

A Survey on IT Adoption Model for SMIs in Malaysia

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ABSTRACT

Understanding the major roles and functions of Information Technology (IT) in an organisation is an important factor in shaping an organisation's characteristics and determining the usage of IT as an enabler in a business. A survey on small and medium sized industries in Malaysia has been carried out in order to identify and recognise the usage of IT in businesses. The parameters such as organisational details (i.e. the numbers of employees, sales or profitability and the type of business) and managers details (in terms of educational level, computer literacy and computer experiences) were studied in order to see whether these parameters do contribute towards the usage of IT in businesses. Based on the results of the survey, an IT adoption model is proposed. This IT adoption model can be used as a framework for users who wishes to set-up a business. Due to the diverse cultural composition, the model can also be used as guidelines to émigré entrepreneurs of the important areas in setting-up new SMIs in Malaysia.

Keywords

Usage of IT, computer literacy, small and medium sized industries, IT adoption model

1.0 INTRODUCTION

A survey was to collect information regarding the usage of IT in small and medium sized industries (SMIs) in Malaysia. Questions are asked in order to find various results on various aspects regarding IT usage and IT adoption for SMIs in Malaysia.

The results of the survey have been discussed in Ibrahim and Minoi (2002). This paper elaborates further the results of the survey and suggests an IT adoption model for SMIs in Malaysia based on the results of the survey.

An IT Adoption Model can be used on difference perspective. Kim et al. (2002) discuss on the dynamic IT adoption model for small office and home office (SOHO). Sherry et al. (1999) discuss on technology adoption for communities of learners to enrich teaching and learning. This paper discusses on formation of IT Adoption Model for SMIs in Malaysia based on the survey that we have done.

2.0 THE MOTIVATION OF THE RESEARCH

The motivation for the research is derived from four important factors. First, is to collect data on selected small and medium size industries, especially with regard to their usage of information technology. Second, is to identify the relationship between the usage of IT in business with the size of industries and the managers' knowledge in IT. Third is to see whether parameters such as managers' computer literacy and sale or profitability (annual sales turnovers) of industries contribute towards the usage of IT in business. Fourth is to come up with an IT adoption model for SMIs in Malaysia based on the survey.

3.0 RESEARCH METHODOLOGY

A survey method was conducted in this study. A total number of 100-survey questionnaires was developed, printed and distributed (by snailmail) to small and medium sized industries throughout Malaysia. The selected organisations were located throughout the East and West of Malaysia as the representative of Malaysian future oriented organisations.

A pilot study was also conducted before distributing the survey questionnaires. A face-to-face interview was conducted to 25 respondents representative from different organisations throughout Kuala Lumpur, Johor, Penang, Kota Kinabalu, Miri and Kuching. The respondents were executives with their companies. Each

session was conducted by combining structured and unstructured questions.

The questionnaire respondents were to be people holding senior positions such as executive officers or managers.

Of the one hundred survey questionnaires that were mailed out, forty-seven were received while the other fifty-three did not respond. Overall, we had good responses from the organisations. The response rate was of forty-seven percent. For the analysis, we concentrated on the forty-seven organisations, who have given full responses to our survey questionnaires.

4.0 ELABORATION ON RESULTS FROM THE SURVEY

The questionnaire was structured into two main sections. The first section includes the general information of the organisation and the second section contains the respondents' information including their IT knowledge and their influence to the usage of ICTs. Both these sections reflect the objectives of the study. Detailed discussion on the results can be found in Ibrahim and Minoi (2002).

Based on this research, we found that 85.1 percent of overall respondents have personal computers at home (as shown in Table 1) and they use IT as a basic and necessary technology device to make progress onto the IT age (refer Table 2 and Table 3).

Table 1: Respondent: Own PC at Home

Own PC at Home	Frequency	Percentage
Yes	40	85.1%
No	7	14.9%

Table 2: Using IT tools/software

Using IT tools/software	Frequency	Percentage
Not at all	3	6.4%
Mildly use	6	12.8%
Average use	12	25.5%
Frequent use	12	25.5%
Very much use	14	29.8%

Table 3: Respondent: Computer Experience

Computer Experience	1	2	3	4	5	Σ
Using Computer Packages such as spreadsheet, word processing or data management	4	1	14	19	9	47
Use of computer languages (database) such as SQL, ORACLE, DBASE1V, Access	28	10	3	4	2	47
Building models on computers such as Financial, Statistical or Graphical	22	7	10	8	0	47
Programming in computer languages such as COBOL, ASSEMBLY, BASIC, PASCAL, VISUAL BASIC, C, C++	33	6	3	3	2	47
Participating in the non-technical design of computer systems such as Feasibility studies or Requirement Analysis	23	5	8	5	6	47
Participating in the technical design of computer systems such as System Analysis or Design and Implementation	26	7	3	5	6	47

Legend for No: 1 = No Experience; 2 = Little Experience; 3 = Average Experience; 4 = Good Experience; 5 = Excellent Experience

From the survey, there is a relationship between IT usage in business and managers knowledge in IT. This relationship is derived from Table 4 and Table 5.

Table 4: Major Area of IT used

Area of IT used	Frequency	Percentage
Administrative/ Management Info. Systems	37	78.7%
Personal productivity tools	15	31.9%
Multimedia Application	5	10.6%
Computer Aided Design	3	6.4%
Geographical Information System (GIS)	3	6.4%
Knowledge-based System	1	2.1%
Software Development	2	4.3%
Networking	1	2.1%

Table 5: Respondent: Computer Literacy

Computer Literacy	Frequency	Percentage
General Courses in College/Uni	22	46.8%
Outside training provided by Vendor/Consultants	11	23.4%
In-house company training	5	10.6%
Self-study	34	72.3%

From the survey, there is also a relationship between IT usage in business and size of organisations (in terms of the number of employees in the organisation). This relationship is derived from Table 6 and 4.

Table 6: Size of Organisation: No of employees

No of employees	Frequency	Percentage
Less than 50	38	80.9%
51 – 250	9	19.1%

On the other hand, Table 7 indicates that for small and medium sized industries, high education for executive officers or managers is not a necessary parameter for usage of IT in business (survey showed 12 respondents (25.5%) has their secondary or vocational school as their highest education). In general, the parameter such as computer literacy is a desirable parameter in the usage of IT in business and it is found from the survey 34 respondents (72.3%)

gained their computer literacy through self-study (refer Table 5).

Table 7: Respondent: Highest Education

Highest Education	Frequency	Percentage
Secondary/ Vocational School	12	25.5%
Diploma	14	29.8%
Professional	3	6.4%
Bachelor	13	27.7%
Master/PhD	5	10.6%

The usage of IT in business has opened up a lot of opportunities for students with IT backgrounds to seek for jobs (Ibrahim, 2001). As new technologies emerge, it will be interesting to see how the organisation equips themselves with IT knowledge and skills in order to keep up with the needs of time. This survey has proven that with massive used of IT in business, the organisations have gained advantages to their organisations. This can be seen in Table 8; 13 small and medium sized industries that use IT in business have more than RM10 million annual sales turnovers.

Table 8: Annual sales turnovers

Annual Sales Turnovers	Frequency	Percentage
Less RM 1 million	14	29.8%
RM 1 –5 million	14	29.8%
RM 6 – 10 million	6	12.8%
More RM 10 million	13	27.7%

5.0 AN IT ADOPTION MODEL

The development of an IT Adoption Model is important seeing that it can be used as guidelines by organisations in Malaysia. The factors affecting the use of IT in an organisation were discovered via two research approaches. The two research approaches taken are the qualitative approach and quantitative approach. The qualitative approach consists of interviews while the quantitative approach comprises population sampling, pilot study, data collection, data analysis and results. From the qualitative approach (which includes literature review and interviews), questionnaires were developed for use in the quantitative approach.

Fink (1998) outlines the guidelines for successful adoption of IT for SMIs in general. Other researchers such as Seyal et al. (1999) and Sohal et al. (1998) have surveyed the IT usage in SMIs

according to their home country. Hence, it is essential to determine the factors that influence the use of IT in an organisation in Malaysia. With this, an IT Adoption Model for entrepreneurs can be developed. From the survey, we have identified few parameters that influence the usage of IT in business. These parameters were based on literature reviews and interviews. As mentioned earlier, the interview consists of structured and unstructured questions. Due to the diversity of society and culture in Malaysia, only essential parameters were extracted. This can be seen in two perspectives: the managerial perspectives and the organisational perspectives.

From the managerial perspectives, we found that ownership of PC, computer literacy and computer experience are parameters that contribute towards the usage of IT in business. From the organisational perspectives, we found that sizes of an organisation (which implies the number of employees), type of business and sales or profitability of an organisation (i.e. the annual sales turnovers) are the parameters that do contribute towards the use of IT in business. High education for manager is not a crucial parameter in contributing IT use in businesses. Based on the discussed parameters, we propose an IT Adoption Model (as shown in Figure 1) that can be used as guidelines to infancy entrepreneurs in Malaysia. This IT adoption model consists of IT adoption parameters and its relationships with other parameters that in one way or another influence the IT use in businesses. The parameters are only limited within the survey instrument. Other researchers have included other parameters such as organisational readiness (Fink, 1998) as one of the guidelines in his IT adoption model.

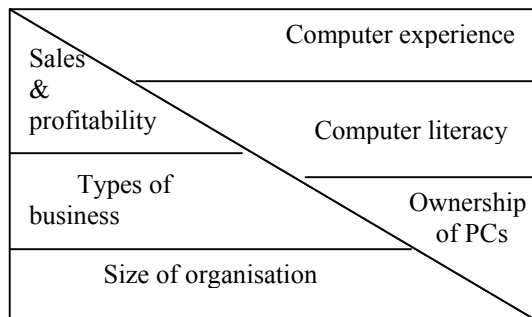


Figure 1: An IT Adoption Model based on Survey

In Figure 1, from the managerial perspective, the ownership of PCs parameter and the size of an organisation (in terms of the numbers of employees in the organisation) contribute to the type of IT business. In the organisational perspective, the type of business the entrepreneur is doing and the sales or profitability parameters of the organisation depends on the computer literacy and working experience in computer area. The term computer literacy means computer knowledge through self-study and working experience. Therefore, paper qualification in computer science and IT is not a crucial parameter. However, Seyal et al. (1999) shows that educational level is one of the parameters for IT use in business in Brunei. This differs from usage of IT in Malaysia. From the survey that we have carried out, it indicates that for small and medium sized industries in Malaysia, higher education for executive officers or managers is not a vital parameter for usage of IT in business (refer Table 7 - illustrates 12 respondents (25.5%) highest education is only secondary or vocational school).

6.0 CONCLUSION

One major purpose of conducting this survey is to use the result to form an IT Adoption Model, which can be used by organizations in Malaysia as guidelines to form a new business.

In conclusion, from the survey there is a relationship between IT usage in business with the managers' knowledge in IT and size of organizations. The survey has provided some valuable information on the IT adoption in business. Parameter such as managers' computer literacy is the most desirable parameter that contributes towards the IT adoption in business. We found out from the survey that parameter such as size of organizations is not a desirable parameter to contribute the IT adoption in business. This is because, a small size of organizations still use IT heavily in business. From the survey, it was also found out that high education for executive officers or managers is not a necessary parameter for IT adoption in business.

As mentioned earlier, the IT adoption model derived is based on the survey that we have done. The survey instrument has some limitations. The survey does not cover the impact of the economy towards the usage of IT. Further studies are being conducted to study the impact of the

economy towards the factors that influence the IT adoption in an organisation.

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