

COMPUTERS TOOLS IN CONSTRUCTION

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ABSTRACT: Applications of computer tools are very important in the construction site. However, what is the actual level of usage of computer tools in construction field in Malaysia? Do they aware of the availability of this tool in the market? Do they know the advantages for using this computer tools in construction industry? A survey need to be done to identify the current states of computer tools application in Malaysia's construction industry. It will be conducted to provide information on the awareness and perception of computer tools among construction professionals.

Keywords: computer tools, construction industry

1. INTRODUCTION

There has been a growth in the use of ICT resources within construction. The effective exploitation of this resource can often lead to a lot of benefits (Harris and McCaffer, 2006). Computer is an electronic device capable of storing and processing information in accordance with a predetermined set of instructions (Sun and Howard, 2004; Stevenson, 2002). Development in computers is happening faster than ever. The technology available to the public is astounding and the range of technology available to large companies with money to spend in this area is bewildering. For the construction industry to make full practical use of the available computer technology it must have a sufficient number of people involved who are capable of understanding and using it. A brief review of the general state of computer systems in the industry is beneficial before a considered view can be given to the general level of computer comfort and literacy (Scott, Ponniah and Saud, 1993). A lot of software for construction industry in the market, which are Construction Management Software, Computer Aided Cost Estimating, Construction Estimating Software, Construction Scheduling Software and Construction Accounting Software. People involve in the construction field must play their important roles by having the skills and knowledge to use the computer in their daily activities. However, there are contractors that still use their manual method and did not have the knowledge to use the computer; therefore they did not adopt the computer tools in their work. They even did not aware the availability of various computer tools in the current market that can simplify and save their cost for their project. A poor decision is

likely to have significant negative effects, which will lead to additional costs and possible delays (Al Hussein, et al, 2005).

2. METHODOLOGY

This research measured the perception of awareness, level of usage and effectiveness of computer tools of contractors, developer and engineer. Furthermore, this research focuses only on the construction industry in Peninsular Malaysia.

3. RESULT AND DISCUSSION

There are three objectives of this research, that are (1) investigate the awareness of the availability of computer tools in construction field, (2) investigate the current level of usage of computer tools in the construction field in Malaysia’s construction industry, (3) investigate how effective the computer tools in helping works on site.

General / Background Information (Company’s location of respondents)

Table 1: Company’s Location

Company’s location	No of respondents	Percentage (%)
Perak	10	29
Johor	2	6
Melaka	3	8
Pahang	3	8
Kelantan	2	6
Negeri Sembilan	3	8
Selangor	2	6
Terengganu	3	8
Kedah	2	6
Perlis	3	9
Pulau Pinang	2	6
Total	35	100%

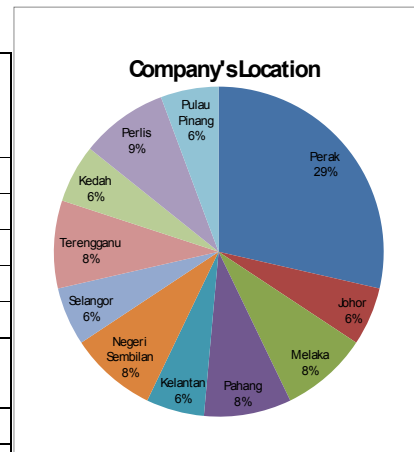


Figure 1: Company’s Location

Awareness and level of usage of Computer Tools for Construction.

a. Awareness

Table 2 shows that, all of the respondents aware of the availability of computer tools. The truth of answering the question can be determined by referring to the

answer of question number three. All the respondents providing the name of software that they have in their company. Therefore the credibility of the respondent's answers towards awareness cannot be denied.

Table 2: Awareness of the availability of Computer Tools for construction activities

Awareness	No of Respondents
Yes	35
No	0
Total	35

b. Sources of finding out about the computer tools

From the table below, 39% from the respondents already installed the Computer Tools in their company. 36% from them find out about Computer Tools from colleagues and friends. There are 18% from the respondents that find out from professional publication, journals and articles. The minimum respondents are 7% which represent from others category. Most of the respondents already install the software in their company. Besides that 38% of the respondents find out about the computer tools from colleagues and friends.

Table 3: Sources of finding out about the Computer Tools

Sources of Computer Tools	No of Respondents	Percentage (%)
Already installed in company	17	39
Colleagues and friends	16	36
Professional publication, journals	8	18
Others	3	7
Total	44	100

c. Computer tools that available in the company:

Microsoft Project and Microsoft Office are the major Computer Tools available in respondent company. The second highest popular Computer Tool is ACAD Drawing, 23% follow up by the Primavera, 6%. There are no respondent using Build4Build and VirtualBoss in their projects.

Table 4: Computer Tools that available in the company

Computer Tools	No of Respondents	Percentage (%)
Microsoft Project	35	33
Microsoft Office	35	30
A CAD Drawing	24	23
Crane Simulation 3D	1	1
Primavera	6	6
Bid4Build	0	0
VirtualBoss	0	0
Earthwork Estimation 3D	1	1
Others	3	3
Total	105	100

d. Comparison of company's project completed using Computer Tools

From table below, 122 projects were completed from 153 projects using Computer Tools in 3 years, which shows that 80% from the total aware and knows on how to use the computer tools. It is a good indicator of the application of Computer Tools in construction industry in Malaysia.

Table 5: Comparison of company's project completed using Computer Tools

No of Project completed	No of Project completed using Computer Tools	% of Project completed using Computer Tools
153	122	80 %

Advantages and Problems Encounter for Computer Tools in Construction

The perception of computer tools can be divided into two major groups that are advantages (Table 6) and disadvantages or problems (Table 7). Using statistical analysis, its shows that the variance is very small which is less than 1.00, therefore the result or the analysis is acceptable. The most popular factor that respondents choose towards advantages of computer tools is simplifying complicated tasks. Expensive and insufficient personnel concerning knowledge of computer tools in industry are the most popular factors that respondents choose.

Table 6: Advantages of Computer Tools

	Advantages of Computer Tools	Mean	Variance	Ranking
1	Simplify complicated tasks	2.429	0.25	1
2	Easy Installation	2.343	0.29	2
3	Open/flexible system	2.029	0.32	4
4	Labor reduction	2.057	0.35	3
5	Time Saving	2.343	0.29	2
6	Reduce risk	2.000	0.41	5
7	Lowering total construction cost	2.029	0.38	4

Table 7: Problems of Computer Tools in Construction Industry

	Problems of Computer Tools in Construction	Mean	Variance	Ranking
1	Insufficient personnel concerning knowledge of Computer Tools in industry	2.14	0.30252	1
2	Insufficient Computer Tools manufacturer in industry	1.77	0.29916	2
3	Expensive	2.14	0.42017	1
4	Resistance to change (prefer conventional system)	1.77	0.35798	2
5	Failure of technology transfer (i.e. no standard, guidelines etc.)	1.86	0.42017	3

4. CONCLUSION

The result from the analysis shows that all the respondents are aware of the availability of computer tools. More than fifty percent of the respondents use computer tools in completing their projects in 3 years which shows good indication of the level of usage of computer tools. The respondents also show that simplify complicated task is the most popular perception for the advantages of computer tools and the most popular perception of problems chosen by the respondents are expensive and insufficient personnel concerning knowledge of computer tools in industry. More than sixty percent of respondents already installed computer tools in their company but most of them only installed common tools like Microsoft Office and Microsoft Project. Expensive tools like Primavera, Earthwork Estimation 3D and Crane Simulation are not very popular among the respondents because of their expensive price and lack of personnel concerning knowledge about it. The importance of computer tools in helping construction works cannot be denied and immediate and proper actions should be taken in

order to make sure our construction industry moving at the same level with other developed countries.

5. REFERENCES

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