

# The Effect of Sustained use of Cloud-Based Business Services on Organizations' Performance: Evidence from SMEs in Malaysia

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**Abstract—** Over the decade Cloud-Based Business Services (CBBS) has emerged as a technological trend utilized in businesses towards improving the deployment of Information Communication Technology (ICT) services for competitive advantage. But, findings from prior studies suggest that there are issues related to service inconsistency which affects the effect of ICT initiatives adoption and usage in organization's performance. Therefore, this study aims to examine the link between the sustained use of cloud-based business services and the perceived benefits of these technologies, by analyzing their effects on financial as well as non-financial benefits. Accordingly, Partial Least Squares approach to Structural Equation Modeling (PLS-SEM) was employed to evaluate the measurement model and related hypotheses. The population sample for this study consists of 415 Small and Medium-size Enterprises (SMEs) in Malaysia from various sectors. Respectively, results from this study indicate that the sustained use of CBBS is a key constituent that is required in order to promote and enhance organizational performance of SMEs in Malaysia.

**Keywords-** *Cloud-Based Business Services, Organizations' Performance, Small and medium-sized enterprises, Financial Performance, Non- Financial Performance.*

## I. INTRODUCTION

In this information age the impact of Information and Communication Technology (ICT) is evident in our lives as such the use of ICT based services is exponentially increasing in society and organizations are witnessing huge advances in commercial matters due to ICT based services [1]. As the years progresses, ICT has become a important tool in emerging economies as such ICT based infrastructures are progressively incorporated into the day-to-day processes of government and non-government based organizations [2].

Due to global development of ICT based services, Cloud-Based Business Services (CBBS) has grown to be one of the most important and promising technology [3]. CBBS is a

flexible, scalable, and cost-effective invention which supports enterprises to deploy modern business technologies across organization departments while reducing installation and support costs previously incurred [2, 4]. Hence, CBBS usage is progressively being utilized popular in businesses as a tool to improve marginal profit of enterprises.

The application of CBBS in any business promises several benefits such as improved competitive advantage to SMEs, where the focus of this study is to examine how technologies such as CBBS can deliver better prospect to international clients and reducing expenditures associated with the development and maintenance of a deployed IT infrastructure [5]. Additionally, CBBS promotes global expansion enabling organizations to expand operations by facilitating real-time collaboration and information-sharing with personnel, partners, and clients remotely located [6]. Thus, with the application of CBBS geographic proximity is no longer a limitation for SMEs based on the deployment of cloud computing technologies [7]. At the moment, prior studies related to CBBS are more focused on the aspects of acceptance, adoption, and usage in relation to individual and organization perspective. However, only fewer studies have explored issues regarding the impact of CBBS usage for value created particularly in correlation to the impact of organization's performance [1A]. Likewise, there are limited studies that have explored the effect of sustained use of CBBS in organizations. Similarly, findings regarding the effect of ICT adoption on the performance of firms are mostly inconclusive. This is because a few scholars have argued that IT investments do not necessarily lead to improved operational efficiency and effectiveness [8-10], while others have identified a significant association between adoption and use of ICT initiatives and organization performance [11-13]. Therefore, to fill the gap in knowledge, this study aims to examine the link between the sustained use of CBBS and the perceived benefits of these technologies, by analyzing their effect on financial as well as non-financial benefits. The remainder of the paper is organized into four

- [3] A. Ali, D. Warren, and L. Mathiassen, "Cloud-based business services innovation: A risk management model," *International Journal of Information Management*, vol. 37, no. 6, pp. 639-649, 2017.
- [4] M. A. Al-Sharafi, R. A. Arshah, and E. A. Abu-Shanab, "Factors Influencing the Continuous Use of Cloud Computing Services in Organization Level," presented at the Proceedings of the International Conference on Advances in Image Processing - ICAIP 2017, Bangkok, Thailand, 25 - 27 Augst, 2017.
- [5] P. K. Ross and M. Blumenstein, "Cloud computing as a facilitator of SME entrepreneurship," (in English), *Technology Analysis & Strategic Management*, vol. 27, no. 1, pp. 87-101, Jan 2 2015.
- [6] A. Anand, S. Fosso Wamba, and R. Sharma, "The effects of firm IT capabilities on firm performance: the mediating effects of process improvement," 2013.
- [7] Z. Irani, "Investment evaluation within project management: an information systems perspective," (in English), *Journal of the Operational Research Society*, vol. 61, no. 6, pp. 917-928, Jun 2010.
- [8] J. A. Perez-Mendez and A. Machado-Cabezas, "Relationship between management information systems and corporate performance," (in English), *Revista De Contabilidad-Spanish Accounting Review*, vol. 18, no. 1, pp. 32-43, Jan-Jun 2015.
- [9] A. Gunasekaran *et al.*, "Big data and predictive analytics for supply chain and organizational performance," (in English), *Journal of Business Research*, vol. 70, pp. 308-317, Jan 2017.
- [10] C. S. B. Pinho and J. J. Ferreira, "Impact of Information Technologies, Corporate Entrepreneurship and Innovation on the Organizational Performance: A Literature Review," *International Journal of Social Ecology and Sustainable Development (IJSESD)*, vol. 8, no. 1, pp. 32-48, 2017.
- [11] M. C. Lo, Y. C. Wang, C. R. J. Wah, and T. Ramayah, "The critical success factors for organizational performance of SMEs in Malaysia: a partial least squares approach," (in English), *Rbgn-Revista Brasileira De Gestao De Negocios*, vol. 18, no. 61, pp. 370-391, Jul-Sep 2016.
- [12] P. Mell and T. Grance, "The NIST definition of cloud computing," in "Reports on Computer Systems Technology," National Institute of Standards and Technology Special Publication 800-145, U.S2011.
- [13] M. A. Al-Sharafi, R. A. Arshah, and E. A. Abu-Shanab, "Factors affecting the continuous use of cloud computing services from expert's perspective," in *TENCON 2017 IEEE Region 10 Conference*, 2017, pp. 986-991.
- [14] E. Akar and S. Mardikyan, "Analyzing Factors Affecting the Adoption of Cloud Computing: A Case of Turkey," (in English), *Ksii Transactions on Internet and Information Systems*, Article vol. 10, no. 1, pp. 18-37, Jan 2016.
- [15] S. K. Sharma, A. H. Al-Badi, S. M. Govindaluri, and M. H. Al-Kharusi, "Predicting motivators of cloud computing adoption: A developing country perspective," *Computers in Human Behavior*, vol. 62, pp. 61-69, 9// 2016.
- [16] H.-L. Yang and S.-L. Lin, "User continuance intention to use cloud storage service," *Computers in Human Behavior*, vol. 52, pp. 219-232, 11// 2015.
- [17] C.-K. Hou, "Understanding business intelligence system continuance intention: An empirical study of Taiwan's electronics industry," *Information Development*, vol. 32, no. 5, pp. 1359-1371, 2016.
- [18] A. Bhattacharjee, "Understanding information systems continuance: an expectation-confirmation model," *MIS quarterly*, pp. 351-370, 2001.
- [19] J. G. March and R. I. Sutton, "Crossroads-organizational performance as a dependent variable," *Organization science*, vol. 8, no. 6, pp. 698-706, 1997.
- [20] I. Y. Abu-Jarad, N. a. Yusof, and D. Nikbin, "A review paper on organizational culture and organizational performance," *International Journal of Business and Social Science*, vol. 1, no. 3, pp. 26-46, 2010.
- [21] J. B. Barney, "Organizational culture: can it be a source of sustained competitive advantage?," *Academy of management review*, vol. 11, no. 3, pp. 656-665, 1986.
- [22] N. Venkatraman and V. Ramanujam, "Measurement of business performance in strategy research: A comparison of approaches," *Academy of management review*, vol. 11, no. 4, pp. 801-814, 1986.
- [23] R. Mahmood and N. Hanafi, "Entrepreneurial orientation and business performance of women-owned small and medium enterprises in Malaysia: Competitive advantage as a mediator," *International Journal of Business and Social Science*, vol. 4, no. 1, pp. 82-90, 2013.
- [24] E. W. Rogers and P. M. Wright, "Measuring Organizational performance in strategic human resource management: Looking beyond the lamppost ", C. f. A. H. R. S. Cornell University School of Industrial and Labor Relations, Ed., ed. Ithaca, 1998, pp. 1-28.
- [25] R. B. Carton and C. W. Hofer, "Organizational financial performance: Identifying and testing multiple dimensions," *Academy of Entrepreneurship Journal*, vol. 16, no. 1, pp. 1-7, <http://www.alliedacademies.org/articles/aejvol16no12010.pdf#page=9> 2010.
- [26] M. C. Lo, Y. C. Wang, C. R. J. Wah, and T. Ramayah, "The critical success factors for organizational performance of SMEs in Malaysia: a partial least squares approach," *Revista Brasileira de Gestao de Negocios*, vol. 18, no. 61, p. 370, 2016.
- [27] S. F. Wamba, A. Gunasekaran, S. Akter, S. J.-f. Ren, R. Dubey, and S. J. Childe, "Big data analytics and firm performance: Effects of dynamic capabilities," *Journal of Business Research*, vol. 70, pp. 356-365, 2017.
- [28] S. Akter, S. F. Wamba, A. Gunasekaran, R. Dubey, and S. J. Childe, "How to improve firm performance using big data analytics capability and business strategy alignment?," *International Journal of Production Economics*, vol. 182, pp. 113-131, 2016.
- [29] B. J. Jaworski and A. K. Kohli, "Market orientation: review, refinement, and roadmap," *Journal of Market-Focused Management*, vol. 1, no. 2, pp. 119-135, 1996.
- [30] J. Wiklund, "The sustainability of the entrepreneurial orientation performance relationship," *Entrepreneurship: Theory and Practice*, vol. 24, no. 1, pp. 37-37, 1999.
- [31] N. A. Sultan, "Reaching for the "cloud": How SMEs can manage," *International Journal of Information Management*, vol. 31, no. 3, pp. 272-278, 6// 2011.
- [32] L. Y. Qian, A. S. Baharudin, and A. Kanaan-Jebna, "Factors affecting the adoption of enterprise resource planning (ERP) on cloud among small and medium enterprises (SMES) in Penang, Malaysia," (in English), *Journal of Theoretical and Applied Information Technology*, Article vol. 88, no. 3, pp. 398-409, 2016.
- [33] H. S. Al-Dhaafri, A. K. Al-Swidi, and R. Z. B. Yusoff, "The mediating role of TQM and organizational excellence, and the moderating effect of entrepreneurial organizational culture on the relationship between ERP and organizational performance," *The TQM Journal*, vol. 28, no. 6, pp. 991-1011, 2016.
- [34] A. Masli, V. J. Richardson, J. M. Sanchez, and R. E. Smith, "Returns to IT excellence: Evidence from financial performance around information technology excellence awards," *International Journal of Accounting Information Systems*, vol. 12, no. 3, pp. 189-205, 2011.
- [35] Y. Alshamaila, S. Papagiannidis, and F. Li, "Cloud computing adoption by SMEs in the north east of England," (in English), *Journal of Enterprise Information Management*, Article vol. 26, no. 3, pp. 250-275, 2013.
- [36] J. W. Creswell, 3rd, Ed. *Research design: Qualitative, quantitative, and mixed methods approaches*. Los Angeles: Sage, 2013.
- [37] T. Ramayah, J. Cheah, F. Chuah, H. Ting, and M. A. Memon, *Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 3.0: An Updated Guide and Practical*