eISSN: 2600-7920
INTI JOURNAL
Vol.2, 2018 (7)

The Application of Measurement Software by Quantity Surveying Firms in Klang Valley

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ABSTRACT. The success of the construction industry is increasingly predicated on technology driven investments in information technology (IT) and this is expected to be even more so in the future. It is advantageous for quantity surveyors to be efficient in producing bills of quantities from measurement. Measurement software has been designed to help quantity surveyors to upgrade their way of working, making it faster and more systematic. This paper sought to identify the extent of software use at present as well as strategies to mitigate the barriers to the use of measurement software. The data for this study were collected from selected quantity surveying firms registered in Klang Valley, Malaysia through qualitative approach. The study found that large and medium firms are more likely to use measurement software as compared to small firms. The major problems identified are high cost and, required learning and training to use the software. The major benefits identified are high accuracy, speed up measurement works, and high traceability.

KEYWORDS: measurement software, quantity surveying firms, information technology, quantity surveyor

1. INTRODUCTION

The government of Malaysia has acknowledged the fact that technology helps in improving the performance in the construction industry, thus encouraging firms to implement the latter [1] Despite the fact that the implementation of technology is increasing, it is not an easy task. The construction industry has adopted technology late as compared to other industries [2]. This is due to the usage of technology being at an early stage and not popular among quantity surveying firms. Even though there are many benefits of usage of specialized software, there are issues on the technology usage among the firms [3]

Quantity surveying firms tend to use traditional methods of measurement although being aware of the benefits of adopting measurement software, while claiming to be at ease with traditional methods [4]. The software most commonly used is Microsoft Office [5].

eISSN: 2600-7920
INTI JOURNAL
8 (7)

Based on the studies mentioned before, it can be stated that small-medium quantity surveying firms are not very familiar with measurement software while large quantity surveying firms are more accustomed to the software as well as its implementation. In addition, some of them are already practicing specialized software in order to keep up with the government agenda [6]

The cost of software, lack of knowledge, training, and readiness as the barriers to using measurement software [7]. Furthermore, so as to remain associated with the market demands, expertise is needed in handling the software. Nonetheless, the invention of measurement software has created much more than weaknesses and creates opportunities which are why the government is encouraging the practice of such software [8]

2. METHODOLGY

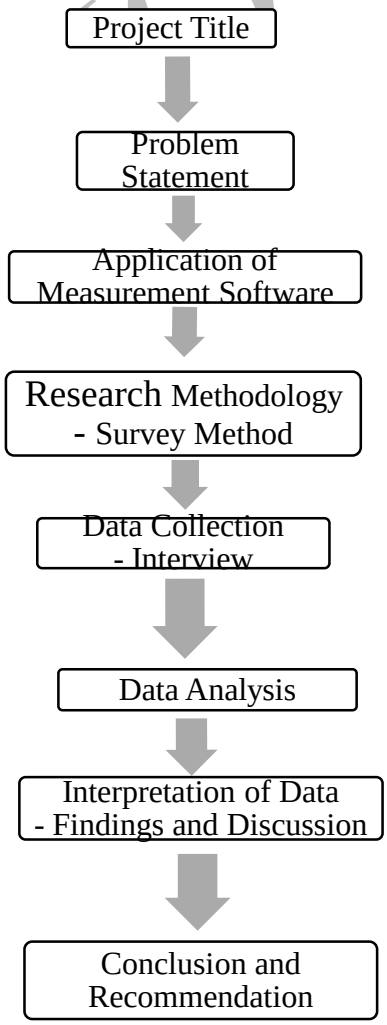

Figure 1: Research framework

eISSN: 2600-7920
INTI JOURNAL
Vol.2, 2018 (7)

Figure 1 shows the research framework for the study. The selection of research strategy is in accordance with the aim and objectives of the study. This research will be using qualitative case study research as the main methodology. This choice is based on the comparison of application of measurement software in different types of quantity surveying firms, which are small-sized, medium-sized and large firms. For this study, the subject under investigation is the application of measurement software in quantity surveying firms in Klang Valley. There will be a collection of data through in-depth interviews, and reviewed journals retrieved as secondary data. Interviews remain the most important source of case study information and could be in numerous forms: open-ended, focused, or structured. In an open-ended interview, the researcher could ask for the informant's opinion on events or facts. This could serve to validate previously gathered data

3. FINDINGS

The participants of this study comprised of three (3) respondents, each having a quantity surveying background. They all represented their respective firms during the interviews in answering the questions based on their experience and own perspectives. The firms were chosen on purpose based on the need of a large sized, a medium sized and a small sized firm for the research. Registered under the Board of Quantity Surveyors Malaysia (BQSM), all firms were located in Klang Valley.

From the interviews, it was found that large and medium-size companies are the ones using measurement software while small firms are most likely to be using manual methods. This choice differs based on many factors, one being the size of the firm. Table 1 below represents the types of measurement software being used by the respondents with the filled boxes representing the software being used.

Table 1: Types of Measurement Software used in QS Firms

	Large Sized Firm	Medium Sized Firm	Small Sized Firm
Autodesk Quantity Take-off/Auto CAD	■	■	
RIPAC Estimating System			
Build soft			
Everest			
Atles	■		
Master bill			

eISSN: 2600-7920
INTI JOURNAL
Vol.2, 2018 (7)

QS Pro			
Win QS			
CATO Software			
Cost X			
Bina Link			
Glodon			

The benefits of measurement software are vast. In fact, even though small firms do not make use of the software, they do agree with their remunerations. All firms, irrespective of their size, have rated the benefits with the same degree of importance.

The benefits are improving quality of services, high accuracy in works, shorten the time of providing services, reduce the cost of providing services, give professionals competitive advantage, enhance the productivity of QS, improve communication and quality of work, provide better customer satisfaction, reduce the number of staff (cost saving in staff), reduce human error, easy to edit works and high traceability, user friendly, access to multiple users to make changes from different computers

There is a common consensus among quantity surveyors from the large, medium and small consultancy firms that the barriers to the implementation of measurement software in their respective firms exist. Each of the barriers below in Table 2 has been rated based on the perspective of the respondents and the ranking given by the respondents on a scale 1 to 5.

Table 2: Barriers to Implementation of Measurement Software

	Large Sized Firm	Medium Sized Firm	Small Sized Firm
Lack of experience and expertise in IT applications	1	2	2
Lack of technical support from senior management	1	3	2
Lack of technical support for the QS profession	1	3	2
High initial and installation cost of software	2	1	1
High initial and installation cost of hardware	2	1	1
Rate of virus attacks leading to loss of data	2	4	4
Training problems	3	2	1
Lack of suitable software for the QS profession	3	4	5
High running and maintenance cost	3	2	1

eISSN: 2600-7920
INTI JOURNAL
Vol.2, 2018 (7)

Lack of flexibility	3	5	3

4. SUMMARY

From the analysis that has been made, there are four main measurement software such as Autodesk Quantity Take-off/AutoCAD, Atles, CostX, Glodon amongst others mostly used. Each of software has its own capabilities and operated distinctively.

The findings from the survey showed that only small firms do not make use of measurement software. In fact, small firms would rather use Microsoft Excel to aid them to save data after manual measurement. Even though they agreed that methods other than specialized software lead to human error and time-consuming, they are familiar with conventional methods of measurement. The outcome of the study is in accordance with the literature review discussed earlier, which proves that measurement software in small firms is still low.

Based on the findings and data analysis made, small firms have many reasons to why they do not implement measurement software in their firms, amongst which are the cost, reluctance to adapt to new technology and lack of motivation and awareness to apply the software. From the study, it can be determined that the high cost is the main reason for small companies not to use measurement software.

Besides, practical strategies have been analyzed whereby firms, as well as government and professional bodies, can help in overcoming the barriers and raising awareness on the implementation of measurement software. The study showed that respondents agreed that training of staff amongst others would encourage the use of measurement software. Therefore, there are a few further actions that could increase the level of measurement software used in the construction industry.

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