

Factors Affecting the e-Business Adoption among the Home-Based Businesses (HBBs) in Malaysia

S, Rosnafisah, M.S., Siti Salbiah., and A, Mohd Sharifuddin

Abstract—Research in e-Business has been growing tremendously covering all related aspects such as adoption issues, e-Business models, strategies, etc. This research aims to explore the potential of adopting e-Business for a micro size business operating from home called home-based businesses (HBBs). In Malaysia, the HBB industry started many years ago and were mostly monopolized by women or housewives managed as a part-time job to support their family economy. Today, things have changed. The availability of the Internet technology and the emergence of e-Business concept promote the evolution of HBBs, which have been adopted as another alternative as a professional career for women without neglecting their family needs especially the children. Although this study is confined to a limited sample size and within geographical biasness, the findings show that it concurs with previous large scale studies. In this study, both qualitative and quantitative methods were used and data were gathered using triangulation methods via interview, direct observation, document analysis and survey questionnaires. This paper discusses the literature review, research methods and findings pertaining to e-Business adoption factors that influence the HBBs in Malaysia.

Keywords—e-Business, HBB, adoption factor, qualitative and quantitative

I. INTRODUCTION

THE increasing pace of business changes driven by technology in recent years and the development of this digital environment is creating a new landscape for enterprises. Information Technology (IT) plays an important role in redesigning the basics of business activities such as the buying and selling processes, customer services; internal operations; internal communications; product and marketing strategies and many more. Among the many applications of IT in business activities, Internet-based e-business systems appear to be the most significant [1]. There are many previous studies that discuss e-Business adoption among large organisations and SMEs [2], [3], [4], [13]. But researches that

discuss e-Business related issues among micro enterprises, especially for enterprises that operate from home, are still lacking. Thus, this research aims to explore the e-Business potential for the HBBs particularly in Malaysia and to propose a business framework for electronic-HBB (e-HBB). This research looks at the possible e-Business adoption factors for the HBBs to understand how people who are involved in this type of business perceived this new technology and the new way of doing businesses.

This paper focuses on the e-Business adoption factors and is divided into six (6) sections. Section 1 introduces this paper. Section 2 reviews the literature pertaining to e-Business adoption issues. The study on Malaysian home-based businesses (HBB) is discussed in Section 3. The research methods are discussed in Section 4 and Section 5 discusses the results and the findings. Section 6 concludes the paper.

II. e-BUSINESS ADOPTION ISSUES

e-Business adoption can be described as a situation where an enterprise is ready to accept the technology innovation and performs transformation in its current business operations as well as business direction. Reference [2] views that the e-Business adoption is closely related to the rapid use of the Internet technology as the Internet has become a commercial medium that attract and *motivate the enterprises to experiment a new way of serving their customers*. Among the e-Business adoption issues that have been highlighted in the previous studies are the trigger factors and readiness, benefits, barriers, critical success factors, and *etc.* [3],[4],[5],[6].

Studies for the micro and SME show that the *organization factor* seems to be the most important micro-factor for e-Business adoption in any type of businesses [4], [7], [8], [9], [10], [11], [12]. The discussions on this factor mostly cover the owners or managers' attitudes or characteristics, motivation, and commitment towards technology innovation. The same issue also applies to large organizations for their top management's decision and commitment [6]. This factor was also used to review the HBBs' situation.

The findings from the literature review were interpreted into two (2) points of view: 1) *requirements for the enterprises to be part of e-Business* and 2) *barriers that stop the enterprises from moving towards e-Business*. A few examples of related studies are included in this review and contributed to the interpretation above. Reference [10], for instance, indicates

S, Rosnafisah is with the Department of Information Systems, University Tenaga Nasional, KM 7, Jalan Kajang-Puchong, 43009, Kajang, Selangor, Malaysia. (corresponding author: 603-89212354; fax: 603-89212161; e-mail: rosnafisah@uniten.edu.my).

M. S., Siti Salbiah is with the Department of Information Systems, University Tenaga Nasional, KM 7, Jalan Kajang-Puchong, 43009, Kajang, Selangor, Malaysia. (e-mail: sitisalbiah@uniten.edu.my).

A. M.,Sharifuddin. is with the Department of Information Systems, University Tenaga Nasional, KM 7, Jalan Kajang-Puchong, 43009, Kajang, Selangor, Malaysia. (e-mail: sharif@uniten.edu.my).

that organizational learning factors and knowledge management processes are closely related to the level of e-Business adoption in any organization. Both factors fall under the organization factor. Reference [11] findings also emphasize on the owner/manager motivations and attitudes towards e-Business are among the main factors to ensure that e-Business is successfully adopted, especially for micro size enterprises. The authors also state that most of the micro enterprises have five (5) to ten (10) employees and are operated by a single owner or manager. This gives the owner a full control in decision making, designing business model and strategy, as well as in determining the enterprises future direction. The core owner or manager factor may not exist in enterprises of other sizes. Reference [4] highlighted in the SMEs circumstances, a similar characteristics that focus on the CEO's knowledge in IT and e-Business, and CEO's attitudes toward innovation. The interpretation and examples above demonstrates that business owners with positive attitude and perception to change, and ready for new technologies are more willing to accept the e-Business concept. Reference [9] also claims that business owners, who are aware of the e-Business applications and its benefits, are more motivated to gain the knowledge and understanding of e-Business and its practices.

In this research, the Malaysian HBBs are categorised under micro enterprise that have less than five (5) employees (see <http://www.smidec.gov.my>). Thus, the description of micro enterprise that the business owner and the organization are considered as one entity is more relevant [11]. However, if the business owners have negative attitude and perception towards e-Business, then those factors will become their reasons or barriers for reluctance to change. Therefore, the owners' attitude and perception could be one of the main factors that influences the organization's acceptance and readiness, in particular the HBBs to adopt the e-Business concept.

Another factor that is related to e-Business adoption is the e-readiness level of customers, suppliers, intermediaries, competitors and the public. Thus, in this research, there is a need to gauge the acceptance and readiness of Malaysian Government and society towards e-Business implementation especially for the micro enterprises, in particular, the HBBs. Questions were also addressed in this research to identify the relevant factors that may influence the e-Business adoption such as the Government's role, policy and other internal factors that are related to the HBBs business operations.

The increasing impact of technology advances in e-Business can also be perceived as opportunities for small enterprises. However, Reference [11] claims that e-Business is not appropriate for all enterprises across all industry sectors. The micro enterprises may have a different need compared to multi-national corporations. Their findings also indicate that some industry sectors still dominate the traditional business methods due to their different demand and need for the e-Business. In this case, the industry sector includes the working environment, financial, and customer readiness. Reference [13] also shows similar findings that the adoption of e-Business by SMEs varies by type of industry, for instance, the highest level of e-Business adoption are in the professional

services sector and the lowest are the public, education and charitable sectors. In contrast, studies have shown that small enterprises can gain benefits from e-Business as it increases their ability to access information widely and improve communication internally and externally to the same degree as large organizations [8], [14]. This can help create new value-added products and services and develops the competitive advantage. Thus, this research also looks at the industry factor and to see whether it gives the same impact to the micro enterprises such as the HBBs.

Previous researches have also covered the barriers or challenges in adopting e-Business /e-Commerce. These findings were grouped into a few elements as listed below that were found lacking in most of micro and SMEs [1], [2], [3] [5], [7], [8], [11], [12]:

- *trust* – related to the information security and privacy especially for online transactions
- *knowledge and skills*- lack of technical knowledge and skills especially in employing and managing e-Business
- *awareness on technology*- lack of awareness of available and applicable technology that can benefit the business
- *rules and regulation*- lack of knowledge of the availability of rules and regulation for online transactions
- *mindset or perception*- the negative attitude of the owners would be the main barrier for the micro and SMEs to adopt e-Business or to perform any changes in the current operation
- *affordability* – the high implementation cost that normally involved in the system development have drove the micro and SMEs away.
- *infrastructure*- lack of infrastructure that can support e-Business processes not just the company but also the stakeholders such as their clients
- *private/government sector*- lack of knowledge of the existing policy or right for the micro and SMEs to embark into e-Business
- *management's capacity*- lack of time and resources to keep up with the technology.

These elements were used as a comparison with the recent findings from this research to see if the same barriers also affected the HBBs in Malaysia (refer to Table I). The discussions of the research findings are covered in Section V. In addition, this helps to see whether the findings correspond or difference with the previous studies.

III. MALAYSIAN HOME-BASED BUSINESSES (HBB)

In earlier practices, HBBs were categorised as a business that was operated from home and mostly carried out as a part time job [1]. By tradition, HBBs were also claimed to be mostly suitable for women; for example, women can sew clothes or sell homemade cookies while taking care of the family and doing household chores [15]. Today, with the Internet technology, these perceptions may have changed as it

allows not just the type of home-business as above but also the professional workers to utilize the technology such as web-based applications to perform their tasks from home.

In Malaysia, the HBB concept refers to *people who are self employed and work from home or employed by an organization but perform their tasks at home* [16]. The description above basically covers both the home business and telecommuting concepts. However, this research focuses on home business that refers to people who are self-employed and only work from home.

Previous studies have shown that HBBs have become the fastest growing business segment and have growth potential that can contribute in stimulating economic development at a local and regional level [17], [18], [19], [20]. The Malaysian Government have also identified the HBBs as one of the positive trend that allow the professional workers especially women to have a career, be able to contribute to the economy and at the same time, giving more attention to the family. The e-Business concept is seen as one of the positive moves that should be adopted by all enterprises. Their support can be seen through various conferences, campaigns and guidelines that have been organised to create public awareness on the HBBs and e-Business [16]. Thus, this study was conducted to see how the Malaysian HBBs perceived the e-Business concept and could benefit from it.

IV. RESEARCH METHODS

This section briefly describes both qualitative case study and quantitative survey approaches used in this research. The case study approach can be described as an empirical inquiry that investigates a contemporary phenomenon within its real-life context and with the use of multiple sources of evidence [21]. To achieve the primary purpose of this research, the multiple case study method was chosen as the main research strategies as this method allowed the researcher to explore the subject matters in-depth and openness. Through this approach, three (3) data gathering techniques were used, namely in-depth interviews, observation and document analysis. The case study was divided into two (2) categories, the main and supporting case studies. The main case studies consist of three (3) HBB and one (1) e-HBB companies. Whereas, the supporting case studies were presented by three (3) government agencies, one (1) business association and one (1) financial institution. Data collected through the case study approach were analysed using single and cross case analysis.

For the quantitative approach, the survey was designed as a cross sectional study. This is because; the process involved collecting data at one point in time from a selected sample to represent the target population [22], [23]. Other than to strengthen and support the findings gathered from the case study approach, the data was also used to increase the reliability of the research findings. For instance, one of the research objectives is to identify the trend of HBBs in Malaysia. As the interview was only conducted for four (4) HBB companies, the data gathered may not be sufficient to identify the trend. Therefore, a survey was conducted to reach more respondents in order to increase the reliability of the findings.

As this research focuses on the HBBs in Malaysia, it was decided to choose the HBB companies and their customers as units of analysis for the survey approach. The customers were also included as the unit of analysis to further strengthen the results as this sample could provide some inputs on the preferable HBBs in Malaysia. For the case study approach, the representatives of the organisations involved were chosen as unit of analysis in this research. In addition, to achieve the research objectives, the data was obtained from the people who have experienced and knowledge in this type of business and involved directly in the buying and selling process.

The Klang Valley area was chosen to represent the sample frame of Malaysia's population. This is because this area is known to have a large number of populations, thus it is hoped that the sample should produce a reliable result that fall within the scope of study. This sample frame was targeted for the interview and questionnaire distribution due to accessibility in terms of area and time factor. On the other hand, the online survey was distributed using a URL address through email, to any available public mailing lists which made the survey opened to the potential respondents from all over Malaysia. A judgement or purposive sampling was used as a sampling design that allowed the researcher to set the choice of respondents who can provide the information required [23]. This technique enabled the researcher to identify the suitable respondents who have knowledge and experience about the topics being studied. Due to this, the sample representatives had to be located before distributing the questionnaires. This was done to ensure the questionnaires were distributed to the target respondents only. The survey was conducted in a few cycles to increase the number of respondents and reliability of findings. One-hundred and nineteen (119) respondents were obtained that consist of sixty-seven (67) customers and fifty-two (52) HBB companies. The respondents obtained for the survey were chosen due to their involvement in this type of business either as customers or the business owners. Even-though the number of respondents were quite small but it still met the requirement or the rule of thumb that indicate the sample sizes between 30 and 500 should be sufficient for an exploratory research as long as it includes the range of the phenomena of interest and also depending on the type of research questions investigated [22, 23]. However in this research, the questionnaires were distributed as many as possible within the duration given for this research, as the aim was to reach as many respondents as possible.

Data gathered from the survey approach was analysed using frequency distribution, cross tabulation and fisher exact test techniques. The next section will briefly discuss the results from both approaches and the comparison from previous researches. However, the previous researches mostly reported findings based on their investigation on e-Business for either micro or SMEs, but none referring to the HBBs. The consolidated results from both research approaches are discussed in the next section.

V. RESULTS AND DISCUSSION

For the case study approach a question was asked to the business owners as below:

“What are the factors or problems or issues in applying e-Business to HBBs in general and within Malaysian context?”

The findings gathered indicate that the case companies acknowledge the benefits of e-Business however; they do not find the need to adopt it in the near future. Among the reasons given, the e-Business concept and implementation was perceived as not relevant to their current operations as they need to meet the other stakeholders' demand that may not be possible through e-Business implementation. The rest of reasons are closely related to lack of knowledge, technical skill and time to understand the new technology as well as security and trust that related to e-Business implementation. The case companies also include the lack of support infrastructure and readiness especially among the clients and suppliers have also influenced their decision to move towards e-Business. The HBBs owners are also concerned of the cost and the risk involved thus any new investment or transformation will require a thorough review before they decided to change (refer to Table I).

For the survey approach, it involved twenty-two (22) registered HBB/e-HBB companies where fifteen (15) statements on problems and issues in adopting e-Business were asked and ranked on the Likert scale. Data from the survey were analysed using cross tabulation techniques that indicate the statements below received more than 50% of the respondents' feedbacks that help to specify the main issues to adopt e-Business. Results from both approaches are summarised and categorised into a few elements that emerged from data analysis and literature review as depicted in Table I.

The findings as depicted in Table I indicate that five (5) main factors that may influence the Malaysian HBBs to adopt e-Business namely, *attitude and perception of business owners; the business owners' knowledge and skills in related to e-Business; the availability of information especially related to business and main stakeholders; affordability to invest on e-Business applications and technical support; and support and demand of current infrastructure, rules and legislation as well as the readiness of other stakeholders such as suppliers, clients/customers, etc.* These outcomes were then collaborated and compared with the previous findings from other studies as shown in Table II above. It can be observed that there is a similarity of the problems and issues face by the Malaysian HBBs to those factors that have been considered for micro and SMEs worldwide. However, it should be acknowledged that the HBB business structure, practice and culture are much different compared to micro and SMEs due to their home business environment.

Based on the findings, it can be concluded that the HBBs have a potential to adopt the e-Business concept due to their flat, simple and virtual structure that provides them some flexibility to adapt changes according to their business needs, capability and resources. The e-Business concept can also be applied in stages and within their current value chain system to further improve any of the business processes such as market research and marketing. These could also minimise the risk and cost involved especially for the existing HBB companies.

TABLE I
HBBs E-BUSINESS ADOPTION FACTORS

Element	Findings from case study	Findings from survey
<i>Attitude & perception</i>	<ul style="list-style-type: none"> assume that e-business is not applicable to current operation lack of time to understand the benefits of new technology doubt of security and trust of online transaction 	<ul style="list-style-type: none"> difficult to build security and trust
<i>Knowledge & technical skills</i>	<ul style="list-style-type: none"> lack of knowledge and skills related to e-Business implementation 	<ul style="list-style-type: none"> lack of managerial understanding and skills for e-Business to allow customers to make electronic payment to allow a secure web access to provide an online tracking orders
<i>Availability of information online</i>	<ul style="list-style-type: none"> not all suppliers provide information online 	<ul style="list-style-type: none"> to identify supplier online to check suppliers information online
<i>Affordability</i>	<ul style="list-style-type: none"> high cost involved to implement e-Business 	<ul style="list-style-type: none"> cost of developing and maintaining e-Business system is high
<i>Support & demand</i>	<ul style="list-style-type: none"> the readiness in terms of support infrastructure and people mindset are far behind 	<ul style="list-style-type: none"> network infrastructure issues the readiness for e-Business is still lacking

TABLE II
COMPARISON OF RESEARCH FINDINGS FOR E-BUSINESS ADOPTION FACTORS

Outcomes from this research	Findings from previous researches
1. negative perception of e-Business suitability to the current business operations	1. mindset or perception of business owners
2. lack of ICT skills especially in e-Business applications and qualified personnel	2. lack of technical knowledge and skills
3. lack of time to understand the benefits of new technologies	3. lack of time and resources to keep up with the technology
4. lack of managerial understanding and skills for e-Business	4. trust – related to the information security and privacy
5. lack of financial for developing and maintaining e-Business system	5. lack of awareness of available and applicable technology
6. lack of support infrastructure ie. network/broadband infrastructure, legal, policy.	6. lack of knowledge of the availability of rules and regulation
7. lack of security and trust especially for online transaction	7. high implementation cost in e-Business implementation
8. unreadiness for e-Business, in terms of people, infrastructure, etc.	8. lack of infrastructure that can support e-Business processes
	9. lack of knowledge of the existing policy

VI. CONCLUSION

The home-based business (HBB) is a type of business that can be applied in various industries such as manufacturing, tourism, arts, education and *etc.* Even though this type of business has a small scale operation, but with the right approach and technology it has a potential to grow and succeed in that particular industries. Findings from this research indicate five (5) adoption factors that have influence the Malaysian HBBs to move towards e-Business namely:

- *Business owners' attitude and perception*
- *Business owners' knowledge and skills*
- *The availability of information online in relation the business and stakeholders*
- *Affordability*
- *Support and demand*

The outcomes above are also concurred with the findings from the previous researches in e-Business adoption for micro and SMEs. Thus, it can be concluded that the HBBs have a potential to adopt e-Business, however, due to lack of knowledge the owners may have difficulty in understanding the transformation required and infrastructure needed to implement e-Business. For example, the issues on broadband accessibility, security and *etc.* can be seen as temporary challenges that would be overcome as the technology improves. This may also change the stakeholders' perception on the e-Business investment. Through the findings, it can also be concluded that e-Business can be fully implemented by the HBBs if their stakeholders are ready with it. Due to their size of operation, it may not be enough to force the stakeholders to change, thus the HBBs may need to wait for those stakeholders to initiate the e-Business effort. Thus, a combination of conventional business and e-Business model could be one of the solutions to encourage more HBBs to be part of e-Business. In this case, the e-Business may act as an added value to the current HBBs' business operations.

REFERENCES

- [1] R. Sulaiman., S.S.M. Shariff, and M.S., Ahmad, "The Impact of e-Business Strategy on Home-Based Businesses in Malaysia: A Qualitative Study", *Proceeding of the 2008 International Conference on e-Commerce*, Bangkok, 2008.
- [2] C.Y. Peng, and C.V. Trappey, "Internet and e-Commerce adoption by the Taiwan semiconductor industry", *Journal of Industrial Management & Data Systems*, vol. 105 no.4, pp. 476-490, 2005.
- [3] N. Archer, S. Wang, and C. Kang, "Barriers to the adoption of online supply chain solutions in small and medium enterprises", *Journal of Supply Chain Management*, vol. 13 no.1, pp. 73-82, 2008.
- [4] B.N. Jeon, K.S. Han, and M.J. Lee, "Determining factors for the adoption of e-business: The case of SMEs in Korea", *Journal of Applied Economic*, vol. 38, pp.1905-1916, 2006.
- [5] A. Khatibi, V. Thyagarajan, and A. Seetharaman, "E-Commerce in Malaysia: Perceived Benefits and Barriers", *The Journal for Decision Makers*, vol.28 no.3, 77-82, 2003.
- [6] J.A.Rodgers, D.C. Yen, and D.C. Chou, "Developing e-Business: a strategic approach", *Journal of Information Management and Computer Security*, vol.10 no.4, pp.184-192, 2002.
- [7] P. Berthon, L., Pitt, D. Cyr, and C. Campbell, "E-Readiness and Trust: Macro and Micro Dualities for e-Commerce in a Global Environment", *Journal of International Marketing Review*, vol.25 no.6, pp. 700-714, 2008.
- [8] N.Janom, and M.S. Zakaria, "Assessment on B2B E-Commerce Readiness: The Conceptual View", *Proceeding of the 4th Internal Conference on Information Technology and Multimedia*, pp. 596-601, 2008.
- [9] S.Pavic, S.C.L. Koh, M. Simpson, and J. Padmore, "Could e-Business create a competitive advantage in UK SMES?", *Benchmarking: An International Journal*, vol.14 no.3, pp.320-351, 2007.
- [10] H-F. Lin and G-C.Lee, "Impact of organizational learning and knowledge factors on e-Business adoption", *Management Decision*, vol. 43 no.2, pp.171-188, 2005.
- [11] I.Fillis, U. Johansson, and B.Wagner, "A Conceptualisation of the opportunities and barriers to e-Business development in the smaller firm", *Journal of Small Business and Enterprise Development*, vol.10 no 3, pp.336-344, 2003.
- [12] T. Ramayah, M. Sulaiman, O. Mohamad., C.Y. Lim, "E-Readiness of SMEs in Northern Malaysia", *Proceedings of the Pan-Pacific Conference, International Business and GlobalProject Management*, Anchorage, Alaska, USA, 2004.
- [13] S.Maguire, and S.C.L. Koh, "The adoption of e-Business and knowledge management in SMEs", *Benchmarking: An International Journal*, vol.14 no.1, pp.37-58, 2007.
- [14] S. Poon, and P.M.C. Swatman, 'Small business use of the Internet: Findings from Australian case studies', *International Marketing Review*, vol.14 no.5, pp.385-402, 1997.
- [15] A. Fong, CS. Ching, K.Yip, J. Chan and Corpcom Services "Working @home:A Guidebook for Working Women and Homemakers". Corpcom Services Sdn.Bhd Publication: Singapore, 2000.
- [16] Kementerian Pembangunan Wanita, Keluarga dan Masyarakat (KPWKM). *Buku Panduan Pejabat@Rumah*. Kementerian Pembangunan Wanita, Keluarga dan Masyarakat: Kuala Lumpur, 2007.
- [17] E.Walker, C. Wang, and J. Redmond, "Women and work-life balance: is home-based business ownership the solution?" *Journal of Equal Opportunities International*, vol. 27 no.3, pp. 258-275, 2008.
- [18] K. Loscocco, and A. Smith-Hunter, "Women home-based business owners: insights from comparative analyses", *Journal of Women in Management Review*, vo.19 no.3, pp.164-173, 2004.
- [19] C. Salazar, "Building Boundaries and Negotiating Work at Home", *Communications of ACM*, vol 3, 2001.
- [20] S.Holmes, S. Smith, and G. Cane, "Gender issues in home-based business operation and training: an Australian overview", *Journal of Woman inManagement Review*, vol. 12 no. 2, pp.68-73,1997.
- [21] Yin, R. (2002). *Case Study Research: Design and Methods*, Third Edition, SAGE Publications, London.
- [22] A. Pinsonneault, and K. L. Kraemer, "Survey Research Methodology In Management Information Systems: An Assessment", *A working paper for Queen's-HEC Workshop*. Retrieved 7.7.2006 from <http://www.tele.sunyit.edu/urb-022.pdf>, 1991.
- [23] Sekaran, U. "Research Methods for Business- A Skill Building Approach", Second Edition, John Wiley & Sons, Canada,1992.