NATURE OF WORKS AND IT LITERATE IN CONSTRUCTION INDUSTRY AND ITS RELATION TO WORKING FROM HOME (WFH)

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ABSTRACT
Working from home (WFH) is increasingly popular in Western and European developed countries. The Asians such as Japan, Hong Kong and India have followed suit and it has been growing in popularity as most occupations suitably adopt WFH. It is not uncommon that people are always searching for a quality life; better household income, more family time and lower stress level. For organizations, cost savings in facilities is the main force behind employee WFH. For employees, benefits are better work-family balance and a comfortable work. WFH studies claimed to have it all. However, a comprehensive search of relevant databases and journals primarily from the built environment shows hardly any empirical studies that examine the home offices of employees employed by organizations. This paper attempts to determine the nature of works and IT literate among quantity surveying (QS) firms in relation to WFH. The on-going study is at initial stage to embark on proposing a model of WFH for the Malaysian QS employment. A preliminary survey had been carried out to nine principals of QS firms to identify the types of task and level of information technology (IT) literacy among QS firms’ employees in order to WFH. The preliminary results will form a basis of further research studies of WFH in QS employment.

Keyword: Quantity Surveying (QS), Working From Home (WFH),
INTRODUCTION

Working From Home (WFH) in Construction Industry

Working from home (WFH) is a common work style for most developed countries. Most developed countries have carried out the concept in their working life since the 70s. What is more, WFH is known to serve better work-life style and can give many advantages to the company and employee such as real-estate cost savings, productivity increase, less absenteeism, labour relations flexibility, better customer service, flexibility, and cost savings in commuting. Other than that, the main reasons attributed to the potential growth of telecommuting in many developed countries include flexibility, reduced office overheads, energy consumption, increase in worker’s productivity, improved recruitment opportunities particularly for female employees, reduction in travel fatigue, travel time, travel cost, parking fees, savings on petrol, promotion of opportunities for dual income household, effective management of child care arrangements, increased family contact, ability to care for family illnesses, creation of employment opportunities in rural areas, positive environmental impacts by reduction in petrol consumption, pollution, traffic congestion and accident rates, flexible work arrangement for working mothers and job opportunities for disabled. Despite the positive WFH impact, Malaysia still has limited in-depth study on WFH (Perez et al., 2004; Hamsa et al., 1997; Asaari and Karia, 2001).

Following to that, Malaysians work longer hours than their counterparts in many benchmark countries, but produce less than them. YBhg Dato' Mohd Razali Hussain, the Director General, Malaysia Productivity Corporation (MPC) said that the productivity levels of Malaysians employee are a lot lower than those of countries like the United States, Japan, United Kingdom, South Korea and Singapore. It is said that, according to the report, which analyses information from the Department of Statistics, workers in the top benchmark countries outperformed Malaysian workers almost six times over. On top of that, he also clarified that an employee's productivity was not measured by the number of hours clocked in but rather by his or her overall output during working hours. He also added that working long hours could even be counter-productive where there is a lot of waste in productivity when the employee drag the hours and furthermore, the company would have to pay more for electricity and overtime (Cheng, N., 2013). From here we can see that, even though the employee is present at the office all the time, they did not spend the working hours productively. A research carried out by Adnan, N. N. (2011) on the work from home pilot program for the public sector specifically the Public Works Department (PWD) has resulted in the improvement to the productivity level which range from 90% to 100%. On top of that, the productivity generated by the respondents exceeded the set target.

Hence, the WFH concept not only suitable to be carried out in multinational companies or in manufacturing industry but also has a great potential to be carried out in the construction industry. The literature review from the publication year of 1999 to 2013 found that service industry has been identified as the most industry researched for WFH followed by information communication technology (ICT) industry. Due to that, the researchers found that there is ample opportunity to conduct research on
WFH in the construction industry as many players in the industry are using information communication technology to perform their works.

The vision of people working from home is an enduring feature of a popular debate about the future of work. As of today, technological advances have made a wide leap towards shifting millions of jobs back to where it came from originally, home. Anecdotal evidence suggests devices such as mobile phones and laptops have ushered in a change in the places where some works are carried out, particularly for office workers. It is not uncommon that the workers are always searching for a quality life; better household income, more family time and lower stress level which benefits are obtained claimed when one is WFH. The question on suitability of WFH concept to be implemented in QS employment operating in construction industry will underpin the research.

History and Definition of Working From Home

During 1950s, the literature on technological change led to the idea that telecommunications, combined with computing technology, could enable work to be relocated away from the traditional office (Baruch, 2000). The idea of WFH concept has been triggered by Jack Nilles in 1973 and 1979 due to the first international oil crisis that eventually give rise to concerns over petrol consumption, long work commutes, and traffic congestion in major metropolitan areas (Perez et al, 2004). Since then, according to Collins (2005), WFH began to be recognized widely throughout UK and Baruch (2000), said that WFH was expected to be the ‘next workplace revolution’ in the 1980s.

In the 1990s, WFH emerged as a vital opportunity enable by advanced IT infrastructure. WFH is the practice of working at a location other than the central office but being linked by means of IT (Watad and Will, 2003). According to Moynagh and Worsley (2005), in 2002 almost 3.8 million people (13.4 per cent) at UK worked either mainly on their own home, or mainly in different places using home as a base, or mainly elsewhere but also one full day at home. It is also been said that this was a startling jump on the near 3 million (11.3 per cent) who were working in these ways a mere five years earlier.

Working from home is defined by working day spent in the home environment (Sayers et al., 2005). Hassan and Nuruddin. (2011), in their research stated that there are also various terms which are similar to Working From Home which is ‘Teleworking’, ‘Telecommuting’, ‘Homeworking’, and ‘Working at Home’. Homworking involves individuals undertaking traditionally office-based paid employment from home by means of information and communications technology (ICT) on a full-time or part-time basis (Lal and Dwivedi, 2010). As of the research, the terms Homworking is most suitable as the definition represent the workers who are doing their office work by working from home, by means of information and technology (ICT). It is important to identify the three crucial elements in teleworking which are location, use of information technology and organizational form (Baruch, 2000).
Nature of works and IT literate among Qs

Construction is a process that consists of the building or assembling of infrastructure. Construction industry requires close coordination among a large number of specialized but interdependent organizations and individuals to achieve cost, time and quality. In this industry, there are design consultants (architects, engineers and quantity surveyors), acting as professional advisers to the client. They are largely responsible for the production and dissemination of both the design and management information among the various project participants (Oladapo, 2006).

Further to that, Nkado (2000) in his study stated that the effectiveness of consultants in meeting the needs of clients in the built environment is influenced by their recognition and application of context-relevant competencies. The roles of the design consultants are important to ensure the smoothness of the project. Depending on the type of project, the construction chain may involve large numbers of skilled professionals and companies with, quite often, much repetition of activities and accumulation of paperwork (Murray et al, 2001).

To grasp the idea of QS nature of works, Brandon (1990, p. 6) describes “quantity surveying as an amalgam of several other disciplines (such as economics, law, accountancy, management, measurement, information technology and construction technology) within a unique context of the built environment.” With the increasing number of QS firms in the nation, it shows that they play a significant role in the Malaysian construction industry. This is because it provides a growing share of total industry output and employment. According to CIDB (2005), surveying consultancy sector has contributed RM535 million (USD170 million) in terms of value added to the construction industry during 1999. In order to play their significant roles in an increasingly changing environment of the construction industry, QS firms will have to be more vigilant and forward-looking in order to survive given the significance the Malaysian QS firms where majority profiles are small and medium set ups (Hasnanywati, 2010).

Langford and Male, (2001) suggested that QS firms have to embrace the organization’s operating business culture. WFH is seen as one of the new business cultures for QS firms to execute and presume to survive in construction industry. This is because the competitive industry directly influences QS firms in obtaining and bidding for projects. The scope of QS work involves preparation of documents such as cost estimate, cost plan, bill of quantities, tender document, interim valuation certificate, final account, etc. According to Ashworth, et al (2007), there are two modes of operation in QS firms, which are production line group division and parallel group division. For production line group division, the work of a project is separated into several stages, with a group of quantity surveyors (QSs) to undertake each stage. Another mode of operation, which is parallel group division, splits the staff into groups and each group will undertake all aspects of project from inception to completion. Both modes of operation will have a group leader to supervise and manage the work. In both modes of operation, there will be a group leader to supervise the group of QSs. Based on the roles and working environment of QSs, their works can be done independently since each QS will have his own work sections to do no matter which modes of operation are being practiced in the firm. Apart from this, QSs usually have to interact with other construction players such as contractor,
architect, engineer, specialist consultants and the client, but they do not need frequent communication with their co-workers, hence the potential to work from home. In summary, the table below shows the tasks and duties carried out by QSs in QS firms.

Table 1: Tasks and duties carried out by quantity surveyors

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<tr>
<th>Contract Stage</th>
<th>Tasks and duties of QS</th>
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<td>Pre Contract Stage</td>
<td>Feasibility study</td>
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<td>Preliminary cost estimate</td>
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<td>Bills of Quantities Preparation</td>
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<td>Tender evaluation</td>
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<td>Post Contract Stage</td>
<td>Preparation of Interim Valuation</td>
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<td>Preparation of Variation Order</td>
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<td>Preparing and compiling variation claim document</td>
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<td>Life-cycle costing</td>
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<td>Payment Certificate</td>
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<td>Financial statement</td>
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<td>Final accounts</td>
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According to Ashworth and Hogg (2007), survey findings among QSs showed that most of QSs are IT literate. He stated that “It is impossible to complete a QS degree course without the use of IT for a wide range of applications. According to another survey on IT applications in QS firms in Hong Kong by Shen and Chung
(2007), the most common IT applications utilised in the firms are e-mail for external communication (communication with client, architect, other consultants), word processing, and spreadsheets. The other items which have been used by the majority (over 50%) of the companies are presentation software, cost database, Internet/LAN, cost estimation software, e-mail for internal communication (co-workers and boss), and project database. The result of the usage of IT applications in QS firms is shown in Figure 1.

![Figure 1: IT applications used in quantity surveying firms (Shen and Chung, 2007)](image_url)

Based on the information above, the majority of Hong Kong’s QSs have been exposed and have possessed a certain level of ICT knowledge needed for WFH. Hence, it is fair to assume that QS should be attracted to WFH.

**Analysis and Discussion**

A pilot study has been carried out to identify types of task and duties that are suitable for staff of QS firms to carry out at home. In order to achieve the target, an interview session with the employers of QS firm is done. The interview aims to investigate the awareness of the company towards working form home concept and also to find out the nature of QS works for the adoption of WFH concept in the future. The data achieved through this pilot study will be the guidelines in preparing the final survey to all QS firms in Malaysia for further research.

From the nine (9) firms interviewed, only two (2) of them will consider in fully applying the concept of working from home. These two firms are currently having part time employees who are away from office and only be presence at the office once...
or twice a week for reporting of their work or for having discussion with the employers. The rest of the firms are sceptical of WFH concept to be applied in their firms and to the industry as a whole.

When it comes to tasks and duties of employees in QS firms, most of the respondents have similar thought on having measurement as the most suitable task to be carried out from home. Besides that, preliminary cost estimate, interim valuation, variation order, final account and preparation of tender document can also be done by employees at home provided the information needed to carry out the task must be comprehended at the office prior to work at home.

All of them agreed that moderate level of knowledge in IT is sufficient for employees to work from home. The basic software the employees should posses are spreadsheet software, word processing and internet. This is because most works carried out by QSs revolves around this software. Hence, it is fair to say that the most critical element in WFH is the utilization of telecommunication devices which become essential tools to keep contact with superior, co-workers or clients. To that, Cheah, et al (1999) highlighted that the implementation of working from home in Malaysia is expected to grow rapidly, in conjunction with the increase usage of computer networking in most of the major industries and big organizations due to the impact of technology advancement.

**CONCLUSION**

From the analysis and discussion above, it shows that QS tasks and duties can be done at home provided they gather all the information and documents needed from the office prior to WFH. Most of the employers being interviewed agreed that most of the QS tasks can be carried out at home. Even though majority of the employers are sceptical in fully applying the WFH concept in their firms they nevertheless agreed that the concept of WFH provides many benefits which they are likely to apply this concept in the future. They also stated that, if only they were applying the concept, they would consider in allowing the experienced or senior employees to WFH.

In the increasing competitive environment in Malaysia, the information technology have to be used and manipulated creatively and effectively as it has become relatively important in almost every industries. From researchers’ viewpoint, working from home concept can be implemented if the Malaysian organizations are aware of the benefits that they can obtain. The literature review carried out may be helpful as a foundation for a future research to be carried out.

**REFERENCES**


