













score varied from 0.875 to 0.961, indicating excellent and dependable dependability of research items [30]. The connection between questionnaire questions is shown by Cronbach Alpha values greater than 0.7 [29]. The alpha values for each variable construct are compared to the results of actual and pilot research in Table 7.

Table 7. Cronbach Alpha Values Reliability Tests

Variables	No. of Item	Alpha Values
ICT of Adoption		
i) Technology Factor	9	0.963
ii) Organiation Factor	8	0.936
iii) External Factor	7	0.942
Inovation	10	0.928
Competitive Advantage		
i) Differentiated Products Development	3	0.876
ii) Market Sensing	4	0.939
iii) Customers Market Responsiveness	3	0.961
iv) Competitors Market Responsiveness	2	0.875
Business Performanace	9	0.921

Findings indicates the adjusted item-total correlation for ICT adoption variables is between 0.762 and 0.791, and for technical factors is also between 0.762 and 0.791. Whereas the values of adjusted item-total correlation for organisational and external variables varied from 0.658 to 0.865. The adjusted item-total correlation for innovation varied from 0.540 to 0.794.

The value of adjusted item-total correlation various product development ranged from 0.738 to 0.812. As for market sensing, it ranges from 0.702-0.916, market responsiveness (customers) from 0.902-0.922, and market responsiveness (competitors) from 0.781-0.781. The adjusted item-total correlation for company success varied from 0.648 to 0.784. A corrected item-total correlation value of 0.3 or above is considered excellent by [30], whereas a value of 0.3 or less is considered poor and should be removed. Delete weak entries until the measured variable's Cronbach Alpha value reaches 0.7 [29]. According to [30], all items in the research variables examined had adjusted item-total correlation values above 0.3, which is excellent and acceptable.

## 5 Conclusion

This research contributes to the measurement of variables that influence the SME firms' performance in Malaysia. According to the findings of the research, the ICT adoption variable has three

components or three factors in line with the original instrument as used in the research of [10]. These factors are technological factors (9 items), organizational factors (8 items) and external factors (7 items). As for the innovation variable, factor analysis has revealed that there is only one component or one factor that is innovation, in line with the original instrument as in the research of [14].

For the competitive advantage variable, factor analysis also reported that there were four components or 4 resulting factors, in line with the original instrument as adopted in the [35] research. The factors were named as differentiated product development (3 items), market sensing (4 items), customer market responsiveness (3 items), and competitor market responsiveness (2 items). While for business performance variables, factor analysis has revealed that there is only one component or one factor that is business performance, in line with the original instrument as in the research of [20]. However, (2 items were removed namely Performance60, Performance61) because both items have a low/weak factor load value which is less than 0.40 and the items were deleted in this analysis. Reliability analysis found that the level of reliability or Cronbach Alpha value for each variable in this research was at a good and reliable.

The purpose of this article is to verify the measuring item that was utilized in this research. Following the outcomes of this research findings, it is possible to conclude that the validity and reliability of the items and constructs in this research are competent and compatible with the findings of prior studies.

### References:

- [1] Mohd Zulkifli Muhammad, Abdul Kamal Char, Mohd Rusdan Yaso, & Zakiah Hassan, Small and Medium Enterprises (SMEs) Competing in the Global Business Environment: A Case of Malaysia, *International Business Research* 3(1), 2010, pp. 66–75.
- [2] Bank Negara Malaysia (2014). Laporan Kestabilan Kewangan dan Sistem Pembayaran 2013. Retrieved from <http://www.bnm.gov.my>.
- [3] SME Corporation Malaysia Official Website, (2015). Laporan Tahunan PKS 2014/15. Retrieved from <http://www.smecorp.gov.my>.

- [4] SME Corporation Malaysia Official Website, (2013). Laporan Tahunan PKS 2012/13. Retrieved from <http://www.smecorp.gov.my>.
- [5] SME Corporation Malaysia Official Website, (2012). Pelan Induk PKS 2012-2020. Retrieved from <http://www.smecorp.gov.my>
- [6] SME Corporation Malaysia Official Website, (2012). Laporan Tahunan SME Corp Malaysia 2011. Retrieved from <http://www.smecorp.gov.my>
- [7] Passemard, D., & Kleiner, B.H. (2000). Competitive advantage in global industries: Management Research News, 23(7/8), 111–117. doi 10.1108/01409170010782307
- [8] Sulisty, H., & Ayuni, S. (2020). Competitive advantages of SMEs: The roles of innovation capability, entrepreneurial orientation, and social capital. *Contaduría y administración*, 65(1).
- [9] Chaffey, D., Edmundson-Bird, D., & Hemphill, T. (2019). Digital business and e-commerce management. Pearson UK.
- [10] Thi, L.S. (2006). Electronic commerce adoption among manufacturing SMEs in Malaysia (Tesis PHD, Loughborough University Institutional Repository, 2006).
- [11] Arif, M.R. & Hasan, D., (2021). Relationship Between Innovation Activities and Business Performance: A Case Research in Indonesia. *The Journal of Asian Finance, Economics and Business*, 8(4), pp.307-315.
- [12] Birkinshaw, J., Hamel, G. & Mol, M.J.(2008). Management innovation. *Academy of management Review*, 33(4), pp.825-845.
- [13] Hameed, W.U., Nisar, Q.A. and Wu, H.C., Relationships between external knowledge, internal innovation, firms' open innovation performance, service innovation and business performance in the Pakistani hotel industry. *International Journal of Hospitality Management*, 92, 2021, p.102745.
- [14] Yahya Al-Ansari., Pervan S., & Xu. J (2013). Innovation and business performance of SMEs: the case of Dubai. *Education, Business and Society: Contemporary Middle Eastern Issues*, 6(3/4), 162-180. doi:10.1108/EBS-04-2013-0012.
- [15] Al-naqeeb, M.A.S. and Ismael, I.K., 2021. The Impact of Organizational Silence on a Sustainable Competitive Advantage: A Case Research of the Electrical Industries Company. *Mediterranean Journal of Social Sciences*, 12(3), pp.34-34.
- [16] Ramaswami, S.N., Bhargava, M. & Srivastava, R. (2004). Market-based assets and capabilities, business processes, and financial performance. Marketing Science Institute Report (04-102). Issue One, Working Paper Series.
- [17] Day, G.S. (1994a). The capabilities of market-driven organizations. *Journal of Marketing*, 58(4), 37-52.
- [18] Ramaswami, S.N., Bhargava, M. & Srivastava, R. (2006). Market-based assets and capabilities, business processes, and financial performance. ZIBS Technical Report (03-43). Zyman Institute of Brand Science.
- [19] Taouab, O. and Issor, Z., 2019. Firm performance: Definition and measurement models. *European Scientific Journal*, 15(1), pp.93-106.
- [20] Gupta, A. K., & Govindarajan, V. (1984). Business unit strategy, managerial characteristics, and business unit effectiveness. *Academy of Management Journal*, 27(1), 25-41.
- [21] Hair Jr., J. F., Money, A. H., Samouel, P., & Page, M. (2007). Research method for business. West Sussex: John Wiley & Sons.
- [22] Zikmund, W. G. (2000). *Business Research Method* (6th Ed.): Forth Worth, Texas: The Dryden.
- [23] Krejcie, R.V. and Morgan, D.W., 1970. Determining sample size for research activities. *Educational and psychological measurement*, 30(3), pp.607-610.
- [24] Sany Sanuri Mohd Mokhtar. (2007). The relationship between market orientation and quality orientation and its impacts on the performance of Malaysia manufacturing firms. (Thesis PHD, Universiti Utara Malaysia, 2007).
- [25] Shuhymee Ahmad. (2011). Hubungan antara orientasi keusahawanan, gaya kepimpinan

dan persekitaran luaran dengan prestasi perniagaan: Satu kajian empirikal mengenai PKS di Malaysia (Tesis PHD, Universiti Utara Malaysia, 2011).

- [26] Cooper, D. R., & Schindler, P. S. (2006). *Business research method: (11th ed)*. United States: McGraw-Hill International Edition.
- [27] Cavana, R. Y., Delahaye, B. L., & Sekaran, U. (2001). *Applied business research: Qualitative and quantitative methods*. Milton, Old: John Wiley & Son Australia.
- [28] Sekaran, U. (2003). *Research method for business: A skill-building approach*. New York: John Wiley & Sons.
- [29] Hair Jr, J.F., 2006. Successful strategies for teaching multivariate statistics. In *Proceedings of the 7th international conference on teaching statistics*.
- [30] Pallant, J., 2011. *Survival manual. A step by step guide to data analysis using SPSS, 4*.
- [31] Hair, J.F., Black, W.C., Babin, B., Anderson, R.E. and Tatham, R.L., 1998. *Multivariate Data Analysis, 7th Edn* New Jersey.
- [32] Tabachnick, B.G., Fidell, L.S. and Ullman, J.B., 2007. *Using multivariate statistics (Vol. 5, pp. 481-498)*. Boston, MA: Pearson.
- [33] Chua, Y.P., 2009. *Advanced research statistics: Regression test, factor analysis and SEM analysis*.
- [34] Barlett, J., 1954. Rg, Bohr, Vc, Helmendach, Rh, Foster, Gl And Miller, Ma. *Amer. J. Physiol*, 179(16), pp.343-346.
- [35] Martinette, L.A., 2006. The relationship between learning orientation and business performance: The moderating effect of sources of competitive advantage (Vol. 67, No. 11).

### **Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)**

**Nur Yuhainis Ab Wahab** was responsible for data curation, formal analysis, methodology, validation, and writing the original draft.

**Rusnifaezah Musa** was responsible for conceptualization, funding acquisition, project administration, review and editing of the article.

**Siti Haryani** was responsible for methodology, resources, and supervision.

### **Creative Commons Attribution License 4.0 (Attribution 4.0 International, CC BY 4.0)**

This article is published under the terms of the Creative Commons Attribution License 4.0

[https://creativecommons.org/licenses/by/4.0/deed.en\\_US](https://creativecommons.org/licenses/by/4.0/deed.en_US)