

FRAMEWORK DEVELOPMENT OF BILLS OF QUANTITIES  
ACCURACY IN CONSTRUCTION ORGANISATION

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To my beloved parents/in laws,

Tuan Haji Bandi Sukerman and Puan Hajah Saripah Raban  
Tuan Haji Khalid Hashim and Puan Hajah Ngatini Osman

Thank you for becoming my ultimate teacher in life

My wife,

Farial Hanum Nurul ‘Ain Khalid, and

My bundles of joy,

Alyaa’ Hana Farial and Aeddin Imran Farial

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## ABSTRACT

The Bill of Quantities (BQ) is a document that itemises information collected from the process of measurement and provides the descriptions, quantities and information of items required in a contract. These information are mainly used by contracting organisations in fulfilling their contractual duties. However, previous studies have revealed some concerns on the information contents of the BQ that have impacted its usability by contractors. Attempts to improve the BQ seem to concentrate on the BQ formats that do not parallel the improvements required for the BQ. This research aims to develop a conceptual framework that indicates important information requirements and significant issues as the basis to improve the uses of the BQ. The research outlines five objectives which include determining the uses of the BQ to the contracting organisations, determining the important BQ information requirements, determining significant issues impeding the uses of the BQ, developing and validating a conceptual framework as the basis to improve the uses of the BQ. Through survey, questionnaires were distributed to 500 active G7 contractors in Kuala Lumpur where 22.4% responded. Data was tested and analysed by means of Commuality, Cronbach's Alpha, Relative Importance Index and the Analysis of Importance. The research determines 30 uses of the BQ, and shows that quantities is the most important information required in the overall uses of the BQ while inaccurate/wrong quantities, insufficient information on quantities, and inaccurate descriptions are the most significant issues impeding the uses of the BQ. The information requirements and issues that were considered important from the analyses are the main inputs to the framework. These are organised into two levels of importance, with inputs featured in the first level have higher weightage in improving the respective uses of the BQ as compared to the inputs featured in the second level of the framework. The framework asserts that improving the respective uses of the BQ can be planned in two stages based on the respective levels of importance. Validation for the framework was carried out through interviews with 10 personnel with at least 15 years of construction related experience. The results show an acceptable congruity where no changes are required, affirming the validity of the framework. The framework provides a usable basis in strategising improvements on the uses of the BQ to the contracting organisations.

## ABSTRAK

Senarai Kuantiti (BQ) merupakan satu dokumen yang memperincikan maklumat dan proses pengukuran serta menyediakan huraian, kuantiti dan item-item yang diperlukan di dalam sesuatu kontrak. Maklumat ini digunakan terutamanya oleh organisasi kontraktor di dalam melaksanakan tugas-tugas seperti yang termaktub di dalam kontrak. Kajian-kajian lepas telah mendedahkan bahawa perhatian perlu diberi kepada kandungan maklumat BQ yang telah memberi kesan kepada kegunaan BQ oleh pihak kontraktor. Usaha-usaha yang telah diambil untuk menambahbaik BQ seolah-olah hanya tertumpu kepada memperbaiki format BQ. Ini didapati tidak selari dengan keperluan penambahbaikan BQ. Kajian ini bertujuan untuk membangunkan satu kerangka kerja konsep yang menunjukkan keperluan-keperluan terhadap maklumat dan isu-isu penting sebagai asas untuk menambah baik penggunaan BQ. Kajian ini telah menggariskan lima objektif iaitu mengenalpasti kegunaan-kegunaan BQ kepada organisasi kontraktor, mengenalpasti keperluan maklumat penting BQ; mengenalpasti isu-isu signifikan yang menghalang penggunaan BQ, serta membangunkan dan mengesahkan kerangka kerja konsep sebagai asas untuk menambahbaik penggunaan BQ. Melalui pendekatan kaji selidik, borang-borang soal selidik telah diedarkan kepada 500 kontraktor G7 yang aktif di sekitar Kuala Lumpur di mana 22.4% telah memberikan maklumbalas. Penilaian dan analisis data telah dibuat melalui kaedah Keakraban, Cronbach's Alpha, Indeks Kepentingan Relatif dan Analisis Kepentingan. Kajian ini telah mengenalpasti 30 kegunaan BQ serta menunjukkan bahawa kuantiti merupakan maklumat terpenting yang diperlukan dalam keseluruhan penggunaan BQ manakala kuantiti tidak tepat/salah, kekurangan maklumat berkaitan kuantiti dan keterangan item tidak tepat merupakan isu signifikan yang menghalang penggunaan BQ. Hasil yang diperolehi adalah input utama kepada kerangka kerja konsep yang dibangunkan. Ia disusun berdasarkan dua peringkat kepentingan, di mana input yang berada di dalam peringkat pertama mempunyai pemberat yang lebih untuk menambahbaik penggunaan BQ berbanding input di dalam peringkat kedua. Oleh itu, penambahbaikan BQ boleh dibuat dalam dua peringkat berdasarkan tahap kepentingan input seperti di dalam kerangka kerja konsep tersebut. Pengesahan yang telah dibuat keatas kerangka tersebut secara temu bual dengan 10 responden yang mempunyai sekurang-kurangnya 15 tahun pengalaman kerja berkaitan pembinaan menunjukkan kesepadanan telah dicapai dan mengesahkan kerangka kerja konsep yang telah dibangunkan. Kerangka kerja konsep ini menyediakan satu asas bagi merangka strategi penambahbaikan penggunaan BQ oleh organisasi-organisasi kontraktor.