The Practice of Subcontractor Appraisal in the Construction Industry of Hong Kong

A.S.Y. Chung and S.T. Ng
Department of Civil Engineering, The University of Hong Kong, Pokfulam, Hong Kong. tstng@hku.hk

Abstract
Subcontracting is a mechanism used by contractors to redistribute their risks to an organization at the next tier along the supply chain. It is found that most construction projects worldwide have a large extent of subcontracted works, leaving the main contractors with a relatively small proportion of construction works along with other essential documentation, financial, managerial and supervision duties. As the subcontracting practice is so popular while the performance of subcontractors is major factor contributing to the project success, the industry is beginning to establish whether there is a solution to enhance subcontractor performance, and the monitoring of subcontractor performance is considered as possible way to eliminate incapable subcontractors. Until now, the industry is lacking of a standardized mechanism for measuring subcontractor performance. Although some contracting organizations have their own in-house subcontractor performance appraisal procedures, many studies have pointed to a general dissatisfaction in the performance of subcontractors and the practices of subcontracting. With this concern, interviews were conducted with the main contractors and subcontractors in Hong Kong. The purpose is to determine whether a generic procedure for subcontractor performance appraisal can be derived so as to develop a common standard to monitor the performance of subcontractors and to uplift the quality standard of construction works eventually.

Keywords
Subcontracting practice, appraisal system, project performance.

INTRODUCTION
Subcontractor is a team of specialized labors commissioned by the main contractor to accomplish a specific task in a construction project (Gray, 1989). Through subcontracting, contractors could fulfill the construction tasks at a reduced cost, better quality standard and more flexible organization structure (Fellows et al, 2002; Ng and Chung, 2005). Seeing the benefits of subcontracting, a significant amount of the construction activities are sublet to specialist traders in the industry. In the United Kingdom, the subcontracted work could be as much as 90% of the total project value (Nobbs, 1993). Russell and McGowan (1984) claimed that up to 95% of the total value was entrusted to subcontractors in Canada. The trend was similar in Asian countries like Japan (Reeves, 2002) and Singapore (Woon and Ofori, 2000). In Hong Kong, the average direct labor percentage
of projects was as low as 1%, and none of the projects had a direct labor content exceeding 7.5% of the total project value (Lai, 2000). The system of subcontracting worked well in Hong Kong in the past when the construction community was comparatively compact, and many contracting firms enjoyed an intimate relationship with their subcontractors. Mutual trust and respect was a propelling force to ensure the assigned tasks were completed satisfactorily. Yet, as project complexity and price competition increases, contracting firms are tempted to transfer a greater proportion of risks to parties at the lower stream along the supply chain. Relying heavily upon the main contractors for survival, subcontractors have to accept time, cost and quality risks being transfer to them (Hinze, 1994).

Nonetheless with a relatively easy entry to the industry (Hegazy and Ersahin, 2001), some subcontractors may not have sufficient capabilities to undertake the required works satisfactorily (Kumaraswamy and Mathews, 2000). The employment of non-performing subcontractors may lead to adverse impacts, which might eventually result in project failure. The overall performance of the construction industry may be affected if the performance of subcontractors cannot keep up.

The general dissatisfaction with the practices of subcontracting has instigated a series of studies aiming at assuring the performance of subcontractors (e.g. Hsieh, 1998; Sozen and Kucuk, 1999). A recent industry report in Hong Kong recommends devising a mechanism to monitor subcontractor performance so as to provide a feedback channel to the contractors (Tang, 2001). However, in the absence of an agreed framework for appraising subcontractor performance, many construction projects still suffer from inferior quality, delays and over-budgeting.

The aim of this paper is to capitalize on the experience of current practice so as to identify a framework for appraising subcontractor performance. The paper begins by examining the subcontractor performance appraisal models around the globe. The procedures of subcontractor performance appraisal in Hong Kong are unveiled through a series of interviews. Comments for improving the existing practice of subcontractor performance appraisal are summarized in this paper.

DEVELOPMENT OF SUBCONTRACTOR APPRAISAL

An extensive literature review confirms that only few subcontractor performance assessment models operate in the industry worldwide. Examples of these include the US governmental departments located at South Carolina, the Department of Administration in the State of Wisconsin, Los Alamos National Laboratory, Fermi National Accelerator Laboratory, etc. Those assessment models are generally based on a series of performance indicators, such as schedule, quality, cost, safety, relationship, communication and documentation to measure the overall work performance. In the UK, there is a Quality Mark initiative for builders in the domestic repair, maintenance and improvement sector. Under this scheme, consumers can identify reputable builders who have demonstrated to independent assessors that they possess the skills and competence to complete work to a high quality standard.

In Singapore, the performance of subcontractor is assessed and fed back to a registration system known as the Singapore List of Trade Subcontractors (SLOTS) Registry. This system is administered by the Singapore Contractors Association Limited (SCAL) – an official representative of the construction industry in Singapore to serve the procurement needs of government departments, statutory bodies, public and private sector organizations. Subcontractors seeking
registration should satisfy the requirements set out by SCAL which include their company’s status, personnel resources, financial capability, track record and performance.

In Hong Kong, except for the model being adopted by the Hong Kong Housing Authority for assessing piling subcontractors, there is no other bespoken system for measuring subcontractor performance. Despite that, there are several systems developed by various organizations to evaluate the performance of main contractors, and these models are based on various performance indicators like workmanship, progress, resources control, health & safety, environmental protection, organization, general obligations, industry awareness, attendance to emergency, attitude to claims, relationship and communication to assess the performance.

To improve the quality of subcontractor performance appraisal, a reporting system for the construction managers to control over subcontractors was developed (Mendel, 1985). Besides, a computer-based system for controlling subcontracted work was introduced by Russell (1984). Albino (1998) developed a subcontractor rating model using neural network approach so as to support management decisions. More recently, a factor-based model was proposed by Wang (2005) for subcontractor management. In the manufacturing industry, Balakrishnan (1997) developed a simple system for evaluating subcontractor performance.

Despite the various research studies and practice, the construction industry is still lacking a rational procedure and a set of criteria for assessing subcontractor performance. Hence it is necessary to collect sufficient information from the industry in order to establish a suitable mechanism for subcontractor performance appraisal.

RESEARCH METHOD

A series of semi-structured interviews were conducted to unveil the detailed procedures and to solicit any guidelines being developed by contracting firms in appraising the performance of subcontractors. As each interview was only scheduled for an hour, it was considered necessary to restrict the number of questions to around 15. An interview protocol was developed to drive the interviewing process. The questions are broadly divided into three sections. The first section focuses on the background of the respondent’s organization, e.g. the type and size of projects in which their company are specialized in; the proportion of works to be sublet; and the existence of a specific list of subcontractors. The second section is related to their perception on the importance of subcontractor performance. Questions on whether they will base on one’s performance for selecting subcontractors; the importance of subcontractor’s performance in a project; the importance of monitoring subcontractor’s performance; and the purposes of subcontractor appraisal (e.g. reward or penalty) were asked. The details of subcontractor appraisal system are the focus of the third section in the interview protocol, and questions like whether a subcontractor appraisal system exists in their company; the criteria adopted for appraise subcontractor; and suggestions for improving the subcontractor appraisal practice were included. Further questions were asked throughout the interview process to clarify points and capture more details where necessary.

Profile of Interviewees

It was considered necessary to interview experts of both the main contractors and subcontractors to collect practical comments from these two key stakeholders, as there might be possibilities that the
views of the main contractor may differ from the subcontractor. As a result, 10 experts of different background were selected and invited to participate in the interview process. These experts include 3 contractors, a large scale subcontractor and 6 subcontractors. To preserve the confidentiality of the interviewees as well as for easy reference, the 3 contractors are abbreviated as MC1, MC2, MC3; the large-scaled subcontractor as LSC; while the subcontractors as SC1 to SC6 respectively.

MC1 is a project manager with over 20 years of experiences and he is employed by a large scale main contractor. He is managing several large civil infrastructure projects. According to MC1, most of the works are sublet to subcontractors selected from its in-house subcontractor list. MC2 is an engineer with more than 15 years of practical experiences. He is looking after several building construction and maintenance projects. Their organization is highly relying upon subcontractors, with the sublet proportion of more than 90% for each project. He believes that an effective appraisal system is essential to maintain the overall performance of projects. MC3 is a qualified quantity surveyor with more than 20 years of experiences. He is working in a joint venture railway construction project.

LSC is an experienced quantity surveyor. As told, more than 85% of the works are sublet to sub-subcontractors from its in-house subcontractor list. As satisfying the documentation requirements have filled up most of their human resources, so companies of MC1, MC2, MC3 and LSC are adopting a very high subletting proportion in their projects. SC1 to SC6 are engineers and quantity surveyors working for subcontractors. These subcontractors are actually carrying out the construction works with only a small proportion of specialize items being sublet to specialist traders at the further tiers.

SUBCONTRACTOR APPRAISAL SYSTEM

Having discussed with the main contractors and large scale subcontractor, it is encouraging to note that all have in-house procedures for measuring the performance of subcontractors. Consequently, the procedures were captured and reviewed. From that, a generic mechanism as shown in Figure 1 is derived from the systems being used by the interviewees.

The initial appraisal is usually conducted by the site engineer on the technical aspects. Relevant records related to the work done are then forwarded to the project manager for reviewing. The project manager then discusses with the safety manager on the health and safety issues so as to ensure the subcontractor is adhering to the requirements of the health and safety manual. Besides, the project manager would liaise with the quality manager and environmental manager to establish the standard of workmanship and the environmental awareness of the subcontractor. The project manager then makes adjustment to the appraisal if necessary.

Non-technical assessment will be carried out after the technical review. The administrator of the main contractor will examine the subcontractor’s industry awareness and its organization structure. On the other hand, the commercial manager would focus on the financial capability, claims and cost controlling matters of the subcontractors. Should the subcontractor have any financial problems, there might be chance of delay or suspension of the project, hence commercial matter is included in the subcontractor performance appraisal. Again necessary amendments will be made if required.

In order to maintain the fairness and preciseness of subcontractor performance appraisal, the overall assessment will be conveyed to individual subcontractor to determine if the result of appraisal is
agreeable with them. Should no further amendment be needed, the completed appraisal result is archived in the head office database. The appraisal document would be made available to the project manager or other authorized staff for reference at time of another subletting exercise.

Figure 1: A generic procedure for subcontractor appraisal
Through the interviews, the criteria being used by each interviewee in assessing the performance of subcontractor are identified. As shown in Table 1, there are a dozen of criteria for which the main contractors would use for measuring subcontractor performance. The most popular ones include the workmanship, progress, health and safety, relationship and communication. Criteria of least awareness are the industry awareness and general obligation.

Table 1: Criteria for assessing subcontractor performance

<table>
<thead>
<tr>
<th>Criteria</th>
<th>MC1</th>
<th>MC2</th>
<th>MC3</th>
<th>LSC</th>
<th>SC1</th>
<th>SC2</th>
<th>SC3</th>
<th>SC4</th>
<th>SC5</th>
<th>SC6</th>
</tr>
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<tbody>
<tr>
<td>Workmanship</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
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<td>Progress</td>
<td>yes</td>
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<td>yes</td>
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<td>Resources control</td>
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<td>Health and safety</td>
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<td>Environmental protection</td>
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<td>Organization</td>
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<td>yes</td>
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<td>General obligations</td>
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<td>Industry awareness</td>
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<td>yes</td>
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<td>Attendance to emergency</td>
<td>yes</td>
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<td>Attitude to claims</td>
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<td>yes</td>
<td>yes</td>
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<td>Relationship</td>
<td>yes</td>
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<td>yes</td>
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<td>Communication</td>
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DISCUSSIONS

While the industry is placing an unprecedented emphasis on project performance, especially in relation to subcontractor performance, contractors inevitably encounter a great challenge in controlling their subcontractors. As almost 90% of the works are sublet to subcontractors, MC1 and MC2 believed a better monitoring of subcontractor performance is critical to the success of a construction project. Although some major subcontractors are now more prepared to take up the challenge of accepting a greater responsibility and risks associated with a project, certain naive ones still believe a good relationship with the main contractors alone could result in more business opportunity irrespective of what they produce.

It is good to learn that the main contractors now count on the appraisal information in selecting subcontractors for the next project (MC1, MC2, MC3 and LSC). They believed that the appraised results could serve as a penalty/reward mechanism to determine the future subletting opportunities of a subcontractor. In contrast, SC1 to SC6 believe that any subcontractor performance appraisal model is nothing more than fulfilling another documentation requirement under the quality management systems. All interviewees agreed that if more education and training on the importance of subcontractor performance to the overall success of the construction industry as well as the effective of subcontractor registration scheme, the performance standard of subcontractor could be guaranteed.
CONCLUSION

The practice of subcontracting in Hong Kong and abroad has been reviewed in this paper. As the industry has no standardized measure on appraising subcontractor performance, a literature review on the appraisal system worldwide has been conducted for reference. An interview survey among the contractors and subcontractors in the local industry has also been carried out. Based on the collected information, a typical subcontractor performance appraisal procedure is detailed in this paper. It is hoping that the industry is more concerned about the importance of monitoring subcontractor performance and hence devise an agreeable appraisal framework in the near future.

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REFERENCES


