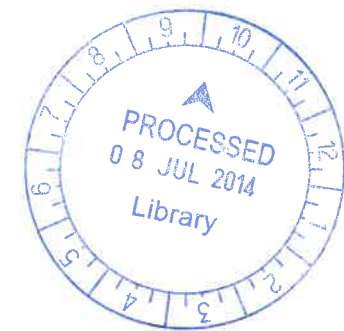


**THE INCORPORATION OF IT SYSTEM OF
QUANTITY SURVEYING PROFESSION**

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DECLARATION BY THE CANDIDATE

I, Yap Hao Ying (ID: I11008698), confirm that the work in this report is my own work and the appropriate credit has been given where reference have been made to the work of other researchers.



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ABSTRACT

As the technology develops, human beings becoming more and more rely on the information computing system, regardless it is on education, commercial, construction, financial industry even personally.

This dissertation introduces a study on the usage of information technology system among quantity surveyors in consultancy firm in Klang Valley, Malaysia. The study was conducted through a questionnaire survey among 31 quantity surveyors in Klang Valley. The study focused on how quantity surveyor uses information technology system in their daily operations, duration of using software in daily operations, sufficient of workstation, usage of each software and factors of choosing software. Based on the results, there is only a very fundamental usage on IT system in the industry. Thus, this study recommends a more advance stage of usage in this sector in construction industry.

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LIST OF ABBREVIATION

QS	Quantity Surveyor
BQSM	Board of Quantity Surveyor Malaysia
IT	Information Technology
RICS	Royal Institute of Chartered Surveyor
CAD	Computer-aided Drawing
CAE	Computer-aided Estimating
PC	Personal Computer
UK	United Kingdom
USA	United States of America
EDM	Electronic Data Management
TV	Television
KBS	Knowledge based system
ANN	Artificial Neural Networking
AEC	Architect, Engineering and construction

CHAPTER 1

1.0 INTRODUCTION

1.1 Background of study/ introduction

The adoption of IT system on quantity surveying (QS) profession started on mid 1950s (Adrian J. Smith 1989, p. 4). It is when an article, Stafford (1957), was published in *The Builder* magazine.

The first electronic spreadsheet application, VisiCalc, was developed by Dan Bricklin and Bob Frankston in 1979. It was one of the earliest practical applications on Personal Computers (PCs). It helped the wide acceptance of PCs by the business community. Succeeding spreadsheets, such as Microsoft Excel and Lotus 1-2-3, provide contractors and project managers with a powerful and convenient analytical and presentation tool. (Ming Sun 2004)

The RICS Quantity Surveyors Division Report *QS2000* in 1991 postulated that probably the biggest impact of computers on quantity surveying practice had been on improving the speed and efficiency of professional service. It also forecast that information flows in construction will increasingly be made electronically with, for example, the production of tender documents becoming increasingly automated, coupled with the use of computer aided design (CAD) systems. The application of computer technology will also assist in the development of cost modelling and cost and marketing forecasting. (Understanding QS with IT n.d)

A number of reputable systems of computerised measurement and bill production are available and their selection could be influenced by a number of factors, such as general appearance of output, logically of processes, whether the system is subject to continual

review and upgrading, extent of the user base, whether user requirements are met, and competitiveness of the price of the system. Two systems were used extensively by the quantity surveying organisations approached by the author, namely CATO and Masterbill and, in 1997, both firms had introduced Windows '95 versions in CATOPro and Masterbill '97 respectively, offering increased versatility. In the descriptions that follow, there is illustration of the operations of the process of Masterbill system, with the assistance from the Quantity Surveying Department of North Yorkshire County Council, a user of the system. Unfortunately, restrictions of space preclude consideration of more than one system. (Rob Howard 2004)

There is transition of the QS work from manual systems to computerized systems. A typical path starts from the first conics the use of fax machines to receive faxes and to send subcontractor bid inquiries. Next, commercial firms add computer spreadsheets to do the summary sheets, while heavy firms are using spreadsheets to help complete their unit price bids. Thirdly, they create new spreadsheets to help with analysis of subcontractors' quotes and to adjust final numbers. Many firms then continue to expand their spreadsheets to do detail sheets and add spreadsheet databases to work with their existing spreadsheets. At this point many firms start to find that maintaining and changing their custom in-house spreadsheets is becoming too cumbersome and makes the change to proprietary software. They want all the pieces to be integrated for easy use and standardized training. One of the last pieces commercial firms will put in place is the movement to digitizers to help in takeoffs. Heavy contractors have found that using digitizers for earthwork takeoff is a great help and have adopted the use of digitizers much earlier in their process. (G.L. Mansfield 2001)

1.2 Problem statement

1.2.1 The popularity of Information Technology system

A quantity surveyor (QS) is a professional working within the construction industry concerned with building costs. The QS usually reports to Project Manager or Project Director and provides advice in the decision-making process throughout the management of a project from initial inception to final completion. The QS handles estimating and cost control, the tendering process and, after contract award, the commercial interface. QSs should be able to carry out estimating and measurement of construction works prior to tender, producing the bill of quantities; produce tender documentation and manage the tender process; clarify and evaluate tenders; and manage the resultant contract through monthly valuations, variations control, contract administration and assessment of claims (What is Quantity Surveyors? n.d.). Along this over century, the efficiency had been greatly improved in terms of time taken and quality. As we know the job scope of QS involves many calculation and paper works, hence the aid of IT system plays a very important role on the efficiency of the work.

As the technology develops, human beings becoming more and more rely on the information computing system, regardless it is on education, commercial, construction, financial industry even personally. This is mainly because of the convenience and the efficiency that the information technology (IT) had brought to us. The advance of the IT development could help one industry to develop and grow in higher speed and higher achievement.

Long working hours and overtime working hours have been always the occupational stress in the industry. A requirement for "willing to work for long hours and overtime" has been added into the job post for applying a job for quantity surveyor that can be seen publicly on the internet.

Based on a finding on year 2013 (Ishka Rogbeer 2013), the average overtime working hours is to be 9 hours a week which equivalent to 40.5 a month. This result shows that there are QS who worked more than 9 hours of overtime in a week which has considered suffer for the employees.

Generally, all QS have adopted the basic computing system on their work such as Microsoft Word, Microsoft Excel and etc. nowadays. On the other hand, there are also many IT systems that help to cut down the time taken for daily operations. By adopting these systems on the work, it will make the work neater and increase the standardization. Additional work and time will occur if there is no system adopted.

Traditionally, QS do taking off quantities by using a scale rule on the architectural and engineering drawings which provided by the design team. Although this method is commonly and widely used, it could be a troublesome process and could cause the occurrence of some problems. Replacing the manual way of scale rule, a computing system would be a very choice. This could extremely reduce the time taken and cost on taking off. All steps are simplified and shorten to be done thus the QS could have more time to concentrate on using their skills rather than performing laborious measuring tasks.

Some QSs are trained in techniques of cost control. Those QSs who emphasise the cost discipline often use the term "Construction Cost Consultant". They ensure that projects are designed and constructed in such a manner as to secure value for money, cost certainty and programme dates (BQSM: What is Quantity Surveyors? 2012). Doing this manually could cause untidy and lack of efficiency as it requires a lot of calculations and statistics implementation. The efficiency could be raised by adopting computing software to assist in the preparation of cost planning and cost control works. This could indirectly helps to monitor the healthiness of the cash flow and avoid a behind-schedule project.

Time is an important issue which could affect the cost in construction industry. These IT systems are very useful and helpful to assist, a QS to achieve higher level of efficiency and produce more income which having a great strength of saving up time. Once time is wasted, the project may be behind schedule. This circumstance will lead the project to delay and may cause the additional cost on loss and expense.

In a nut shell, the usage of information technology system is believed could help in the development and growth of the QS profession and construction industry. Hence this paper is to find out the usage of IT system among QS Companies and to encourage and stimulate the usage of IT system on QS daily operations. The following section will reveal more details about this objective.

1.3 Objectives of the study

The objectives of this study are as the following:

- (a) To investigate the usage of IT system among QS Companies.
- (b) To find out the most impact of using IT system.

1.4 Scope of study (delimitations) / Limitation of study

The study is limited to scope and limitation, in order to receive a clear result from the analysis. This study is to contribute for the quantity surveying industry. So, only quantity surveyor will be surveyed in this study.

For the types of firm of the quantity surveyor, consultancy firm will be the type chosen in this study as their main profession is to provide quantity surveying service so they will tend to have the most advance facilities and tools for their profession. As there will be a large number of respondents, this study will be carried only among QS in Klang Valley area. Klang Valley is the area that developing in the fastest way and most up to date with the technology.

1.5 Methodology

Stage	Action	Objective
<p><u>Stage 1 Literature Review</u></p> <p>Chapter 1 Introduction to Quantity Surveyor with computers</p> <p>Chapter 2 Review of Related Literature</p> <p>-Information Technology</p> <p>-Role of a quantity surveyor</p> <p>-Popular IT system used in the market</p> <p>-Benchmarking the use of IT by the quantity surveying profession in Hong Kong</p> <p>Chapter 3 Methodology</p> <p>-Quantitative</p> <p>-Questionnaire Design</p> <p>-Analysis Method</p>	<p>Search the definition of information technology</p> <p>Search the role of quantity surveyor</p> <p>Search the information of software in the market</p> <p>Set a questionnaire around 20 questions</p>	<p>To study the past and current status of QS with computers</p> <p>To achieve the objectives</p>
<p>Stage 2 Analysis of the result and discussions</p> <p>Chapter 4 Data collection and analyse</p> <p>- Analyze findings from all sources of data.</p>	<p>Analysis the data collected from the questionnaire</p>	<p>To arrange the data collected and in order to get the result</p>
<p>Stage 3 Conclusion</p> <p>Chapter 5 Conclusion</p>	<p>Make conclusion and recommendations</p>	<p>To conclude the findings</p>
<p>Stage 5 Reference</p>	<p>List all reference in Harvard Referencing</p>	<p>To show the reference that have been used in this study</p>