

## **The Influence of Internal and External Forces in Adoption of Electronic Customer Relationship Management (ECRM) in Malaysian SMEs**

Nurul Hafizah Md Nasruddin and Fararishah Abdul Khalid  
Faculty of Technology Management and Technopreneurship,  
Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, 76100 Melaka, Malaysia

---

**Abstract:** Information Technology (IT) plays a significant role in today's business competition. A prominent role is that it helps a firm to manage relationships with customers effectively. Today's online consumer has more complex needs and much higher expectations than ever before. Online business communities are fast emerging as new organizational tools for customer relationship management, marketing, brand management and for a multitude of other purposes such as building strong online trust and reciprocity. To support this capability, Customer Relationship Management (CRM) is evolving into electronic Customer Relationship Management (eCRM). Electronic Customer Relationship Management (eCRM) has become the latest paradigm in the world of Customer Relationship Management.

**Key words:** Customer relationship management, electronic Customer Relationship Management (eCRM), determinant factors, SMEs, influence factors, significant

---

### **INTRODUCTION**

One of strategic resources for sustaining competitiveness among firms regardless of their size is using technology. Technology has been recognized as one of the competitive resources and strategies to maintain organizational effectiveness. In today's dynamic business environment, organizational that has the ability to adopt technology would render their competitiveness. Technology is shown in new products, processes and systems including the knowledge and capabilities needed to deliver functionality that is reproducible. The breakthrough of Information Technology (IT) has significantly impacted the way business is conducted. By using appropriate IT, it can be clearly seen in today business competition that those who have precise information are likely to prevail their rivals.

Moreover, information technology provides a number of advantages because it facilitates communicate interaction among individuals from individual perspective. IT also provides tools which can manage data or information efficiently and effectively to the firm in leading to greater business competency. This is particularly relevant to Small and Medium Enterprises (SMEs) as the use of technology would enable them to compete with their larger counterparts. Based on previous studies by Tidd and Bessant (2009), the successful SMEs are those who innovate by adopting technologies that

give them a market competitive edge. The definition of SME may vary difference between countries but it generally defined by the number of their employees.

In 2011, Malaysian SMEs are defined evolved by the National SME Development Council as follow: firms in manufacturing sector with annual sales turnover not exceeding RM25 million or full-time employees not exceeding 150 persons while firm in services and other sectors with annual sales turnover not exceeding RM5 million or full-time employees not exceeding 50 persons. The census represented 997.3% of total business establishments in Malaysia (Department of Statistics, 2011). As organizations are transforming from product or brand-centric marketing to a relational-centric approach, the importance of Customer Relationship Management (CRM) is hardly questioned. CRM is the strategic use of information, process, technology and people to manage the customer's relationship with your company (marketing, sales, services and support) across the whole customer life cycle (Kincaid, 2003). Information technology is a vital component in driving the CRM assignment smoothly and fruitfully.

From a marketing viewpoint, customer relationship is the key factor in determining the business's success or failure. It has been suggested that companies who focus on their customer's needs and wants are in a better position to achieve long term success than those who do not (Kotler, 2000). Better customer relationships lead to

customer loyalty which eventually leads to profitability. Loyal customers tend to buy more and stay with a preferred company longer than non-loyal customers. Customers have hidden or overt preferences that marketers can reveal by building a learning relationship.

IT has transformed CRM into electronic Customer Relationship Management (eCRM). eCRM is concerned with the same principles as a CRM application but tailored more towards e-Commerce and online customers (Romano and Fjermestad, 2001). Now a days, eCRM is increasingly used by companies to enhance their electronic marketing capabilities. The goal of electronic Customer Relationship Management (eCRM) systems is to improve customer service, retain customers and to aid in providing analytical capabilities. Furthermore, it is the infrastructure that enables the delineation of and increases in customer value and the correct means by which to motivate valuable customers to remain loyal.

Technology adoption studies have well been conducted the context of SMEs. In particular, Abu examined the technology acceptance of electricity supply system among customers. The adoption of eCRM by SMEs has received little attention from scholars and has not been well researched. It is expected that eCRM has potential for SMEs and will lead to sustainable competitive advantages in the e-Marketplace. However, it is not clear whether or not SMEs are aware of this particular technology. Also, their attitude and willingness to adopt eCRM are inadequately understood. These drive the following research questions: what are the influencing factors towards adopting eCRM amongst Malaysian SMEs? To what extent do the factors influence the adoption of eCRM amongst Malaysian SMEs?

**The adoption models:** The first model that used in this study is TOE (Technology-Organizational-Environmental) framework. TOE framework has been claimed as the generic theory of technology adoption/diffusion (Zhue *et al.*, 2003) that can be used to study eCRM adoption in SMEs. This study chooses TOE framework as it has proved to be a useful framework for studying the organizational adoption especially in related to technologies (Mishra *et al.*, 2007). Louis and Fleischer (1990) claimed that TOE framework was developed as a generic theory to study the adoption of general technological innovations which contain three aspects: technological context, organizational context and environmental context that influence the process by which technological innovations are adopted.

However, the three-context in TOE framework may have some limitations, since the characteristics of a manager are not included in the framework. Adoption

decision might be affect by an individual's personal characteristics. Thus, the next model is Diffusion of Innovation (DOI) theory which has been widely used and extensively cited in SME literature. DOI is a broad social psychological or sociological theory that is used to explain the patterns of adoption, explain the mechanism and assist in predicting whether and how a new invention will success (Rogers, 2003).

Nevertheless, there are inconsistent in their focused context which behavior or individual factors is determined by beliefs in the technologies. In order to complete this factors, the Theory of Planned Behavior (TPB) will be used as responded to the beliefs. Kula and Tatoglu (2003) examined whether the attitude of managers in SMEs in Turkey influenced the adoption of internet. In this study, the dependent variable is adoption that uses technologies in business operation. For independent variables that influence the adoption of technologies are categorized into two: internal factors and external factors.

**The influencing forces:** In this study, influencing factors are categorized into two: internal and external factors. By using TOE framework combined with DOI theory, the influence factors are developed. Based on previous studies, Thong (1999) expands the TOE framework by joins CEO characteristics from DOI Model. It suggested four factors that influence the technology adoption decision: management characteristics, technological characteristics, organization characteristics and environment characteristics in which the organization operates. Therefore, these four context are considered beneficial and applied in this study. The TPB theory is added claims that behavioral intention is determined by attitude of individuals to adopt new technology. The influencing factors are categorized as follows.

**Individual factors:** This is the internal factors and there are two factors under individual factor in the research framework, attitude and innovativeness. Attitude can be powerful enable or a barrier towards the adoption of the new technology in the firm. Bethlehem and Biffignandi (2012) describes an attitude as a general concept, reflecting views about wider, often complex issues. In SMEs, IT adoption process is directly affected by top management/where all decisions from daily functions to future investments are made by them (Bruque and Moyano, 2007; Nguyen, 2009). Positive attitude of top management towards using IT as the users of IT in SMEs will result in IT acceptance and subsequently success in SMEs (Ghobakhloo *et al.*, 2010). It shows that attitude significantly affects the decisions about the adoption of IT in small firms since their decisions influences all firm's activities.

For the innovativeness, the manager or the owner in SME is typically the main decision maker in the firm whether to adopt eCRM or not. Dess and Lumpkin (2005) describes innovativeness as a willingness to introduce newness and novelty through experimentation and creative process aimed at developing new products and services as well as new process. Scott and Walczak (2009) stated that individual with higher levels of innovativeness will possess greater cognitive absorption and show higher computer self-efficacy. Previous studies by Ghobakhloo *et al.* (2011) revealed that in SME context, movement toward IT adoption in small enterprises with innovator CEO are more probable.

**Organizational factors:** This is also referred as internal factors and there are two factors under organizational factor in the research framework, firm size and technological expertise. Firm's size has been commonly recognized as a precursor to adoption of technology (Bala and Vankatesh, 2007; Thong, 1999; Zhu *et al.*, 2003). The study by Bala and Vankatesh (2007) has found firm size as a significant important variable in adopting IT and a future research has incorporated firm size as a control variable. Larger firms tend to adopt a technology than small size firm (Janvrin *et al.*, 2008). Furthermore, in the previous studies by Jeyaraj *et al.* (2006) shows that size has been identified as one of the best predictors of organizational adoption of IT. This is due to SMEs have more limited financial resources as well as lack of technology expertise, skills and experience to survive. Firm sized can be measured by a number of dimensions such as number of employees, annual sales and total capital investment.

Technology expertise determines whether a firm is deterred from adopting a new technology because of its limited experience with IT. Therefore, Sophonthummaphan (2008) defined technology expertise as the availability of technical staff or consultants in dealing with technology. This result is similar to the study by Caldeira and Ward (2003) who revealed that internal expertise consisting of employees, supervisors or those from top management are powerful determinants of IT adoption. Firms that do not have technology expertise may be unaware of new technology or may not want to take the risk in adopting new technology. Comparing to large organization, it has been acknowledge that SMEs are suffering from lack of in-house IT expertise which might negatively influence the process of IT adoption. Dhoklia and Kshetri (2002) suggest that technologies already existing in an organization influence the future adoption of a new technology. Furthermore, Jeon *et al.* (2004) stated that employees with knowledge of IT and e-Business are positively related to the decision to adopt e-Business in SMEs.

**Technological factors:** Technological factors are one of the external factors identified in the research framework. Firms in different types of industry may perceive marketing activities differently. There are two factors under organizational factor in the research framework, compatibility and perceived advantages. Rogers (2003) defined compatibility as the degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of potential adopters. The organization can either speed up or retard it rate of adoption when innovation and ideas are compatibility. On the other hand, the use of computers and modern communication technologies can bring significant change to routine of business practices with the firm. Hence, the change should be compatible with the firm existing processes to ensure the success of adopting new technology.

Perceived advantage is defined as the degree of advantage which an innovation is perceived to contribute to the users, either at the individual or the organizational level (Sophonthummaphan, 2008). A study by Rogers (2003) state that perceived advantage is the degree to which an innovation is perceived as being better than the idea it supersedes. Otherwise, it can be viewed as an advantages for an organization over previous ways of performing the same task. Thus, in view of the advantages that eCRM offer, it would be expected that companies who perceived eCRM as advantages would also be likely to adopt the eCRM.

**Environmental factors:** The last factor is also referred to as external factors and there are two factors under environmental factor in the research framework, competitive pressure and customer pressure. It has been demonstrated that the competitive pressure will affect the adoption of new technology when SMEs perceive that these technologies possibly will support their competitive position, therefore, SMEs adopt IT to gain competitive advantage (Ghobakhloo *et al.*, 2011b). Previous studies by Riemenschneider and Mykytyn (2000) revealed that competitive pressure as the motivating reason why small firms adopt IT. Hence, with the pressure of other competing small firms as well as the pressure from the larger companies, small firms have to adopt new technology in order to improve their businesses.

Customer pressure is the behavior and demand of customer that force a firm to adopt new technology in order to keep and satisfy customers (Sophonthummaphan, 2008). It can be said that customer satisfaction leads to customer loyalty which eventually leads to a firm profitability. Customers will not maintain a close relationship with companies if their requirements

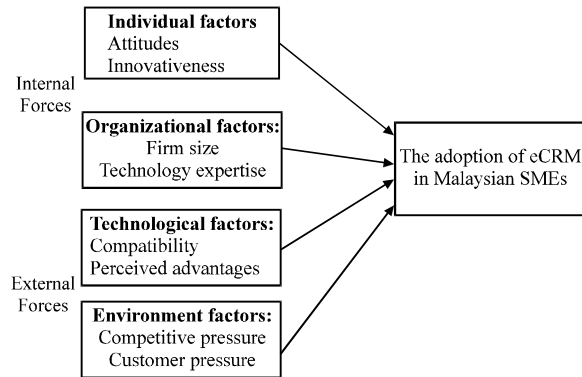


Fig. 1: Research framework for adoption of eCRM in Malaysian SMEs

cannot be satisfied. Therefore, a successful firm should first focus on the value that customer required. Previous studies by Levy *et al.* (2002) revealed that a small business are potential to have customer pressure. Thus, these firms adopted IT as a result of demand from customer to develop the efficiency.

On the other hand, Kotler (2000) discussed that firms who focus on their customers needs and wants are in a better position to achieve long term success than those do not. Therefore, in the eCRM environment, internet provides the convenience and flexibility for customer to browse information, purchase goods and obtain service. This shows that customers' expectation and requirements can lead to customer pressure to the firm.

**Research framework:** In the following research framework, individual and organizational factors can be seen as internal forces while technological and environmental factors can be viewed as external forces. TOE Model postulates the technology, organizational and environmental factors. However, the three-context framework may have some limitations, since the characteristics of a manager are not included in the framework. Thus, the DOI theory is used to explain individual and innovativeness in adopting the technology. Other than that, TPB theory is also used in the framework to respond to the beliefs of individual attitude. A schematic model will be drawn to clarify the linkage between the four contexts and the adoption of eCRM presented in Fig. 1.

## MATERIALS AND METHODS

Methodology is a crucial part of a study that explains all aspects on how the study will be conducted, starting from the data collecting process to the analysis and

interpretation of data. Besides, it is also a systematic and complete process to ensure that adequate data is collected for achieving the objectives that are discussed in this chapter. Furthermore, the methods of data collection and data analysis utilized in the study will be outlined in detail.

**Survey instruments:** The researcher chooses to use quantitative approach in this research. Therefore, the survey instrument is the self-administered questionnaires to obtain information from respondents and analyze the data. Questionnaires must be designed simple and easy to understand and the questions have to be clear and easy to complete because no interviewer is available to assist the respondents. Sekaran and Bougie (2010) stated that questionnaire can be administered personally, mailed to the respondents, or electronically distributed.

For this research, the researcher provided a clear introduction and instruction that the respondents should follow when completing the questionnaire. The questionnaire will be prepared in English and Malay language to have better feedbacks as the respondents come from various backgrounds. The Likert scale from 1 (strongly disagree) to 5 (strongly agree) will be developed in order to obtain the data. The respondents can express their level of satisfaction in the question given.

**Data collection:** A sample of 382 selected SMEs from 87, 493 populations of SMEs was drawn from the database of SME Corporation Malaysia which is an official government agency in Malaysia based on the statistics of Economic Census 2011 within states Malacca and Johor. The data collection was conducted began January, 2016. The questionnaires were distributed in two phases. In the first phase, the questionnaires were distributed directly by hand to the respondents. The second phase is through email asking the owner or manager to fill out and return the questionnaire. The researcher kept on follow-up after the questionnaire were distributed by contacting the respondents by telephone and e-mail.

## RESULTS AND DISCUSSION

Today's online consumer has more complex needs and much higher expectations than ever before. Online business communities are fast emerging as new organizational tools for customer. Small and Medium Enterprises (SMEs) are one of the important contributors to the world economy. The breakthrough of Information Technology (IT) has significantly impacted the way business is conducted. Development in the field of IT has increased the scope of CRM implementation in business

organizations which leads to the rising of eCRM concept. By using the eCRM, small firms such SMEs will gain more customer loyalty and retention. Accordingly, the used of eCRM included all the information of the firm, order data and product or services that make it easier to customers.

There are theories that have been used in this study in order to develop the research framework included. Theory of Planned Behavior (TPB), Technology Organizational Environmental (TOE) framework and Diffusion of Innovation (DOI) Model. TPB explained the behavioral intention of individual towards the adoption of technologies. Meanwhile, TOE framework addressing the key facets that influence a firm's adoption of a given technology: the technological context, the organizational context and the environmental context. Next theory is DOI Model has been used to explain the patterns of adoption, explain the mechanism and assist in predicting whether and how a new invention will success.

The study presents a general overview of factors influencing the adoption of electronic Customer Relationship Management (eCRM) applications in Malaysian SMEs. Therefore, the research framework is developed consists of four factors: individual factors, organizational factors, technological factors and environmental factors. In a broader perspective, the individual and organizational can be seen as internal factors while technological and environmental can be viewed as external factors. Individual factors are categorized to attitude and innovativeness. Attitude can be powerful enable or a barrier towards the adoption of the new technology in the firm while for innovativeness, the manager or the owner of SME is willingness to introduce newness technology to adopt eCRM or not in the firm. Organizational are categorized to firm size and technology expertise. Firm size is important variable in adopting eCRM in firms. Technology expertise defined as the availability of technical staff or consultants in dealing with new technology.

The technological factors are categorized to compatibility and perceived advantage. Compatibility is the degree to which an innovation is perceived as consistent with the firm existing processes to ensure the success of adopting eCRM. Perceived advantage is the degree of advantage which an innovation is perceived from adopting eCRM. The last influencing factors is environmental that categorized to competitive pressure and customer pressure. The competitive pressure will affect the adoption of eCRM and be a motivating reason why SMEs adopt this technology. Customer pressure is the behavior and demand of customer that force a firm to adopt eCRM in order to keep and satisfy customers by provide a convenience services. Based on these

influencing factors, it is expected that the outcome of this study clearly picture of eCRM adoption among SMEs.

Adoption of eCRM applications is expected to sustain long-term customer relationships. In the highly competitive and innovative business environments with the expanding global marketplace, SMEs are continuously searching ways to maintain in the marketplace. Hence, the firms need to take initiative to adopted eCRM in their firm.

## CONCLUSION

The purpose of this study is to examine the factors influencing the adoption of electronic Customer Relationship Management (eCRM) applications in Malaysian SMEs. The research contains 8 influencing factors covering four contexts: individual, technological, organizational and environmental.

## REFERENCES

- Bala, H. and V. Venkatesh, 2007. Assimilation of interorganizational business process standards. *Inf. Syst. Res.*, 18: 340-362.
- Bethlehem, J. and S. Biffignandi, 2012. *Handbook of Web Surveys*. Wiley, New York, USA., ISBN:978-1-118-12172-6, Pages: 423.
- Bruque, S. and J. Moyano, 2007. Organisational determinants of information technology adoption and implementations in SMEs: The case of family and cooperative firms. *Technovation*, 27: 241-253.
- Caldeira, M.M. and J.M. Ward, 2003. Using resources-based theory to interpret the successful adoption and use of information systems and technology in manufacturing small and medium-sized enterprises. *Eur. J. Inf. Syst.*, 12: 127-141.
- Department of Statistics, 2012. *Economic Census 2011: Profile of Small and Medium Enterprises*. Department of Statistics, Putrajaya, Malaysia, ISBN: 9789839044676, Pages: 268.
- Dess, G.G. and G.T. Lumpkin, 2005. The role of entrepreneurial orientation in stimulating effective corporate entrepreneurship. *Acad. Manage. Executive*, 19: 147-156.
- Dholakia, R.R. and N. Kshetri, 2004. Factors impacting the adoption of the internet among SMEs. *Small Bus. Econ.*, 23: 311-322.
- Ghobakhloo, M., D.A. Aranda and J.B. Amado, 2011. Information technology implementation success within SMEs in developing countries: An interactive model. *Proceedings of the POMS 22nd Annual Conference on Operations Management: The Enabling Link*, April 29-May 2, 2011, POMS, Reno, USA., Nevada, pp: 1-63.

- Ghobakhloo, M., N.B. Zulkifli and F.A. Aziz, 2010. The interactive model of user information technology acceptance and satisfaction in small and medium-sized enterprises. *Eur. J. Econ. Finance Administrative Sci.*, 19: 7-27.
- Janvrin, D., J. Bierstaker and D.J. Lowe, 2008. An examination of audit information technology use and perceived importance. *Accounting Horiz.*, 22: 1-21.
- Jeon, B.N., K.S. Han and M.J. Lee, 2006. Determining factors for the adoption of E-business: The case of SMEs in Korea. *Applied Econ.*, 38: 1905-1916.
- Jeyaraj, A., J.W. Rottman and M.C. Lacity, 2006. A review of the predictors, linkages and biases in IT innovation adoption research. *J. Inform. Technol.*, 21: 1-23.
- Kincaid, J.W., 2003. *Customer Relationship Management: Getting it Right!*. Prentice-Hall, Upper Saddle River, New Jersey, ISBN:0-13-035211-X, Pages: 403.
- Kotler, P., 2000. *Marketing Management: Analysis, Planning and Control*. 10th Edn., Prentice-Hall, Upper Saddle River, NJ., Pages: 551.
- Kula, V. and E. Tatoglu, 2003. An exploratory study of Internet adoption by SMEs in an emerging market economy. *Eur. Bus. Rev.*, 15: 324-333.
- Levy, M., P. Powell and P. Yetton, 2002. The dynamics of SME information systems. *Small Bus. Econ.*, 19: 341-354.
- Louis, G.T. and M. Fleischer, 1990. *The Processes of Technological Innovation*. Rowman & Littlefield Publishing, Lanham, Maryland, ISBN:9780669203486, Pages: 298.
- Mishra, A.N., P. Konana and A. Barua, 2007. Antecedents and consequences of internet use in procurement: An empirical investigation of U.S. manufacturing firms. *Inf. Syst. Res.*, 18: 103-120.
- Nguyen, T.U.H., 2009. Information technology adoption in SMEs: An integrated framework. *Int. J. Entrepreneurial Behav. Res.*, 15: 162-168.
- Riemenschneider, C.K. and P.P. Mykytyn, 2000. What small business executives have learned about managing information technology. *Inf. Manage.*, 37: 257-269.
- Rogers, E.M., 2003. *Diffusion of Innovations*. 5th Edn., Simon and Schuster, New York, USA., ISBN-13: 9780743258234, Pages: 576.
- Romano, N.C.J. and J. Fjermestad, 2001. Electronic commerce customer relationship management: An assessment of research. *Intl. J. Electron. Commerce*, 6: 61-113.
- Scott, J.E. and S. Walczak, 2009. Cognitive engagement with a multimedia ERP training tool: Assessing computer self-efficacy and technology acceptance. *Inf. Manage.*, 46: 221-232.
- Sekaran, U. and R. Bougie, 2010. *Research Methods for Business: A Skill Building Approach*. 5th Edn., John Wiley and Sons, New York, USA., ISBN-13: 9780470744796, Pages: 488.
- Sophonthummaphan, K., 2008. A comprehensive framework for the adoption of techno-relationship innovations: Empirical evidence from eCRM in manufacturing SMEs. Ph.D Thesis, Print & Media, Sweden, Europe.
- Thong, J.Y.L., 1999. An integrated model of information systems adoption in small business. *J. Manage. Inform. Syst.*, 15: 187-214.
- Tidd, J. and J. Bessant, 2009. *Managing Innovative: Integrating Technological, Market and Organizational Change*. 4th Edn., John Wiley and Son Ltd, Hoboken, New Jersey.
- Zhu, K., K. Kraemer and S. Xu, 2003. Electronic business adoption by European firms: A cross-country assessment of the facilitators and inhibitors. *Eur. J. Inform. Syst.*, 12: 251-268.