Information Technology Factors Influence the Adoption to Ecommerce in Small and Medium Scale Organizations in Sri Lanka: A Research Agenda

N. Kuruwitaarachchi¹,², Mohd Shukri Ab Yajid³, Ali Khatibi³, S. M. Ferdous Azam³
¹Sri Lanka Institute of Information Technology, Sri Lanka.
²Research Scholar Management and Science University, Malaysia.
³Management and Science University, Malaysia.

* Corresponding author. Tel.: 0094772223674; email: nuwan.ku@sliit.lk
Manuscript submitted January 12, 2019; accepted April 12, 2019.
doi: 10.17706/ijeeee.2020.10.1.95-103

Abstract: Improvement of advance communication technologies and changes of business environments have resulted in an increasing demand for Information Technology (IT) products to be used in businesses today. But unfortunately, the Small and Medium Scale Businesses (SMEs) are not using those technologies effectively and not gain the competitive advantage over competitors. Although prior studies proposed many models and frameworks to understand the barrier to use advance communication technologies, the practicability remain a concern. Furthermore, those frameworks mainly discussing common general barriers and take technology as a barrier among other factors. This study provided critical review of those available frameworks and construct a new one focusing on IT factors. A research model along with its theoretical and managerial implications is presented. Besides proposing a methodology for future studies, this study also serves to guide practitioners to decide on the key factors to consider when assessing the IT factors effecting the adoption to e-commerce based e-business technologies.

Key words: Information technology, e-commerce, security, know-how, organization performance.

1. Introduction

Small and Medium Scale Enterprises are known as the backbone of the both developed and developing nation’s economy [1]. Therefore, it represent a major part of the world economy and play a vital role in both developed and developing counties [2]. SMEs compose of large portion of both developed and developing countries’ economies.

Sri Lankan economy is significantly affected by performance of SMEs with its high contribution in many different economic perspectives [3], [4]. But during last few decades contribution from SMEs has not contributed as expected in Sri Lanka as a developing nation. Further Sri Lankan SMEs were not able to expand the businesses and increase the competitiveness with limited access to global information systems though formal sources. This low SME performance business development and entrepreneurship negatively affected to the SME development [5].

According to [1], [6]-[10] one of the common barriers for SME development is lack of using information and communication technologies. This is more critical when local organizations make difficulties to adopt to advance communication technologies with the respective industry. Adoption of Electronic Commerce (E-commerce) significantly improves the SME performance but in the literature, it has identified that due to
many technical barriers are there for the adoption [2]. In this research basically identifying the Information Technology factors influencing the adoption of E-commerce towards the organizational performance in SMEs in Sri Lanka. Further SMEs simulate other economic activities[1]. Therefore, researching those barriers and develop a mechanism to overcome would be a great contribution to economic development.

Among different technological implementations used in business, E-commerce is a powerful concept and process that has fundamentally changed the current human life [8]. According to [11] adoption to E-commerce has many positives for organization performance. There are many different definitions on e-commerce and all those definitions in common discussing the sales and purchase of goods and services through digital infrastructure or called as computer mediated networks. According to [12] as the world 2nd largest economy is the world china playing in vital role in world economy since 2008 world economic crisis. Their using E-commerce as significant solution for developing many different areas including, international economy, global cooperation, energy transfer, promote education, promote health, improving employment and etc. [13].

According to [14] analyzed basic information technology factors effecting to the adoption of e-commerce in Small and medium scale organizations in Sri Lanka. Those are technology perspective, technology know how and information and network security. In this research mainly develop and framework to analyze the Information Technology factors influencing the adoption to E-commerce.

2. Theories and Sources of Ecommerce Adoption in SMEs

Following theoretical models have been used in number of studies focus on information system adoptions and innovations. E-commerce is a considered as innovation technology and those models can be applied to this study [3]. In the following section in depth discussion of theories will be presented.

Diffusion of Innovation (DOI) model is introduce by Everett M. Rogers in 1983 and still one of the popular models to investigation of user behavior in new technology adoption. This model is one of the broad psychological and sociological theory used to describe patterns of adoption of an individual in the organizational context [15]. Further this model is used to predict how an invention of new technology will be successful. As this study focus on SMEs which are commonly managed by the individuals with power untimely make innovation decision like adopting new technologies[16]. In this study variable 01 knowledge will be taken as technology know-how and will be tested how it get effected to technology adoption.

Technology Acceptance Model (TAM) is one of those popular models introduced by Fred Davis about quarter century ago in 1986. Which investigating the factors affecting the user's acceptance of technology? The theory of reasoned action (TRA), along with the Theory of Planned Behavior (TPB), represents the origins of TAM [17]. The goal of TAM is to provide and explanation to the determinants of computer acceptance. This gives broad explanation of user behavior of end user computer technologies and user populations. Therefore, the main purpose of TAM is providing basis for tracing the impact on external factors on internal belief, attitudes and intentions [18]. A study[19] conducted with a goal to present research is to extend TAM to include additional key determinants of TAM’s perceived usefulness and usage intention constructs, and to understand how the effects of these determinants change with increasing user experience over time with the target system. By using 4 different systems and it is a longitudinal study and it is done at 3 different times in the time domain. The results strongly supported for extended version and then the model is called as TAM2. In this research study focus on TAM and perceived usefulness and perceived ease of use will be considered and tested under technology perspective as relative advantage and simplicity. Therefore, in this research relative advantage and simplicity will be used tested by adding to the theoretical framework.

According to [20] compared and tested eight variables in eight different models of use's acceptance and
proposed a model called Unified Theory of Acceptance and Use of Technology (UTAUT). The studies done with following models: Theory of Reasoned Actions (TRA), Technology Acceptance Model (with TAM2), Theory of Planned Behavior (TPB), Combined TAM and TPB, Model for PC utilization, Innovation Diffusion Theory and Social Cognitive theory. UTAUT model is used repeatedly in E-commerce adoption in SMEs in many different research studies.

Therefore, it is evident that TAM and UTAUT models used to find the factors influencing technology acceptance. With further research studies [21] proposed an extension to UTAUT, and called as UTAUT2. UTAUT2 is fused with 3 key constructs. Hedonic motivation, price value and habit also effect the behavioral intention. As moderators they used gender, age and experience. In UTAUT2 improvement of behavioral intention to adoption is identified significantly. A study done with UTAUT2 model to analyze the mobile payment adoption found that this is most appropriate for mobile payments, mobile banking and mobile commerce. The main reasons behind the success of it for above mentioned applications is UTAUT2 extended by UTAUT with self-efficacy, innovativeness, trialability, perceived risk and trust[22]. Therefore, this model is subjective to the model and cannot be directly applied to any given subject without constrains. However, in this research study part of the UTAUT model will be evaluated while adding subjective independent variables to the framework. Perceived benefits will be evaluated in this research study under the variable called relative advantage. With UTAUT2 added with trust but it will be discussed under information and network security variable.

Technology Organization Environmental (TOE) Model, Tornatzky and Fleischer’s “The Processes of Technological Innovation” book in 1990 introduced the technology-organization-environment framework. This model describes the entire process of innovation starting from engineers and entrepreneurs to the adoption and implementation of those innovations at the user level. This framework is used at the organizational level influence on the adoption. It explains three (3) different elements. Those are Technology, Organization, Environment[23]. TOE is one of the best frameworks to use in technology adoption among theories discussed above paragraphs and TOE is widely used framework for E-commerce adoption in both SMEs and Larger organizations[24]. Further TOE is heavily used in Customer Relationship Management studies [25], [26] and in Electronic Data Interchange studies in SMEs [27]. As this study focus on technology adoption and considering only the factors in information technology organizational and environmental factors discussed in the TOE model will be idle in the study and focus only on technology factor.

The Resource Based View (RBV) theory is based on the economic rent concept. Further it considers main categories: Financial, Buildings, equipment and technology. This basically discuss the fundamental source and drivers of competitive advantage to organizations[28].

3. Proposed Source for IT Factors Including the Adoption to Ecommerce

Prior studies proposed different testable frameworks to analyze the factors effecting to the adoption of E-commerce and how it is affected to improve business performance [29]-[33]. Although those frameworks discuss the factors in general but discussing information technology factors are rare. The available litterer focusses on Information Technology as a barrier and not explained it in detail.

According to [14] Information Technology factors can be affected heavily in E-commerce adoption and it can be explained in main three different dimensions.

3.1. Technology Perspective

Technology perspective can be explained as users view of the technology in terms of relative advantage of adoption and using technology [34]-[36], Compatibility as the ease of adopting to new technologies and compatibility among existing technologies in the organization [24], [36]. Finally, simplicity of adoption and
ease of use of the technology adopted [37], [38]. Having knowledge in innovative perspective and advantages of using technologies in business finally able to boost the business via getting cost advantages and innovation [39]. Therefore, technology perspective has positive influence in e-commerce like technology adoption and finally organizational performance. Having these concerns from literature main hypothesis can be developed as Technology perspective has significant effect on E-commerce adoption in SMEs in Sri Lanka.

Further it can be developed:

H1a: Relative advantage of Information Technology effects e-commerce adoption in SMEs in Sri Lanka.
H1b: Compatibility effects E-commerce adoption in SMEs in Sri Lanka.
H1c: Simplicity effects E-commerce adoption in SMEs in Sri Lanka.

![Theoretical framework](image)

**Fig. 1. Theoretical framework.**

### 3.2. IT Know How

IT know-how or expertise is one of the direct influences in E-commerce adoption (Kuruwitaarachchi 2018) adoption. Without having IT expertise organizations may unaware of net technologies and may not like to take the risk of adoption [40]. Further owner's IT know-how and ability is also determine the adoption to E-commerce [24]. Therefore maintain knowledge and skill inside the organization is significant for e-commerce like technology adoption. Having these concerns from literature main hypothesis can be developed

H2a: There is a relationship between Information Technology know-how and E-commerce adoption.

### 3.3. Information and Network Security

Security is an important component for financial health of every organization. Applications like E-commerce required mission-critical networks that accommodate all different types of information formats (Voice, Video, Data). Scalability of network also a required characteristic of this application [41]. According to [8] is identified as a barrier to e-commerce setup. According to [42] security is a broader context of internet-based E-commerce systems. Which included with confidentiality, authentication, message integrity, privacy. This is more and more concerned in web transaction payments. Using different techniques like cryptography, encryption researchers tries to protect information from above issue but still the lack of identical concerns it has inhibits the E-commerce adoption. According to [10] security is one of the latest issues in E-commerce adoption in SMEs. In a study done in online shopping and E-commerce in developing countries found that security is affect the confidence in e-commerce [43]. Need of security is
explained in terms of carried out the business with privacy, correctly and timely [44]. According to [45] success or failure of e-commerce based businesses are depends on security and privacy issues. Therefore, there is a considerable effect from security in terms of Information and Network Security to e-commerce adoption. Hence, hypothesis can be developed as Information and Network Security has significant effect on E-commerce adoption in SMEs in Sri Lanka.

H3a: Information security has positive influence of e-commerce adoption.

H3b: Network security has a positive influence on e-commerce adoption.

After analyzing different aspects of adopting to e-commerce in SME, most significant effacing factors were identified as mentioned in above tables and summary tables for effecting factors are shown in Table 1.

| Constructs                        | Measurement Items | Source               |
|-----------------------------------|-------------------|----------------------|
| Technology perspective Information Technology | Relative Advantage | [2], [33]-[36]       |
|                                   | Compatibility     | [2], [24], [29], [36], [46] |
|                                   | Simplicity        | [3], [37], [38]      |
| Technology Know-how Information and Network Security | Know-how          | [24], [36], [40], [44], [47]-[52] |
|                                   | Information and Network Security | [10], [43], [53]-[56] |

4. Information Technology Governance

As the result expectation of organizational performance via adopting to new technologies, further studies were conducted to analyze how organizations improve performance. According to [49], [57]-[59] it can be analysed the performance moderated via Information technology governance. IT governance effect to EC adoption towards organizational performance [60]. Therefore, it is added to the framework and testing the hypothesis.

H4a: Information technology governance moderate the relationship between E-commerce adoption and organizational performance.

5. Conclusion and Future Research Directions

The adoption to e-commerce and related technologies improve the SME performance. The identification of the E-commerce adoption influencing factors in fact become a major area of study in SME strategy and management. The SME sector there is no exception where growing demands for their products across the world require this sector to be continuously competitive. Hence, there is a need for the sector and its firms to respond to environmental changes through the identification of sources of competitive advantage. Further from many SME industries the influence to the giant industries is relatively significant. As a contribution to the area of study, above mentioned contracts can be tested through a pilot test and provide insight in to researched to come up with a plan to get rid of information technology barriers in implementing the e-commerce solution in business.

References

[1] Vijayakumar, S. (2013). The status of small and medium enterprises and promotions for their growth in Srilanka. International Journal on Global Business Management and Research, 1, 13.

[2] Nakhoul, I., et al. (2017). Introducing B2i2C: An m-commerce model for SMEs. Proceedings of 2017 International Conference on Engineering & MIS (ICEMIS) (pp. 1-5).
[3] Malawige, I. R., & Nanayakkara, L. D. J. F. (2014). SME EIS adoption: Towards development of EIS for SMEs in Sri Lanka. *Proceedings of 2014 14th International Conference on Advances in ICT for Emerging Regions (ICTer)* (pp. 172-178).

[4] Perera, H. A. D. (2016). Productivity improvement through lean tools in a Sri Lankan small and medium enterprise: A case study. *Proceedings of 2016 Manufacturing & Industrial Engineering Symposium (MIES)* (pp. 1-6).

[5] Niranjala, S. A. U., & Jianguo, W. (2017). Access to finance and related issues in the SMEs in Sri Lanka. *Proceedings of 2017 3rd International Conference on Information Management (ICIM)* (pp. 140-143).

[6] Yoshino, N., & Taghizadeh-Hesary, F. (2016). *Major Challenges Facing Small and Mediumsized Enterprises in Asia and Solutions for Mitigating Them*, 22.

[7] Weerasiri, S., Zhengang, Z, & Perera, T. R. (2012). Innovation and creativity of small and medium scale enterprises (SMEs) in Sri Lanka: A review. *IFRSA Business Review, 2*(7).

[8] Nanehkaran, Y. A. (2013). An introduction to electronic commerce. *International Journal of Scientific & Technology Research, 2*(4).

[9] Abdullah, A.-S. S., *et al.* (2015). A stage-oriented model (SOM) for e-commerce adoption: A study of Saudi Arabian organisations. *Journal of Manufacturing Technology Management, 26*, 2-35.

[10] Savrul, M., *et al.* (2014). The potential of e-commerce for SMEs in a globalizing business environment. *Procedia - Social and Behavioral Sciences, 150*, 35-45.

[11] Abebe, M. (2014). Electronic commerce adoption, entrepreneurial orientation and small-and medium-sized enterprise (SME) performance. *Journal of Small Business and Enterprise Development, 21*, 100-116.

[12] T. W. Bank. (2018, 27/06/2018). *The World Bank in China*.

[13] Guo, P., *et al.* (2017). The research on innovative application of e-commerce in IoT era. *Proceedings of 2017 IEEE International Conference on Computational Science and Engineering (CSE) and IEEE International Conference on Embedded and Ubiquitous Computing (EUC)* (pp. 410-413).

[14] Kuruwitaarachchi, N., *et al.* (2018). Enhance the use of internet based advanced communication technologies in small and medium scale enterprises in Sri Lanka, 3, 14.

[15] Khong, S. T., *et al.* (2009). Internet-based ICT adoption: Evidence from Malaysian SMEs. *Industrial Management & Data Systems, 109*, 224-244.

[16] Al, M. A. Diffusion of innovation among Malaysian manufacturing SMEs. *European Journal of Innovation Management*.

[17] Marangunić, N., & Granić, A. (2015). Technology acceptance model: A literature review from 1986 to 2013. *Universal Access in the Information Society, 14*, 81-95.

[18] Davis, F. D., *et al.* (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science, 35*, 22.

[19] Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*, 186-204.

[20] Venkatesh, V., *et al.* (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*, 425-478.

[21] Venkatesh, T. V., *et al.* (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology1.

[22] Slade, E., *et al.* (2013). Extending UTAUT2 to explore consumer adoption of mobile payments.

[23] Baker, J. (2012). The technology–organization–environment framework. *Information Systems Theory - Explaining and Predicting Our Digital Society*. Springer.

[24] Rahayu, R., & Day, J. (2015). Determinant factors of e-commerce adoption by SMEs in developing
country: Evidence from Indonesia. *Procedia - Social and Behavioral Sciences*, 195, 142-150.

[25] San-Martin, S., et al. (2016). The firms benefits of mobile CRM from the relationship marketing approach and the TOE model. *Spanish Journal of Marketing - ESIC*, 20, 18-29.

[26] Shihab, D. A. A. N. H. N. F. A. B. P. I. S. R. (2016). Investigating critical factors of social CRM adoption using technology, organization, and environment (TOE) framework and analytical hierarchy process (AHP). *Proceedings of 2016 International Conference on Advanced Computer Science and Information Systems (ICACSI)* (pp. 233-238).

[27] Kuan, K. K. Y., & Chau, P. Y. K. (2001). A perception-based model for EDI adoption in small businesses using a technology–organization–environment framework. *Information & Management, 38*, 507-521.

[28] Sachithra, V., & Chong, S.-C. (2016). Firm level competitive advantage in the agricultural sector: A research agenda. *British Journal of Economics, Management & Trade, 12*, 12.

[29] Muslim, & Sandhyaduhita, P. I. (2016). Supporting and inhibiting factors of e-commerce adoption: Exploring the sellers' side in Indonesia. *Proceedings of 2016 International Conference on Advanced Computer Science and Information Systems (ICACSI)* (pp. 207-214).

[30] Amin, M. R., & Hussin, H. (2014). E-commerce adoption in SME retail sector: A conceptual model. *Proceedings of the 5th International Conference on Information and Communication Technology for The Muslim World (ICT4M)* (pp. 1-6).

[31] Chen, J. K. C., et al. (2013). Exploring e-readiness on e-commerce adoption of SMEs: Case study South-East Asia. *Proceedings of 2013 IEEE International Conference on Industrial Engineering and Engineering Management* (pp. 1382-1386).

[32] Kapurubandara, M. (2008). A model to etransform SMEs in developing countries. *Proceedings of 2008 4th International Conference on Information and Automation for Sustainability* (pp. 401-406).

[33] Kapurubandara, M., & Lawson, R. (2007). SMEs in developing countries face challenges in adopting e-commerce technologies. *Proceedings of 2007 Inaugural IEEE-IES Digital EcoSystems and Technologies Conference* (pp. 141-146).

[34] Morteza, G., & Sai, H. T. (2013). The role of owner/manager in adoption of electronic commerce in small businesses: The case of developing countries. *Journal of Small Business and Enterprise Development, 20*, 754-787.

[35] Herzallah, F., & Mukhtar, M. (2015). The impact of internal organization factors on the adoption of e-commerce and its effect on organizational performance among palestinian small and medium enterprise. *Proceedings of International Conference on e-Commerce*.

[36] Alam, S. S., & Noor, M. K. M. (2009). ICT Adoption in small and medium enterprises: An empirical evidence of service sectors in Malaysia. *International Journal of Business and Management, 4*, 15.

[37] Maryeni, Y. Y., et al. (2012). Technological and organizational factors influencing the e-commerce adoption by Indonesian SMEs. *Proceedings of 2012 IEEE International Conference on Management of Innovation & Technology (ICMIT)* (pp. 436-441).

[38] Suriyapperuma, H. P., et al. (2016). The impact of internet adoption on SME performance in Sri Lanka: Development of a conceptual framework. *International Journal of Arts and Commerce, 4*, 14.

[39] Marcella, D. M., & Fabio, M. (2018). The innovation capacity of small food firms in Italy. *European Journal of Innovation Management, 21*, 362-383.

[40] Premkumar, G., & Roberts, M. (1999). Adoption of new information technologies in rural small businesses. *Omega, 27*, 467-484.

[41] Pareek, R. (2011). Network security: An approach towards secure computing. *Journal of Global Research in Computer Science, 2*, 4.

[42] Awa, H. O., et al. (2015). Integrating TAM, TPB and TOE frameworks and expanding their characteristic
constructs for e-commerce adoption by SMEs. *Journal of Science and Technology Policy Management*, 6, 76-94.

[43] Khan, M., et al. (2016). OSaaS: Online shopping as a service to escalate e-commerce in developing countries. *Proceedings of 2016 IEEE 18th International Conference on High Performance Computing and Communications; IEEE 14th International Conference on Smart City; IEEE 2nd International Conference on Data Science and Systems (HPCC/SmartCity/DSS)* (pp. 1402-1409).

[44] Ajmal, F., & Yasin, N. M. (2012). Model for electronic commerce adoption for small and medium sized enterprises. *International Journal of Innovation, Management and Technology*, 3, 5.

[45] Chatterjee, S. (2015). Security and privacy issues in e-commerce: A proposed guidelines to mitigate the risk. *Proceedings of 2015 IEEE International Advance Computing Conference (IACC)* (pp. 393-396).

[46] Triandini, E., et al. (2017). Mapping requirements into e-commerce adoption level: A case study Indonesia SMEs. *Proceedings of 2017 5th International Conference on Cyber and IT Service Management (CITSM)* (pp. 1-5).

[47] Allison, I. (1999). *Information Systems Professional Development: A Work-Based Learning Model*, 2.

[48] Chong, S., & Ramaseshan, B. (2005). The adoption of electronic commerce: A cross-country study of influencing factors in small- and medium-sized enterprises. *Proceedings of INDIN ’05. 2005 3rd IEEE International Conference on Industrial Informatics* (pp. 215-223).

[49] Kapurubandara, M., & Lawson, R. (2008). Availability of e-commerce support for SMEs in developing countries. *ICTer*, 1.

[50] Kapurubandara, M., & Lawson, R. (2006). Barriers to adopting ICT and e-commerce with SMEs in developing countries: An exploratory study in Sri Lanka. *University of Western Sydney, Australia, 2005-2016*.

[51] Widyasekera, S., & Gamage, L. (2006). A study on the contribution of ICT in SME’s to strengthen the Sri Lankan economy. *Proceedings of the National Conference of Technology and Management Colombo*.

[52] Govindaraju, R., & Chandra, D. R. (2011). E-commerce adoption by Indonesian small, medium, and micro enterprises (SMMEs): Analysis of goals and barriers. *Proceedings of 2011 IEEE 3rd International Conference on Communication Software and Networks* (pp. 113-117).

[53] Awa, H., et al. (2017). Revisiting technology-organization-environment (T-O-E) theory for enriched applicability. *The Bottom Line*, 30.

[54] (2013). A study of information security in e-commerce applications. *International Journal of Computer Engineering Science*, 3, 9.

[55] Singh, S., & Singh, N. (2015). Internet of things (IoT): Security challenges, business opportunities & reference architecture for e-commerce. *Proceedings of 2015 International Conference on Green Computing and Internet of Things (ICGCIoT)* (pp. 1577-1581).

[56] Kuruwitaarachchi, N., & Buddhika, R. A. P. (2016). Mobile intelligent shopping guide. *International Journal of Scientific and Research Publications*, 6, 8,

[57] Haes, S. D., & Greembergen, W. V. (2009). Exploring the relationship between IT governance practices and business/IT alignment through extreme case analysis in Belgian mid-to-large size financial enterprises. *Journal of Enterprise Information Management*, 22, 615-637.

[58] Norshidah, M., & Jasber, K. A. P. G. S. (2012). A conceptual framework for information technology governance effectiveness in private organizations. *Information Management & Computer Security*, 20, 88-106.

[59] Geetha, R. (2014). Fostering IT governance in Smes to Reinvigorate Indian Economy: Achievement assessment of select manufacturing firms. *Proceedings of VIBHAVAT-2014 Conference Proceedings Book with ISBN: 978-81-929698-0-0, 2014, 16*. 
[60] Shanmugam, J. (2016). The impact of information technology (IT) adoption towards small medium enterprises (SMEs) performance in Malaysia: The role of IT governance as moderator.

**Nuwan S. Kuruwitaarachchi** has earned his B.Sc(Hons) in computer systems and networks from Sheffield Hallam University United Kingdom. Then he pursued his M.Sc information technology from Sri Lanka Institute of Information Technology (SLIIT) and His MBA in finance is from University of Sri Jayewardenepura Sri Lanka. Mr. Kuruwitaarachchi is a senior lecturer at SLIIT. Currently his is reading for his PhD in information and communication technology in Management and Science University. His research area is mainly in to computer systems and technology adoption in enterprise business application.

**Mohd Shukri Ab Yajid** the president and founder of the Management & Science University (MSU) and MSU College group is a passionate proponent for excellence in education. He sets new benchmarks on excellence and quality in the Malaysian and regional private education scenarios through his innovative leadership and involvements in 21st century learning. His commitment to teaching and learning is manifested through his involvement in workshops and supervisory consultancies to PhD and Masters candidates doing research in Management, Entrepreneurship and Marketing related areas. He has written and co-wrote numerous papers published in the international as well as local journals and articles.

**Ali Khatibi** is a senior vice president in Management and Science University Malaysia and has published numerus publications in both index journals and conferences in the field of management and marketing. He supervised postgraduate and doctoral students in the field of management and marketing.