*International Journal of Business and Society, Vol. 18 S4, 2017, 651-660*

# KNOWLEDGE MANAGEMENT IN MSC MALAYSIA: THE ROLE OF INFORMATION TECHNOLOGY CAPABILITY

**Abang Azlan Mohamad**[♣]
*Universiti Malaysia Sarawak*

**T. Ramayah**
*Universiti Sains Malaysia*

**May-Chiun Lo**
*Universiti Malaysia Sarawak*

## ABSTRACT

The present study endeavours to investigate the dimensions of knowledge management, information technology capability and firm innovativeness. It attempts to examine the impact of information technology capability in mediating the connection between the dimensions of knowledge management, namely knowledge acquisition, knowledge conversion, knowledge application and knowledge protection; on firm innovativeness. A total of 202 Malaysian organisations took part in the survey. The results highlight that knowledge conversion and knowledge protection are positively and significantly related to firm innovativeness. Information technology capability was found to mediate the connection between knowledge conversion and knowledge protection.

***Keyword:*** Firm Innovativeness; Information Technology Capability; Knowledge management; MSC Malaysia.

## 1. INTRODUCTION

Survival in business environment is dependent very much on organisations' performance and therefore, it is decisive for organisations to sustain their performances in order to be competitive and achieve their visions and missions. A unique way for organisations to attain competitiveness is by being innovative (Hurley & Hult, 1998). The capability to be inventive is regarded as one of the unique and essential requirements that could impact performance of an organisation (Hurley & Hult, 1998). On the other hand, knowledge management (KM) is regarded as a planned process to organise knowledge resources and practices in advancing the formation, distribution and application of knowledge to attain goals of the organisation (An, Deng, Chao, & Bai, 2014). In the present day, information technology plays a vital role and is regarded as one of the foundations of organisational competency that provides organisations the capability to recognise and respond to market dynamics. As such, information technology capability (ITC) is expressed as the capability to manage and initiate IT-related assets by blending and integrating with other resources and capabilities of the organisation (Bharadwaj, 2000). Despite the importance of KM and the realisation of its importance for organisations, most of these KM programmes failed, owing to a number of reasons such as the inappropriate adoption of KM initiative, over dependence to information technology and ignorant of the consequences of KM. As such, Jayasingam, Ansari, Ramayah and Jantan (2013) suggest that KM

♣ Corresponding author: Abang Azlan Mohamad, Faculty of Economics and Business, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia. Email: maazlan@unimas.my

is moderately new in the Malaysian setting and Malaysian firms lagged in adopting KM as some Malaysian organisations are uncertain of the benefits of KM. This study attempts to answer if ITC mediates the connection between KM and firm innovativeness. It further endeavours to analyse the unique role of KM in firm innovativeness and how ITC would augment the link between the aforementioned dimensions.

## 2. LITERATURE REVIEW

### *2.1. Firm innovativeness*

Firm innovativeness is regarded as how willing is an organisation to change and how responsive it is to new concepts in relation to its culture (Hurley & Hult, 1998). It has also been described as a range of how innovative organisations are described as developing "radical" products compared to their less innovative rivals (Damanpour, 1991). Innovativeness is assumed to have occurred in organisations when the organisations' staff perform and encourage new business concepts, processes, study and novel processes in creating new products (Dibrell, Fairclough, & Davis, 2015).

### *2.2. Information technology capability*

Past studies (Amit & Schoemaker, 1993; Raddats & Burton, 2014) suggest that capabilities are regarded as the aptitude of the organisation to accrue, integrate and employ important resources. Information technology capability (ITC) is regarded as the capability to manage and initiate IT-type sources by integrating and combining with other resources and capabilities (Bharadwaj, 2000). ITC is further described as an organisation's systematic competency to store, process and convey information (Nakata & Zhu, 2006) and procedures and knowledge that are privy to the organisation that could augment other types of resources (Drnevich & Croson, 2013). Organisations equipped with reliable competent IT skills possess the capability to blend IT and other processes more efficiently and has the capacity to produce and create reliable and inexpensive applications in supporting the organisation objectives.

### *2.3. Knowledge Management*

Knowledge management (KM) refers to accomplishing the vision and mission of organisations by developing and utilising knowledge resources within the organisation (Davenport & Prusak, 1998). It covers procedures to comprehend and acquire vital information and intelligence to support firms in making informed decisions. KM practices has the capability to enhance innovation and it is considered as an important source that influences organisation aspirations to be competitive. In this regard, Gold, Malhotra, and Segars (2001), categorised the processes of knowledge management into four groups. They posit knowledge KM processes as knowledge acquisition, knowledge conversion, knowledge application and knowledge protection.

### *2.4. Development of Hypotheses*

*(a) Knowledge Management and Information Technology Capability*

Knowledge acquisition (KQ) may occur at organisation and individual levels whereby at the level of organisation, it is regarded as accepting knowledge from outside source and applying it in the

business. Chae, Koh and Prybuttok (2014) infer that knowledge acquisition will result to improvements of IT capabilities and proficiencies that would expand organisations' IT programmes and activities. Therefore, it is possible that knowledge acquisition would result in enhanced comprehension of information technology capability because the attainment if knowledge is not only inspired by the acquired expertise but also the facility to create and operate technologies utilised in the products and services creation. Knowledge conversion (KC) is regarded as the processes in which people are inspired by another person's experience (Nonaka 1994) and encompasses procedures that inclined towards full utilisation of prevailing knowledge (Gold et al., 2001). By utilising technology, knowledge can be stockpiled and retrieved by employees of the organisation in order to provide them with important information for their work. Knowledge application (KA) process is regarded as a crucial feature of KM and is regarded as a behavioural indicator of the processes of KM (Muhammed, Doll, & Deng, 2013). It consists of the consumption of knowledge obtained from sources such as workforces and other departments that are being employed for the benefit of the company. It also allows the staff to apply knowledge sourced from inside or outside the organisation for their own private reasons (Birasnav, 2014). Technology further enables firms to benefit from the new competencies as it has the penchant to increase access and appliance of knowledge organisation-wide. Knowledge protection (KP) is regarded as a formal source that secure knowledge being from being utilised or employed illegally, such as through copyrights or trademarks (Jean, Sinkovics, & Hiebaum, 2014). Knowledge protection also covers a set of procedures, methods or devices being utilised to secure knowledge. As such, it is imperative for organisation to establish a system that oversees and implement effective standards to safeguard knowledge. Based on the aforementioned arguments, the following hypotheses are developed:

Hypothesis 1: There is a positive relationship between KQ and ITC
Hypothesis 2: There is a positive relationship between KC and ITC
Hypothesis 3: There is a positive relationship between KA and ITC
Hypothesis 4: There is a positive relationship between KP and ITC

*(b) The mediating effects of Information Technology Capability*

There are a handful of researchers (Sambamurthy, Bharadwaj, & Grover, 2003; Wade & Hulland, 2004) that have studied the mediating impact of ITC. As a result of the unrelenting progress in business approached that employ IT as a means of being innovative, organisations turn their focus to IT- related capabilities (Yeh, Lee & Pai, 2014). To manage IT, it is crucial that the alignment of IT resources ought to be in the same configuration with the objectives of the organisation as both assets of IT and business approaches may influence each other. On that note, the application of IT infrastructure supports the main measures to systemise the everyday schedules that would enhance knowledge application (Pérez-López & Junquera, 2013). According to de Faria and Sofka (2010), the linkage of organisation's innovativeness and ventures in R& D would lead to superior firm innovativeness. Therefore, the improvements in information technology would augment the ability of the organisation to manage their trade as important knowledge are well guarded (Väyrynen, Hekkala, & Liias, 2013). As such, the following hypotheses are proposed:

Hypothesis 5: The relationship between KQ and firm innovativeness is mediated by ITC
Hypothesis 6: The relationship between KC and firm innovativeness is mediated by ITC
Hypothesis 7: The relationship between KA and firm innovativeness is mediated by ITC
Hypothesis 8: The relationship between KP and firm innovativeness is mediated by ITC

*(c) Information Technology Capability and Firm Innovativeness*

The adoption of information technology is considered as a stimulus for innovativeness within firms (Kamaruddeen, Yusof, & Said, 2012) because it has the capability to accelerate the adoption of innovation. Firms with capability of information technology are able to infiltrate new segments of the market, allows the firms to further establish new suppliers and create a closer working relationship with customers through the utilisation of technology. Moreover, Huang and Chen (2009) suggest that firm innovativeness can be greatly enhanced through information technology as it could advance efficiencies and effectiveness that are conducive for spurring innovativeness. It is posited that information technology capability plays an important role in firm innovativeness and therefore, the following hypothesis is formulated:

Hypothesis 9: There is a positive relationship between information technology capability and firm innovativeness

## 3. METHODOLOGY

For this study, the population consists of Multimedia Super Corridor (MSC Malaysia) organisations in Kuala Lumpur and Selangor. The sample size of this study is based on Sekaran (2000) and Roscoe (1975) on the number of sample size for most studies being sufficient from between 30 to 500. A total of 202 survey questionnaires were used for this study. To measure knowledge acquisition, knowledge conversion, knowledge application, knowledge protection, 44 items were used, all which were adopted from Gold et al. (2001). In measuring ITC, a 6-item scale from Thompson, Rust and Rhoda (2005) was used whereas for firm innovativeness, it was adopted from Calantone, Cavusgil and Zhao (2002). All of these items were anchored on a 7-point Likert scale. This research utilises WarpPLS 5.0 (Kock, 2014) in measuring the model.

## 4. FINDINGS

### *4.1. Assessment of the Measurement Model*

In evaluating the measurement model, confirmatory factor analysis (CFA) is conducted to assess the discriminant validity, convergent validity and reliability of the scale. Table 1 illustrates the loadings of the items, which demonstrates the loadings being more are than 0.5. Additionally, (Bagozzi & Yi, 1988), suggest that all of the AVE exceeded 0.5, while the composite reliability (CR) was more than 0.7 (Gefen, Straub, & Boudreau, 2000). Therefore, convergent validity is fulfilled. Table 2 describes the constructs' discriminant validity whereby AVE was square rooted to reflect against the intercorrelations of the model's construct. This is to validate discriminant validity (Chin, 1998a, 1998b). The readings demonstrate that the AVE square root exceeded the connection against other dimensions.

**Figure 1:** Measurement Model

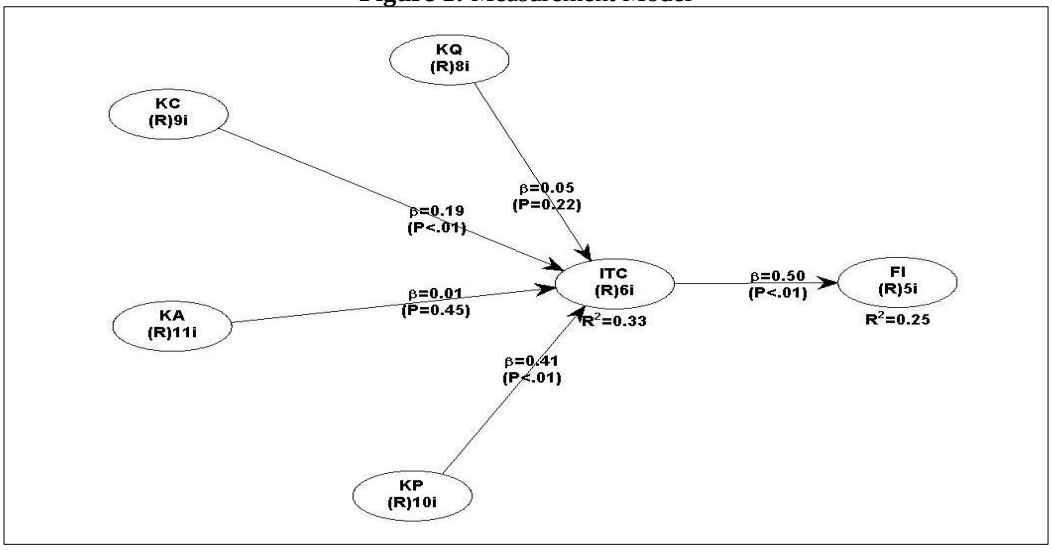


**Table 1:** Results of the Measurement Model

| Constructs | Items Measurement | Loadings | AVE[1] | CR[2] |
|---|---|---|---|---|
| Knowledge Acquisition | KQ2 | 0.732 | 0.525 | 0.898 |
| | KQ4 | 0.715 | | |
| | KQ5 | 0.694 | | |
| | KQ6 | 0.741 | | |
| | KQ9 | 0.724 | | |
| | KQ10 | 0.689 | | |
| | KQ11 | 0.776 | | |
| | KQ12 | 0.722 | | |
| Knowledge Conversion | KC2 | 0.712 | 0.53 | 0.91 |
| | KC3 | 0.741 | | |
| | KC4 | 0.757 | | |
| | KC5 | 0.63 | | |
| | KC6 | 0.681 | | |
| | KC7 | 0.779 | | |
| | KC8 | 0.809 | | |
| | KC9 | 0.714 | | |
| | KC10 | 0.716 | | |
| Knowledge Application | KA1 | 0.768 | 0.551 | 0.931 |
| | KA2 | 0.789 | | |
| | KA4 | 0.708 | | |
| | KA5 | 0.605 | | |
| | KA6 | 0.804 | | |
| | KA7 | 0.71 | | |

[1] Average Variance Extracted
[2] Composite Reliability

**Table 1:** Results of the Measurement Model (cont.)

| Constructs | Items Measurement | Loadings | AVE3 | CR4 |
|---|---|---|---|---|
| | KA8 | 0.787 | | |
| | KA9 | 0.766 | | |
| | KA10 | 0.671 | | |
| | KA11 | 0.753 | | |
| | KA12 | 0.778 | | |
| Knowledge Protection | KP1 | 0.774 | 0.628 | 0.944 |
| | KP2 | 0.786 | | |
| | KP3 | 0.821 | | |
| | KP4 | 0.819 | | |
| | KP5 | 0.644 | | |
| | KP6 | 0.741 | | |
| | KP7 | 0.822 | | |
| | KP8 | 0.852 | | |
| | KP9 | 0.84 | | |
| | KP10 | 0.802 | | |
| Information Technology Capability | IT1 | 0.901 | 0.76 | 0.95 |
| | IT2 | 0.899 | | |
| | IT3 | 0.906 | | |
| | IT4 | 0.698 | | |
| | IT5 | 0.902 | | |
| | IT6 | 0.905 | | |
| Firm Innovativeness | FI1 | 0.883 | 0.709 | 0.924 |
| | FI2 | 0.871 | | |
| | FI3 | 0.852 | | |
| | FI4 | 0.838 | | |
| | FI6 | 0.762 | | |

**Table 2:** Constructs' Discriminant Validity

| **Constructs** | **KQ** | **KC** | **KA** | **KP** | **ITC** | **FI** |
|---|---|---|---|---|---|---|
| Knowledge Acquisition | **0.725** | | | | | |
| Knowledge Conversion | 0.724 | **0.728** | | | | |
| Knowledge Application | 0.733 | 0.798 | **0.742** | | | |
| Knowledge Protection | 0.557 | 0.577 | 0.624 | **0.792** | | |
| Information Technology Capability | 0.404 | 0.431 | 0.421 | 0.536 | **0.872** | |
| Firm Innovativeness | 0.459 | 0.448 | 0.499 | 0.507 | 0.497 | **0.842** |

***Notes***: Square roots of average variances extracted (AVEs) shown on diagonal.

### *4.2. Assessment of the Measurement Model*

In measuring the structural model and testing the proposed hypotheses, PLS-SEM was employed. Two criteria should be contemplated and inferred when suing PLS-SEM: the coefficient of determination (R2) to quantify the endogenous constructs and the path coefficients (Chin, 2010;

[3] Average Variance Extracted
[4] Composite Reliability

Hair, Ringle, & Sarstedt, 2011). It is imperative for the path coefficients to be significant; conversely, the $R^2$ value can vary conditional on the area of research. In evaluating $R^2$, the figures of 0.19, 0.33 and 0.67 are correspondingly considered as weak, moderate and substantial (Chin, 1998b). In this research, the $R^2$ for ITC and firm innovativeness is at the levels of 0.331and 0.253 respectively (refer to Figure 1).

**Table 3:** Summary of Path Coefficient and Hypotheses Testing

| Hypothesis | Relationship | Path Coefficient | p-value | Decision |
|---|---|---|---|---|
| H1 | Knowledge Acquisition → ITC | 0.055 | 0.217 | Not Supported |
| H2 | Knowledge Conversion → ITC | 0.186 | 0.003 | Supported |
| H3 | Knowledge Application → ITC | 0.008 | 0.453 | Not supported |
| H4 | Knowledge Protection → ITC | 0.409 | <0.001 | Supported |
| H5 | Knowledge Acquisition → ITC → Firm Innovativeness | 0.027 | 0.290 | Not supported |
| H6 | Knowledge Conversion → ITC → Firm Innovativeness | 0.094 | 0.028 | Supported |
| H7 | Knowledge Application → ITC → Firm Innovativeness | 0.004 | 0.466 | Not supported |
| H8 | Knowledge Protection → ITC → Firm Innovativeness | 0.206 | <0.001 | Supported |
| H9 | ITC → Firm Innovativeness | 0.503 | <0.001 | Supported |

## 5. DISCUSSION

It is likely that this study is the first to examine the dimensions of knowledge management, information technology capability and firm innovativeness in a solitary framework since the majority of research have researched these constructs by its own. Table 3 demonstrates the outcomes of path coefficient and testing of hypotheses. In analysing H1, past studies have shown that knowledge acquisition may possibly enhances a business technological capabilities and improves the creation of new products as well as inspires new technical capability within the business (Zhou, Zhang, Sheng, Xie, & Bao, 2014). The results do not support H1. The statistical analysis conducted on H2 demonstrates the positive relationship between KC and ITC thereby supporting H2. Examining H3 showed that KA does not positively impacted ITC, hence H3 is not supported. The results further demonstrate that knowledge protection has a substantial and positive link with ITC, which supports H4. Coherent with previous studies, the findings support the work of Jean, Sinkovics, and Hiebaum (2014), who suggest that KP enables businesses to form a recognised channel of communication with associates through the means of information technology. Moreover, the results disclose a non-significant role of information technology capability as a mediator in the link between knowledge acquisition and firm innovativeness. As such, H5 is non-supportive of the hypothesis. In assessing H6, the findings validate H6 as it was found that ITC mediates the link between KC and firm innovativeness. In examining H7, it was found that ITC does not play a mediating role in the relationship between KA and firm innovativeness, thus not supporting H7. The results contend that this is most likely caused by over dependence on IT by MSC Malaysia firms thereby turning these organisations as rigid and unresponsive to market needs. Therefore, these companies are unable to offer the solutions in a vibrant business environment such as in the industry of information technology. The results further reveal a significant positive relationship on the mediating role of ITC on the link between KP and firm innovativeness. The results accentuate that forming a means of knowledge protection is possible to inspire businesses to devote in research and development as the improvements in technology would enhances businesses competencies to operate their trade in a more efficient manner due to the protection of the valuable knowledge (Väyrynen et al., 2013). The analysis of

H9 there is a significant positive relationship between these constructs, thereby supporting H9. The results demonstrate that information technology capability is an important constituent that enhances firm innovativeness and more so within an industry such as MSC Malaysia which comprises of high technology firms. The findings of the current research infer that knowledge management could be conceived with information technology capability as possessing knowledge alone is insufficient for businesses to be competitive. As such, to increase firm innovativeness, it is suggested for MSC Malaysia firms to allocate their resources in accordance to the elements of knowledge management.

## ACKNOWLEDGEMENT

The funding for this project was made possible through the research grant from Universiti Malaysia Sarawak [F01/SpGS/1418/16/19].

## REFERENCES

Amit, R., & Schoemaker, P. J. (1993). Strategic assets and organizational rent. *Strategic Management Journal*, *14*(1), 33–46.

An, X., Deng, H., Chao, L., & Bai, W. (2014). Knowledge management in supporting collaborative innovation community capacity building. *Journal of Knowledge Management*, *18*(3), 574–590. https://doi.org/10.1108/JKM-10-2013-0413

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, *16*(1).

Bharadwaj, A. S. (2000). A resource-based perspective on information technology capability and firm performance: an empirical investigation. *MIS Quarterly*, *24*(1), 169–196.

Birasnav, M. (2014). Knowledge management and organizational performance in the service industry : The role of transformational leadership beyond the effects of transactional leadership. *Journal of Business Research*, *67*(8), 1622–1629.

Calantone, R. J., Cavusgil, S. T., & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management*, *31*(6), 515–524.

Chae, H. C., Koh, C. E., & Prybutok, V. R. (2014). Information technology capability and firm performance: contradictory findings and their possible causes. *MIS Quarterly*, *38*(1), 305–326.

Chin, W. W. (1998a). Commentary Issues and Opinion on Structural Equation Modeling. *MIS Quarterly*, *22*(1), vii–xvi.

Chin, W. W. (1998b). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research*, *295*(2), 295–336.

Chin, W. W. (2010). How to write up and report PLS analyses. In V. E. Vinzi, W. W. Chin, J. Henseler, & H. Wang (Eds.), *Handbook of Partial Least Squares* (pp. 171–193). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-540-32827-8

Damanpour, F. (1991). Organizational Innovation: A Meta-Analysis of Effects of Determinants and Moder. *The Academy of Management Journal*, *34*(3), 555–590.

Davenport, T. H., & Prusak, L. (1998). *Working Knowledge : How Organizations Manage What They Know. Harvard Business School Press*. Boston, MA.: Harvard Business School Press.

de Faria, P., & Sofka, W. (2010). Knowledge protection strategies of multinational firms—A cross-country comparison. *Research Policy*, *39*(7), 956–968.

Dibrell, C., Fairclough, S., & Davis, P. S. (2015). The impact of external and internal entrainment on firm innovativeness: A test of moderation. *Journal of Business Research*, *68*(1), 19–26. https://doi.org/10.1016/j.jbusres.2014.05.012

Drnevich, P. L., & Croson, D. C. (2013). Information technology and business-level strategy: toward an integrated theoretical perspective. *MIS Quarterly*, *37*(2), 483–509.

Gefen, D., Straub, D., & Boudreau, M. C. (2000). Structural equation modeling and regression: Guidelines for research practice. Communications of the association for information systems. *Communications of the Association for Information Systems*, *4*(1), 7.

Gold, A. H., Malhotra, A., & Segars, A. H. (2001). Knowledge Management : An Organizational Capabilities Perspective. *Journal of Management Information Systems*, *18*(1), 185–214.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *The Journal of Marketing Theory and Practice*, *19*(2), 139–152. https://doi.org/10.2753/MTP1069-6679190202

Huang, Y. K., & Chen, J. S. (2009). Information synergy as the catalyst between information technology capability and innovativeness: Empirical evidence from the financial service sector. *Information Research*, *14*(1). Retrieved from http://www.informationr.net/ir/14-1/paper394.html

Hurley, R. F., & Hult, G. T. M. (1998). Innovation, Market Orientation, and Organizational Learning: An Integration and Empirical Examination. *Journal of Marketing*, *62*(3), 42–54.

Jayasingam, S., Ansari, M. A., Ramayah, T., & Jantan, M. (2013). Knowledge management practices and performance: are they truly linked?†. *Knowledge Management Research & Practice*, *11*(3), 255–264. https://doi.org/10.1057/kmrp.2012.5

Jean, R. J., Sinkovics, R. R., & Hiebaum, T. P. (2014). The Effects of Supplier Involvement and Knowledge Protection on Product Innovation in Customer-Supplier Relationships: A Study of Global Automotive Suppliers in China. *Journal of Product Innovation Management*, *31*(1), 98–113. https://doi.org/10.1111/jpim.12082

Kamaruddeen, A. M., Yusof, N., & Said, I. (2012). Dimensions of firm innovativeness in housing industry. In *Emerging Issues in the Natural and Applied Sciences* (pp. 118–133). Baku. https://doi.org/10.7813/einas.2012/2-1/7

Kock, N. (2014). Advanced mediating effects tests, multi-group analyses, and measurement model assessments in PLS-based SEM. *International Journal of E-Collaboration*, *10*(1), 1–13. https://doi.org/10.4018/ijec.2014010101

Muhammed, S., Doll, W. J., & Deng, X. (2013). The Impacts of the Cognitive Nature of the Task and Psychological Empowerment on an Individual's Knowledge Creation, Sharing, and Application. In *2013 46th Hawaii International Conference on System Sciences* (pp. 3664–3673). Ieee. https://doi.org/10.1109/HICSS.2013.525

Nakata, C., & Zhu, Z. (2006). Information Technology and Customer Orientation: A Study of Direct, Mediated, and Interactive Linkages. *Journal of Marketing Management*, *22*(3–4), 319–354. https://doi.org/10.1362/026725706776861208

Nonaka, I. (1994). Dynamic Theory Knowledge of Organizational Creation. *Organization Science*, *5*(1), 14–37.

Pérez-López, S., & Junquera, B. (2013). The relation between IT competency and knowledge management processes and its mediators. *Tourism & Management Studies*, *9*(1), 109–115.

Raddats, C. O., & Burton, J. (2014). Creating multi-vendor solutions: the resources and capabilities required. *Journal of Business & Industrial Marketing*, *29*(2), 132–142. https://doi.org/10.1108/JBIM-04-2012-0061

Roscoe, J. T. (1975). *Fundamental Research Statistics for the Behavioural Sciences* (2nd ed.). New York: Holt Rinehart & Winston.

Sambamurthy, V., Bharadwaj, A. S., & Grover, V. (2003). Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms. *MIS Quarterly*, *27*(237–263).

Sekaran, U. (2000). *Research Methods for Business; A skill business approach*. New York: John Willey & Sons.

Thompson, D. V., Rust, R. T., & Rhoda, J. (2005). The business value of e-government for small firms. *International Journal of Service Industry Management*, *16*(4), 385–407. https://doi.org/10.1108/09564230510614022

Väyrynen, K., Hekkala, R., & Liias, T. (2013). Knowledge Protection Challenges of Social Media Encountered by Organizations. *Journal of Organizational Computing and Electronic Commerce*, *23*(1–2), 34–55. https://doi.org/10.1080/10919392.2013.748607

Wade, M., & Hulland, J. (2004). Review: the resource-based view and information systems research: review, extension, and suggestions for future research. *MIS Quarterly*, *28*(1), 107–142.

Yeh, C. H., Lee, G. G., & Pai, J. C. (2014). Using a technology-organization-environment framework to investigate the factors influencing e-business information technology capabilities. *Information Development*, 1–16. https://doi.org/10.1177/0266666913516027

Zhou, K. Z., Zhang, Q., Sheng, S., Xie, E., & Bao, Y. (2014). Are relational ties always good for knowledge acquisition? Buyer–supplier exchanges in China. *Journal of Operations Management*, *32*(3), 88–98. https://doi.org/10.1016/j.jom.2014.01.001