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Validating technology-organization-environment (TOE) framework in web 2.0 adoption in supply chain management
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Abstract

The second stage of Internet revolution has started with Web 2.0, which allows users to generate and develop the content without code. Web 2.0 not only change the way individual use internet but also tremendously transformed business activities. The primary aims of this study are (a) to validate the TOE framework in understanding Web 2.0 adoption in an organizational context, and (b) measuring the importance of each variable from the different industry perspective. This study developed a conceptual model based on the Technology-Organization-Environment (TOE) framework. A Web-based structured questionnaire was developed to collect primary data. With three months effort, this study managed to get 205 respondents from Malaysian manufacturing and service industry. Multiple regression and Dominance analysis were applied to understand the effect of the TOE framework on Web 2.0 adoption and predicting the importance of each factor from different industries perspective respectively. Multiple regression results confirmed that all the factors are important for Web 2.0 adoption, however, the technological characteristic is the most important determinant for Web 2.0 adoption. Moreover, dominance analysis showed very interesting results that relative advantage is not important for the service industry but top management support is the utmost importance. Similarly, results also indicated that top management support plays important role in Web 2.0 adoption for the fewer experience companies pertaining to internet usage. This study is one of the very few that provides insightful information regarding the effect of the TOE on Web 2.0 adoption in the supply chain management system. This study would be the guideline for the managers of both the manufacturing and service industry in order to implement the Web 2.0 in their supply chain system. © 2019 KIIE

Author Keywords

Adoption; Competitive Pressure; Perceived Ease of Use; Perceived Usefulness; TOE Framework; Web 2.0

References

- Adewale, A.A.
Change, customer satisfaction and competition: Issues from the strategic management context
(2016) *International Journal of Economics, Business and Management Studies*, 3 (2), pp. 55-66.
- Ahmadi, F., Rahimi, M., Rezaei, A.
Study of relation between business model and sensemaking decisions
(2018) *Journal of Humanities Insights*, pp. 99-108.
0202
- Ajzen, I.
From intentions to actions: A theory of planner behavior
(1985) *Action Control: From Cognition to Behavior*, pp. 11-39.
Kuhl, J. and Beckmann, J. Eds, Springer-Verlag, New York, NY
- Ajzen, I.
The theory of planned behavior
(1991) *Organizational Behavior and Human Decision Processes*, 50 (2), pp. 179-211.
- Alam, S.S., Ahsan, N.
ICT adoption in Malaysian SMEs from service sector: Preliminary findings
(2007) *Journal of Internet Banking and Commerce*, 12 (3), pp. 1-11.
- Albasu, J., Nyameh, J.

Relevance of stakeholders theory, organizational identity theory and social exchange theory to corporate social responsibility and employees performance in the commercial banks in Nigeria

(2017) *International Journal of Business, Economics and Management*, 4 (5), pp. 95-105.

- Ali, A., Haseeb, M.
Radio frequency identification (RFID) technology as a strategic tool towards higher performance of supply chain operations in textile and apparel industry of Malaysia
(2019) *Uncertain Supply Chain Management*, 7 (2), pp. 215-226.
- Anyanwu, J.O., Okoroji, L.I., Ezewoko, O.F., Nwaobilor, C.A.
The impact of training and development on workers performance in imo state
(2016) *Global Journal of Social Sciences Studies*, 2 (2), pp. 51-71.
- Arya, V., Sharma, P., Singh, A., de Silva, P.
An exploratory study on supply chain analytics applied to spare parts supply chain
(2017) *Benchmarking: An International Journal*, 24 (6), pp. 1571-1580.
- Asare, A.K., Brashear-Alejandro, T.G., Kang, J.
B2B technology adoption in customer driven supply chains
(2016) *Journal of Business & Industrial Marketing*, 31 (1), pp. 1-12.
- Awa, H., Ojiabo, O., Emecheta, B.
Integrating TAM, TPB and TOE frameworks and expanding their characteristic constructs for e-commerce adoption by SMEs
(2015) *Journal of Science & Technology Policy Management*, 6 (1), pp. 76-94.
- Awa, H., Ojiabo, O., Orokor, L.
Integrated technology-organization-environment (T-O-E) taxonomies for technology adoption
(2017) *Journal of Enterprise Information Management*, 30 (6), pp. 893-921.
- Barhoumi, C.
Analysis of technological, individual and community factors influencing the use of popular Web 2.0 tools in LIS education
(2017) *The Electronic Library*, 35 (5), pp. 977-993.
- Beh, L., Ghobadian, A., He, Q., Gallear, D., O'Regan, N.
Second-life retailing: A reverse supply chain perspective
(2016) *Supply Chain Management: An International Journal*, 21 (2), pp. 259-272.
- Behson, S.J.
Coping with family-to-work conflict: The role of informal work accommodations to family
(2002) *Journal of Occupational Health Psychology*, 7 (4), pp. 324-341.
- Budescu, D.V.
Dominance analysis: A new approach to the problem of relative importance of predictors in multiple regression
(1993) *Psychological Bulletin*, 114 (3), pp. 542-551.
- Budescu, D.V., Azen, R.
Beyond global measures of relative importance: Some insights from dominance analysis
(2004) *Organizational Research Methods*, 7 (3), pp. 341-350.
- Carreto, C., Gêgo, D., Figueiredo, L.
An eye-gaze tracking system for teleoperation of a mobile robot
(2018) *Journal of Information Systems Engineering & Management*, 3 (2), p. 16.
- Castorena, O.H., Enríquez, L.A., Adame, M.G.

- The influence of information technology and communication supply chain management performance for greater SME manufacturing in aguascalientes**
(2014) *International Journal of Business, Economics and Management*, 1 (12), pp. 382-396.
- Chaputula, A.H., Mutula, S.
EReadiness of public university libraries in Malawi to use mobile phones in the provision of library and information services
(2018) *Library Hi Tech*, 36 (2), pp. 270-288.
 - Chatzoglou, P., Chatzoudes, D.
Factors affecting e-business adoption in SMEs: An empirical research
(2016) *Journal of Enterprise Information Management*, 29 (3), pp. 327-358.
 - Cheng, C.P., Phung, M.T., Hsiao, C.L., Shen, D.B., Chen, B.S.
Impact of operational risk toward the efficiency of banking-evidence from Taiwans banking industry
(2018) *Asian Economic and Financial Review*, 8 (6), pp. 815-831.
 - Chhonker, M., Verma, D., Kar, A., Grover, P.
M-commerce technology adoption: Thematic and citation analysis of scholarly research during (2008-2017)
(2018) *The Bottom Line*, 31 (3-4), pp. 208-233.
 - Chielotam, A.N.
Oguamalam masquerade performance beyond aesthetics
(2015) *Humanities and Social Sciences Letters*, 3 (2), pp. 63-71.
 - Chowdhury, T.S., Habibullah, M., Nahar, N.
Risk and return analysis of closed-end mutual fund in Bangladesh
(2018) *Journal of Accounting, Business and Finance Research*, 3 (2), pp. 83-92.
 - Corinna, A.C., Marco, A.D., Rafele, C.
E-grocery supply chain management enabled by mobile tools
(2017) *Business Process Management Journal*, 23 (1), pp. 47-70.
 - Davis, F.D., Bagozzi, R.P., Warshaw, P.R.
User acceptance of computer technology: A comparison of two theoretical models
(1986) *Management Science*, 35 (8), pp. 982-1003.
 - Dey, A., Vijayaraman, B.S., Choi, J.H.
RFID in US hospitals: An exploratory investigation of technology adoption
(2016) *Management Research Review*, 39 (4), pp. 399-424.
 - Dim, N.U., Ezeabasili, A.C.C.
Strategic supply chain framework as an effective approach to procurement of public construction projects in Nigeria
(2015) *International Journal of Management and Sustainability*, 4 (7), pp. 163-172.
 - Du, W., Qian, Z., Parsons, P., Chen, Y.
Personal web library: Organizing and visualizing web browsing history
(2018) *International Journal of Web Information Systems*, 14 (2), pp. 212-232.
 - Duru, P.N., Chibo, C.N.
Flooding in imo state Nigeria: The socio-economic implication for sustainable development
(2014) *Humanities and Social Sciences Letters*, 2 (3), pp. 129-140.
 - Farzadnia, E., Hosseini, Z., Riahi, A.
Study of hospital quality management and improvement rates in the hospitals

(2017) *Journal of Humanities Insights*, pp. 7-11.
0101

- Fuchs, C., Beck, D., Lienland, B., Kellner, F.
The role of IT in automotive supplier supply chains
(2018) *Journal of Enterprise Information Management*, 31 (1), pp. 64-88.
- Giannakis, M., Louis, M.
A multi-agent based system with big data processing for enhanced supply chain agility
(2016) *Journal of Enterprise Information Management*, 29 (5), pp. 706-727.
- Gorane, S., Kant, R.
Supply chain practices and organizational performance: An empirical investigation of Indian manufacturing organizations
(2017) *The International Journal of Logistics Management*, 28 (1), pp. 75-101.
- Gumel, F.
The effects of European Negotiatory state of Turkey on local management
(2017) *Journal of Humanities Insights*, 1 (2), pp. 57-62.
- Haddud, A., DeSouza, A., Khare, A., Lee, H.
Examining potential benefits and challenges associated with the internet of things integration in supply chains
(2017) *Journal of Manufacturing Technology Management*, 28 (8), pp. 1055-1085.
- Haseeb, M., Abidin, I.S.Z., Hye, Q.M.A., Hartani, N.H.
The impact of renewable energy on economic well-being of Malaysia: Fresh evidence from auto regressive distributed lag bound testing approach
(2018) *International Journal of Energy Economics and Policy*, 9 (1), pp. 269-275.
- Haseeb, M., Zandi, G., Hartani, N.H., Pahi, M.H., Nadeem, S.
Environmental analysis of the effect of population growth rate on supply chain performance and economic growth of Indonesia
(2019) *Ekoloji*, 28 (107), pp. 417-426.
- Hossain, M., Standing, C., Chan, C.
The development and validation of a two-staged adoption model of RFID technology in livestock businesses
(2017) *Information Technology & People*, 30 (4), pp. 785-808.
- Hsu, C., Lin, Y., Chen, M., Chang, K., Hsieh, A.
Investigating the determinants of e-book adoption
(2017) *Program*, 51 (1), pp. 2-16.
- Huda, M.
Empowering application strategy in the technology adoption: Insights from professional and ethical engagement
(2019) *Journal of Science and Technology Policy Management*, 10 (1), pp. 172-192.
- Hussain, S., Fangwei, Z., Siddiqi, A.F., Ali, Z., Shabbir, M.S.
Structural equation model for evaluating factors affecting quality of social infrastructure projects
(2018) *Sustainability*, 10 (5), pp. 1-25.
- Iqbal, J., Shabbir, M.S., Zameer, H., Tufail, M.S., Sandhu, M.A., Ali, W.
TQM practices and firm performance of Pakistani service sector firms
(2017) *Paradigms: A Research Journal of Commerce, Economics, and Social Sciences*, 11 (1), pp. 87-96.
- Iravani, M.R., ShekarchiZade, A.

A social work study of effective cultural, social economic factors on work stress: A review

(2014) *UCT Journal of Management and Accounting Studies*, 1 (4), pp. 5-7.

- Jeyaraj, A., Rottman, J.W., Lacity, M.C.
A review of the predictors, linkages, and biases in IT innovation adoption research
(2006) *Journal of Information Technology*, 21 (1), pp. 1-23.
- Karahoca, A., Karahoca, D., Aksöz, M.
Examining intention to adopt to internet of things in healthcare technology products
(2018) *Kybernetes*, 47 (4), pp. 742-770.
- Khan, S.N., Ali, E.I.E.
The moderating role of intellectual capital between enterprise risk management and firm performance: A conceptual review
(2017) *American Journal of Social Sciences and Humanities*, 2 (1), pp. 9-15.
- Kim, C., Galliers, D.R.
Toward a diffusion model for internet systems
(2004) *Internet Research*, 14 (2), pp. 155-166.
- Kimengsi, J.N., Gwan, S.A.
Reflections on decentralization, community empowerment and sustainable development in Cameroon
(2017) *International Journal of Emerging Trends in Social Sciences*, 1 (2), pp. 53-60.
- Kozhabergenova, G.E., Taubaeva, S., Bulatbayeva, A.A., Kabakova, M.P., Asanov, N.A.
The stewardship of school counselor education in higher educational establishments
(2018) *Opción*, 34 (85-2), pp. 386-414.
- Küçükkocaoğlu, G., Bozkurt, M.A.
Identifying the effects of mergers and acquisitions on Turkish banks performances
(2018) *Asian Journal of Economic Modelling*, 6 (3), pp. 235-244.
- Kumar, R., Sachan, A., Mukherjee, A.
Direct vs indirect e-government adoption: An exploratory study
(2018) *Digital Policy, Regulation and Governance*, 20 (2), pp. 149-162.
- Lai, Y., Sun, H., Ren, J.
Understanding the determinants of big data analytics (BDA) adoption in logistics and supply chain management: An empirical investigation
(2018) *The International Journal of Logistics Management*, 29 (2), pp. 676-703.
- Le, H.L., Vu, K.T., Du, N.K., Tran, M.D.
Impact of working capital management on financial performance: The case of Vietnam
(2018) *International Journal of Applied Economics, Finance and Accounting*, 3 (1), pp. 15-20.
- Lee, S., Jung, K.
A meta-analysis of determinants of RFID adoption around the world: Organization, technology, and public policy
(2016) *Asia Pacific Journal of Innovation and Entrepreneurship*, 10 (1), pp. 67-90.
- Luna-Maldonado, U., Flores-Breceda, H., Vidales-Contreras, J.A., Rodríguez-Fuentes, H., Luna-Maldonado, A.I.
Technological skills in the academic performance of students
(2016) *International Journal of Education and Practice*, 4 (9), pp. 234-242.
- Mahmood, M.A., Gemoets, L., Hall, L.L., López, F.J., Mariadas, R.

Measuring e-commerce technology enabled business value: An exploratory research

(2008) *International Journal of E-Business Research*, 4 (2), pp. 48-68.

- Malarvizhi, C.A., Nahar, R., Manzoor, S.R.
The strategic performance of Bangladeshi private commercial banks on post implementation relationship marketing
(2018) *International Journal of Emerging Trends in Social Sciences*, 2 (1), pp. 28-33.
- Maldonado-Guzman, G., Marin-Aguilar, J., Garcia-Vidales, M.
Innovation and performance in Latin-American small family firms
(2018) *Asian Economic and Financial Review*, 8 (7), pp. 986-998.
- Mandal, S.
The influence of dynamic capabilities on hospital-supplier collaboration and hospital supply chain performance
(2017) *International Journal of Operations & Production Management*, 37 (5), pp. 664-684.
- Marakarkandy, B., Yajnik, N., Dasgupta, C.
Enabling internet banking adoption: An empirical examination with an augmented technology acceptance model (TAM)
(2017) *Journal of Enterprise Information Management*, 30 (2), pp. 263-294.
- Maroofi, F., Ardalan, A.G., Tabarzadi, J.
The effect of sales strategies in the financial performance of insurance companies
(2017) *International Journal of Asian Social Science*, 7 (2), pp. 150-160.
- Maurice, I.U.
Impact of product development and innovation on organisational performance
(2013) *International Journal of Management and Sustainability*, 2 (12), pp. 220-230.
- Molinillo, S., Japutra, A.
Organizational adoption of digital information and technology: A theoretical review
(2017) *The Bottom Line*, 30, pp. 33-46.
01
- Mosbah, A., Serief, S.R., Wahab, K.A.
Performance of family business in Malaysia
(2017) *International Journal of Social Sciences Perspectives*, 1 (1), pp. 20-26.
- Mosbeh, R., Soliman, S.K.
An exploratory of factors affecting users adoption of corporate intranet
(2008) *Management Research News*, 31 (5), pp. 375-385.
- Mowlaei, M.
The impact of AFT on export performance of selected Asian developing countries
(2017) *Asian Development Policy Review*, 5 (4), pp. 253-261.
- Muhammad, K.
The effects of electronic human resource management on financial institutes
(2018) *Journal of Humanities Insights*, pp. 1-5.
0201
- Nagi, E.W.T., Poon, J.K.L., Chan, Y.H.C.
Empirical examination of the adoption of WebCT using TAM
(2007) *Computers & Education*, 48 (2), pp. 250-267.
- Nazal, A.I.
Financial tables reports gaps in Jordanian Islamic banks
(2017) *The Economics and Finance Letters*, 4 (2), pp. 9-15.

- Ngah, A.H., Zainuddin, Y., Thurasamy, R.
Applying the TOE framework in the Halal warehouse adoption study
(2017) *Journal of Islamic Accounting and Business Research*, 8 (2), pp. 161-181.
- Nze, I.C., Ogwude, I.C., Nnadi, K.U., Ibe, C.C.
Modelling the relationship between demand for river port services and vessel supply costs: Empirical evidence from Nigeria
(2016) *Global Journal of Social Sciences Studies*, 2 (3), pp. 144-149.
- Osasuyi, J.O., Mwakipsile, G.
Working capital management and managerial performance in some selected manufacturing firms in Edo State Nigeria
(2017) *Journal of Accounting, Business and Finance Research*, 1 (1), pp. 46-55.
- Osman, S., Yang, C.C.N.A., Abu, M.S., Ismail, N., Jambari, H., Kumar, J.A.
Enhancing students' mathematical problem-solving skills through bar model visualisation technique
(2018) *International Electronic Journal of Mathematics Education*, 13 (3), pp. 273-279.
- Osmonbekov, T., Johnston, W.J.
Adoption of the internet of things technologies in business procurement: Impact on organizational buying behavior
(2018) *Journal of Business & Industrial Marketing*, 33 (6), pp. 781-791.
- Pillai, R., Sivathanu, B.
An empirical study on the adoption of M-learning apps among IT/ITeS employees
(2018) *Interactive Technology and Smart Education*, 15 (3), pp. 182-204.
- Pu, X., Chan, F., Tsiga, Z., Niu, B.
Adoption of internet-enabled supply chain management systems: Differences between buyer and supplier perspectives
(2018) *Industrial Management & Data Systems*, 118 (8), pp. 1695-1710.
- Purnama, C.
Improved performance through empowerment of small industry
(2014) *Journal of Social Economics Research*, 1 (4), pp. 72-86.
- Rahi, S., Ghani, M.A.
The role of UTAUT, DOI, perceived technology security and game elements in internet banking adoption
(2018) *World Journal of Science, Technology and Sustainable Development*, 15 (4), pp. 338-356.
- Ramdani, B., Chevers, D., Williams, A.
SMEs' adoption of enterprise applications: A technology-organisation-environment model
(2013) *Journal of Small Business and Enterprise Development*, 20 (4), pp. 735-753.
D 2013
- Ranganathan, C., Dhaliwal, J.S., Teo, T.S.H.
Assimilation and diffusion of web technologies in supply chain management: An examination of key drivers and performance impacts
(2004) *International Journal of Electronic Commerce*, 9 (1), pp. 127-161.
- Rogers, E.M.
(1995) *Diffusion of Innovations*,
4th ed.), The Free Press, New York
- Rudman, R., Bruwer, R.
Defining Web 3.0: Opportunities and challenges
(2016) *The Electronic Library*, 34 (1), pp. 132-154.

- Salman, R., Arshad, D., Bakar, L.J.A., Shabbir, M.S., Shabbir, M.F.
The effect of innovative cultural processes on performance of small and medium size enterprises
(2018) *Management Science Letters*, 8 (10), pp. 1039-1048.
- Santhi, N.S., Gurunathan, K.B.
Fama-French three factors model in Indian mutual fund market
(2014) *Asian Journal of Economics and Empirical Research*, 1 (1), pp. 1-5.
- Sasson, A., Johnson, J.C.
The 3D printing order: Variability, supercenters and supply chain reconfigurations
(2016) *International Journal of Physical Distribution & Logistics Management*, 46 (1), pp. 82-94.
- Sekaran, U., Bougie, R.
(2016) *Research Methods for Business: A Skill Building Approach*, 5th ed.), Wiley, New York, NY
- Shabbir, M.S.
Supportive learning environment: A basic ingredient of learning organization
(2009) *Proceedings of the 2nd CBRC*, Lahore, Pakistan
- Shabbir, M.S., Kassim, N.M.
Supply chain management drivers and sustainability of green initiatives in manufacturing enterprises: A case in Pakistan
(2018) *International Journal of Entrepreneurship*, 22 (15), pp. 1-19.
- Shabbir, M.S., Shariff, M.N.M., Asad, M., Salman, R., Ahmad, I.
Time-frequency relationship between innovation and energy demand in Pakistan: Evidence from wavelet coherence analysis
(2018) *International Journal of Energy Economics and Policy*, 8 (5), pp. 251-258.
- Sharif, A., Butt, H.
Online businesses and influence of e-marketing on customer satisfaction
(2017) *Journal of Humanities Insights*, pp. 89-93.
0102
- Singh, A.K., Singha, N.C.
Environmental impact of nuclear power: Law and policy measures in India
(2016) *Humanities & Social Sciences Reviews*, 4 (2), pp. 88-95.
- Singh, J., Chandwani, R., Kumar, M.
Factors affecting Web 2.0 adoption: Exploring the knowledge sharing and knowledge seeking aspects in health care professionals
(2018) *Journal of Knowledge Management*, 22 (1), pp. 21-43.
- Suryanto, T., Haseeb, M., Hartani, N.H.
The correlates of developing green supply chain management practices: Firms level analysis in Malaysia
(2018) *International Journal of Supply Chain Management*, 7 (5), pp. 316-324.
- Sweeney, E., Grant, D., Mangan, D.
Strategic adoption of logistics and supply chain management
(2018) *International Journal of Operations & Production Management*, 38 (3), pp. 852-873.
- Tanoos, J.J.
East Asian trade cooperation versus us and eu protectionist trends and their

association to Chinese steel exports

(2017) *Asian Journal of Economics and Empirical Research*, 4 (1), pp. 1-7.

- Tarofder, A., Azam, S., Jalal, A.
Operational or strategic benefits: Empirical investigation of internet adoption in supply chain management
(2017) *Management Research Review*, 40 (1), pp. 28-52.
- Tornatzky, L.G., Fleischer, M., Chakrabarti, A.K.
(1990) *The Process of Technology Innovation*,
Lexington Books, Lexington, MA
- Tu, M.
An exploratory study of Internet of Things (IoT) adoption intention in logistics and supply chain management: A mixed research approach
(2018) *The International Journal of Logistics Management*, 29 (1), pp. 131-151.
- Verma, S., Bhattacharyya, S.
Perceived strategic value-based adoption of big data analytics in emerging economy: A qualitative approach for Indian firms
(2017) *Journal of Enterprise Information Management*, 30 (3), pp. 354-382.
- Wang, Y.B., Lu, J.R.
A supply-lock competitive market for investable products
(2016) *Asian Development Policy Review*, 4 (4), pp. 127-133.
- Yuen, K., Thai, V.
The influence of supply chain integration on operational performance: A comparison between product and service supply chains
(2017) *The International Journal of Logistics Management*, 28 (2), pp. 444-463.
- Zhu, S., Song, J., Hazen, B., Lee, K., Cegielski, C.
How supply chain analytics enables operational supply chain transparency: An organizational information processing theory perspective
(2018) *International Journal of Physical Distribution & Logistics Management*, 48 (1), pp. 47-68.

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