption of e-government in Australian public sectors*. Paper presented at the 8th AMCIS.
- Hurt, D., Kreuze, J., & Langsam, S. (2001). Using the internet for financial reporting. *Journal of Corporate Accounting & Finance*, 12(3), 67-76.
- Jackson, C., Chow, S., & Leitch, R. (1997). Toward an understanding of the behavioral intention to use an information system. *Decision Sciences*, 28(2), 357-389.
- Jackson, S., & Scott, S. (2001). *Gender*. Routledge, London.
- Jeyaraj, A., Rottman, J., & Lacity, M. (2006). A Review of the predictors, linkages, and biases in IT innovation adoption research. *Journal of Information Technology*, 21(1), 1-23.

- Jones, A., & Willis, M. (2003). The challenge of XBRL: Business reporting for the investor. *Balance Sheet*, 11(3), 29-37.
- Jones, N., & Gupta, J. (2004). Transforming small businesses into intelligent enterprises through knowledge management. *Intelligent enterprises of the 21st century*, Idea Group
- Kalton, G. (1983). *Introduction to survey sampling*: Sage Publications, Inc.
- Kaplowitz, M., Hadlock, T., & Levine, R. (2004). A Comparison of web and mail survey response rates. *Public opinion quarterly*, 68(1), 94-101.
- Karahanna, E., & Straub, D. (1999). The psychological origins of perceived usefulness and ease-of-use. *Information & Management*, 35(4), 237-250.
- Karahanna, E., Straub, D. W., & Chervany, N. L. (1999). It adoption across time. *MIS Quarterly*, 23(2), 183-213.
- Kazmi, S. N. (2008). *Competitive constructs of ERP implementation public sector in pakistan. International conference on business and management* (pp. 1-11). Bangkok: International Colloquium On Business & Management.
- Kitchenham, B., & Pfleeger, S. (2002). Principles of survey research part 3: Constructing a survey instrument. *ACM SIGSOFT Software Engineering Notes*, 27(2), 20-23.
- Laforet, S., & Li, X. (2005). Consumers' attitudes towards online and mobile banking in china. *Marketing*, 23(5), 362-380.

- Lai, F., Wang, J., Hsieh, C. T., & Chen, J. C. (2007). On network externalities, e-business adoption and information asymmetry. *Industrial Management And Data Systems*, 107(5), 728-746.
- Lawshe, C. (1975). A quantitative approach to content validity. *Personnel Psychology*, 28(4), 563-575.
- Lee, M. (2009). Factors influencing the adoption of internet banking: An integration of tam and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 8(3), 130-141.
- Legris, P., Ingham, J., & Collette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & Management*, 40(3), 191-204.
- Lessiter, J., Freeman, J., Miotto, A., & Ferrari, E. (2008). *A comparative study of remote controls for digital TV receivers*. Paper presented at the 6th European conference on Changing Television Environments table of contents.
- Lewis, B. R., Snyder, C. A., & Rainer, K. R. J. (1995). An empirical assessment of the information resources management construct. *Journal of Management Information Systems*, 12(1), 199-223.
- Li, Y., & Crews, M. (2006). Information technology addresses transparency: The potential effects of XBRL on financial disclosure. *Issues in Information Systems*, 7(2), 241-245.

- Lim, V. K. G., & Teo, T. S. H. (2009). Mind your e-manners: impact of cyber incivility on employees' work attitude and behavior. *Information & Management*, 46(8), 419-425.
- Limayem, M., & Hirt, S. (2003). Internet-based teaching: How to encourage university students to adopt advanced internet-based technologies?. *Journal of the Association for Information Systems*, 4(3).
- Lin, H. Y. (2003). *The business financial reporting with XBRL technology*. National Yunlin University of Science & Technology, Taiwan.
- Locke, J., & Lowe, A. (2007). XBRL: An (open) source of enlightenment or disillusion? *European Accounting Review*, 16(3), 585-623.
- Lu, J., Yao, J., & Yu, C. (2005). Personal innovativeness, social influences and adoption of wireless internet services via mobile technology. *Journal of strategic information systems*, 14(3), 245-268.
- Luarn, P., & Lin, H. (2005). Toward an understanding of the behavioral intention to use mobile banking. *computers in human behavior*, 21(6), 873-891.
- Lucas, H., Swanson, E., & Zmud, R. (2007). Implementation, innovation, and related themes over the years in information systems research. *Journal of the Association for Information Systems*, 8(4), 206-210.
- Ma, Q., & Liu, L. (2005). The role of internet self-efficacy in the acceptance of web-based medical record systems. *Journal of Organizational and End User Computing*, 17(1), 38-57.

- Malhotra, Y., & Galletta, D. (1999). *Malhotra, Y. And Galletta, D. Extending the technology acceptance model to account for social influence: Theoretical bases and empirical validation*. Paper presented at the 32nd Annual Hawaii International Conference on Systems Sciences, Hawaii.
- Marshall, B., Mortenson, K., Bourne, A., & Price, K. (2010). Visualizing basic accounting flows: does xbrl+ model+ animation= understanding?. *The International Journal of Digital Accounting Research*, 10(2), 27-54.
- Mathieson, K. & Chin, W. (2001). Extending the technology acceptance model: The influence of perceived user resources. *Database for Advance in Information Systems*, 32(3), 86-102.
- Mathieson, K. (1991). Predicting user intentions: comparing the technology acceptance model with the theory of planned behavior. *Information systems research*, 2(3), 173-191.
- Mathieson, K., Peacock, E., & Chin, W. (2001). Extending the technology acceptance model: the influence of perceived user resources. *ACM SIGMIS Database*, 32(3), 86-112.
- McCloskey, D. (2006). The importance of ease of use, usefulness, and trust to online consumers: An examination of the technology acceptance model with older customers. *Journal of Organizational and End User Computing*, 18(3), 47-65.
- Melville, N., & Ramirez, R. (2008). Information technology innovation diffusion: an information requirements paradigm. *Information Systems Journal*, 18(3), 247-273.

- Miller, P., Sooryamoorthy, R., Anderson, M., Palackal, A., & Shrum, W. (2006). Gender and science in developing areas: Has the internet reduced inequality?. *Social Science* 4, 87(3), 679-689.
- Mingers, J. (2001). Combining is research methods: Towards a pluralist methodology. *Information Systems Research*, 12(3), 240-259.
- Mingers, J. (2003). The paucity of multimethod research: A review of the Information Systems Literature. *Information Systems Journal*, 13(3), 233-249.
- Moody, D., Sindre, G., & Brasethvik, T. (2003). *Evaluating the quality of information models: empirical testing of a conceptual model quality framework*. Paper presented at the 25th International Conference on Software Engineering (ICSE'03).
- Moore, G., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information systems research*, 2(3), 192-222.
- Morgan, D. H. J. (1986). Gender. In *key variables in social investigation*, Burgess, R., (Ed.), Routledge, London.
- .Morris, M. G., & Venkatesh, V. (2000). Age differences in technology adoption decisions: implications for a changing work force. *Personnel Psychology*, 53 (2), 375-403.
- Myers, M. (1997). Qualitative research in information systems. *MIS Quarterly*, 21(2), 241-242.

- Nandhakumar, J., & Jones, M. (1997). *Designing in the dark: The changing user-developer relationship in information systems development*. Paper presented at the eighteenth international conference on Information systems table of contents, Atlanta, Georgia, United States.
- Naumann, J. (2004). Tap into XBRL's power the easy way: The microsoft office tool for XBRL benefits all financial reporting participants. *Journal of Accountancy*, 197(5), 32-40.
- Nel, G., & Steenkamp, L. (2008). An exploratory study of chartered accountants' awareness and understanding of XBRL. *Meditari Accountancy Research*, 16(1), 79-93.
- Ngai, E., & Gunasekaran, A. (2004). Implementation of EDI in Hong Kong: *an empirical analysis*. *Industrial Management & Data Systems*, 104(1), 88-100.
- Nilikanta, S., & Scammel, W. (1990). The effect of information sources and communication channels on the diffusion of innovation in a database development environment. *Management Science*, 36(1), 24-40.
- Norman, D. (2002). *The design of everyday things*: Basic Books New York.
- Ogbonna, E., & Harris, L. (2005). The adoption and use of information technology: A longitudinal study of a mature family firm. *New Technology, Work and Employment*, 20(1), 2-18.
- Oliver, R., & Bearden, W. (1985). Crossover effects in the theory of reasoned action: a moderating influence attempt. *Journal of Consumer Research*, 324-340.

- Orlikowski, W., & Baroudi, J. (1991). Studying information technology in organizations: research approaches and assumptions. *Information systems research*, 2(1), 1-28.
- Pandita, N., Singh, S., & Dash, S. (2008). *Barriers to equitable access to quality health information with emphasis on developing countries*. Paper presented at the Making the Health Connection conference.
- Pankko, R. (1983). Options in electronic mail. *Office Administration and Automation*, 44(11), 50-96.
- Park, N., Lee, K., & Cheong, P. (2008). University instructors' acceptance of electronic courseware: an application of the technology acceptance model. *Journal of Computer-Mediated Communication*, 13(1), 163-186.
- Pearson, A., Gallagher, A., Rosser, J., & Satava, R. (2002). Evaluation of structured and quantitative training methods for teaching intracorporeal knot tying. *Surgical endoscopy*, 16(1), 130-137.
- Petter, S., DeLone, W., & McLean, E. (2008). Measuring information systems success: models, dimensions, measures, and interrelationships. *European Journal of Information Systems*, 17(3), 236-263.
- Pfeffer, J., & Salancik, G. (2003). *The external control of organizations: a resource dependence perspective*: Stanford University Press, CA.
- Pinsker, R. (2003). XBRL awareness in auditing: a sleeping giant? *Managerial Auditing Journal*, 18(9), 732-736.

- Pinske, R. (2007). A theoretical framework for examining the corporate adoption decision involving XBRL as a continuous disclosure reporting technology *new dimensions of business reporting and XBRL* (73-98). Verlag, Germany: Springer Group.
- Pinsker, R. (2008). An empirical examination of competing theories to explain continuous disclosure technology adoption intentions using XBRL as the Example technology. *The International Journal of Digital Accounting Research*, 8(14), 81-96.
- Pinsker, R., & Wheeler, P. (2009). Nonprofessional investors perceptions of the efficiency and effectiveness of XBRL-Enabled financial statement analysis and of firms providing XBRL-formatted information. *International Journal of Disclosure and Governance*, 6(3), 241-261.
- Plumlee, R., & Plumlee, M. (2008). Assurance on XBRL for financial reporting. *Accounting Horizons* 22 (3), 353–368.
- Porter, C., & Donthu, N. (2006). Using the technology acceptance model to explain how attitudes determine internet usage: The Role of Perceived Access Barriers and Demographics. *Journal of Business Research*, 59(9), 999-1007.
- Premkumar, G., & Roberts, M. (1999). Adoption of new information technologies in rural small businesses. *Omega*, 27(4), 467-484.
- Premuroso, R., & Bhattacharya, S. (2008). Do early and voluntary filers of financial information in xbrl format signal superior corporate governance and operating

performance?. *International Journal of Accounting Information Systems*, 9(1), 1-20.

Rawashdeh, A. A., Selamat, M.H., & Abdullah M.S. (2011, February). *Characteristics of consumers influencing adoption behavior for XBRL*. Paper presented at the International Business Research Conference (IBRC'11), Kuala Lumpur, Malaysia.

Rice, C. (1997). *Understanding customers*. Oxford: Butterworth-Heinemann.

Rice, R., & Shook, D. (1990). Relationships of job categories and organizational levels to use of communication channels, including electronic mail: A meta-analysis and extension. *Journal of Management Studies*, 27(2), 195-229.

Rogers, E. (1983). *Diffusion of innovations (3rd Ed)*. New York, USA: The Free Press.

Rogers, E.. (1995). *Diffusion of innovation (4th Ed ed.)*. New York: Free Press.

Rogers, E. (2002). Diffusion of preventive innovations. *Addictive Behaviors*, 27(6), 989-993.

Rogers, E. M., F.F. Shoemaker (1971). *Communication of innovations*. Collier Macmillan, India: The Free Press.

Roig, J. C. F., Garcia, J. S., Tena, M. A. M., & Monzonis, J. L. (2006). Customer perceived value in banking services. *International Journal of Bank Marketing*, 24(5), 266-283

- Saeed, K., & Abdinnour-Helm, S. (2008). Examining the effects of information system characteristics and perceived usefulness on post adoption usage of information systems. *Information & Management*, 45(6), 376-386.
- Saeedi, A., Richards, J., & Smith, B. (2004). An introduction to XBRL. *Iranian Accounting & Auditing Review*, 45, 132-158.
- Scott, S., & Bruce, R. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal*, 37(3), 580-607.
- Selamat, M. H., Dwivedi, Y. K., Abd Wahab, M. S., Mat Samsudin, M. A., Williams, M. D., & Lal, B. (2008). *Factors Affecting Malaysian Accountants' Broadband Adoption and Use Behavior*. Paper presented at the 14th Americas Conference on Information Systems (AMCIS 2008), Toronto, Ontario.
- Selamat, M. H., & Rawashdeh, A.A. (2009). *Towards a conceptual model of XBRL diffusion*. Paper presented at the 8th Asian Academy of Management International Conference, Kuantan, Malaysia.
- Selamat, M. H., & Rawashdeh, A.A. (2010). *Investigating XBRL diffusion: Toward establishing content validity and pre-test of the questionnaire instrument*. Paper presented at the Communication and Media Conference (i-COME'10), Melaka, Malaysia.
- Shannon, D., Johnson, T., Searcy, S., & Lott, A. (2002). Using electronic surveys: advice from survey professionals. *Practical Assessment, Research & Evaluation*,

8(1). Retrieved July 18, 2004,
from <http://www.ericae.net/pare/getvn.asp?v=8&n=1>

Sheehan, K. (2001). E-mail survey response rates: A review. *Journal of Computer-Mediated Communication*, 6(2), 1-20.

Shih, C., & Venkatesh, A. (2002). Beyond adoption: Development and application of use diffusion (Ud) model to study household use of computers. *Irvine, CA, Project NOAH at Center for Research on Information Technology and Organizations (CRITO) at University of California.*

Shih, C., & Venkatesh, A. (2004). Beyond adoption: Development and application of a use-diffusion model. *Journal of Marketing*, 68(1), 59-72.

Shih, Y., & Fang, K. (2004). The use of a decomposed theory of planned behavior to study internet banking in taiwan. *Internet Research*, 14(3), 213-223.

Shin, R. (2003). XBRL, financial reporting, and auditing. *The CPA Journal*, 73, 12-61.

Singh, M., & Burgess, S. (2007). Electronic data collection methods. *Handbook of research on electronic surveys and measurements, Idea Group Reference, Hershey*, 28-43.

Solomon, S., & O'Brien, J. (1990). The effect of demographic factors on attitudes toward software piracy. *J. COMP. INF. SYST.*, 30(3), 40-46.

Stanton, J. (1998). An empirical assessment of data collection using the internet. *Personnel Psychology*, 51(3), 709-725.

- Straub, D., Boudreau, M., & Gefen, D. (2004). Validation guidelines for is positivist research. *Communications of the Association for Information Systems*, 13(24), 380-427.
- Straub, D., Gefen, D., & Boudreau, M. (2005). Quantitative research, *research in information systems: A handbook for research supervisors and their students*. Amsterdam: Elsevier.
- Strong, D., Dishaw, M., & Bandy, D. (2006). Extending task technology fit with computer self-efficacy. *ACM SIGMIS Database*, 37(2-3), 96-107.
- Stynes, D., & Peterson, G. (1984). A review of logit models with implications for modeling recreation choices. *Journal of Leisure Research*, 16(4), 295-310.
- Sugai, P. (2007). Exploring the impact of handset upgrades on mobile content and service usage. *International Journal of Mobile Communications*, 5(3), 281-299.
- Tan, M., & Teo, T. (2000). Factors influencing the adoption of internet banking. *Journal of the AIS*, 8(3), 130-141.
- Taylor, E. Z., & Dzurainin, A. C. (2010). Interactive financial reporting: An introduction to extensible business reporting language (XBRL). *Issues in Accounting Education*, 25, 71.
- Taylor, S., & Todd, P. (1995). Understanding information technology usage: A test of competing models. *Information systems research*, 6(2), 144.
- Teo, T. (2009). The impact of subjective norm and facilitating conditions on pre-service teachers' attitude toward computer use: A structural equation modeling of an

- extended technology acceptance model. *Journal of Educational Computing Research*, 40(1), 89-109.
- Thompson, L., Surface, E., Martin, D., & Sanders, M. (2003). From paper to pixels: Moving personnel surveys to the web. *Personnel Psychology*, 56(1), 197-227.
- Tojib, D., & Sugianto, L. (2006). Content validity of instruments in is research. *Journal of Information Technology Theory and Application (JITTA)*, 8(3), 31-56.
- Tribunella, T., & Tribunella, H. (2006). A method of teaching the underlying theory of XBRL: An application of information modeling and XML programming with a microsoft excel implementation. *AIS Educator Journal*, 1(1), 11-25.
- Troshani, I., & Doolin, B. (2007). Innovation diffusion: A stakeholder and social network view. *European Journal of Innovation Management*, 10(2), 176-200.
- Troshani, I. and Rao, S. (2007) Drivers and inhibitors to XBRL adoption: A Qualitative Approach to Build a Theory in Under-Researched Areas, *International Journal of E-Business Research*, 3(4), 98-111.
- Sekaran, U. (2003). Research methods for business. NY: *Hermitage Publishing Service*.
- Valente, T. (1996). Network models of the diffusion of innovations. *Computational & Mathematical Organization Theory*, 2(2), 163-164.
- Vasal, V. K., & Srivastava, R. P. (2002). Extensible business reporting language (XBRL): The digital language of business: An Indian Perspective. *Indian Accounting Review*, 6(1), 41-59.

- Venkatesh, V., & Brown, S. (2001). A Longitudinal investigation of personal computers in homes: Adoption determinants and emerging challenges. *MIS Quarterly*, 71-102.
- Venkatesh, V., & Davis, F. (2000). A Theoretical extension of the technology acceptance model: four longitudinal field studies. *Management Science*, 186-204.
- Venkatesh, V., & Morris, M. (2000). Why don't men ever stop to ask for directions? gender, social influence, and their role in technology acceptance and usage behavior. *MIS Quarterly*, 115-139.
- Venkatesh, V., Morris, M., Davis, G., & Davis, F. (2003). User acceptance of information technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425-478.
- Venkatesh, V., Speier, C., & Morris, M. (2002). User acceptance enablers in individual decision making about technology: Toward an integrated model. *Decision Sciences*, 33(2), 297-316.
- Wacker, J. (2004). A Theory of formal conceptual definitions: Developing theory-building measurement instruments. *Journal of Operations Management*, 22(6), 629-650.
- Warren, M. (2004). Farmers online: Drivers and impediments in adoption of internet in Uk agricultural businesses. *Journal of Small Business and Enterprise Development*, 11(3), 371-381.
- Wahid, F.(2007), Using the technology adoption model to analyze internet adoption and use among men and women in indonesia. *Journal on Information Systems in developing Countries*, 32(6): p. 1-8

- Wei, L., & Zhang, M. (2008). The adoption and use of mobile phone in rural china: A case study of hubei, China. *Telematics and Informatics*, 25(3), 169-186.
- Weisberg, S. (2005). *Applied linear regression*: Wiley-Interscience.
- Willis, M. (2005). XBRL and data standardization: Transforming the way cpas work; save time and improve reporting. *Journal of Accountancy*, 199(3), 80-82.
- Witmer, D., Colman, R., & Katzman, S. (1999). From paper-and-pencil to screen-and-keyboard: toward a methodology for survey research on the internet. *Doing Internet research: Critical issues and methods for examining the Net*, 145-161.
- Wright, K. (2005). Researching internet-based populations: advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of Computer-Mediated Communication*, 10(3), 11. Retrieved February 5, 2008, from <http://jcmc.indiana.edu/vol10/issue3/wright.html>.
- Xia, W.D. and Lee, G.H. (2000, December). *The influence of persuasion, training and experience on user perceptions and acceptance of IT innovation'*, Association for Conference on Information Systems, Brisbane, Australia, 371-384.
- Yan, P., & Lin, L. (2007). Reconstruction of business reporting model: An flexible reporting model based on XBRL and web services. *Accounting Research*, 5, 80-87.
- Yi, M., Jackson, J., Park, J., & Probst, J. (2006). Understanding information technology acceptance by individual professionals: Toward an integrative view. *Information & Management*, 43(3), 350-363.

- Yoon, H., Zo, H., & Ciganek, A. (2010). Does XBRL adoption reduce information asymmetry? *Journal of Business Research, In Press, Corrected Proof*.
- Young, H. (2006). The diffusion of innovations in social networks. *The economy as an evolving complex system III: Current Perspectives and Future Directions*, 267.
- Yuan, X., & Wang, Y. (2009). Study on the function of XBRL and the enhancement of the accounting information quality under the background of informationization. *International Journal of Business and Management*, 4(11), P137.