

Using Balanced Scorecard for Subcontractor Appraisal

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Subcontracting Practice

- Average direct labour content
 - ➔ < 5% of total contract sum
- Reasons for subcontracting
 - ➔ Unpredicted workload
 - ➔ Requires multitude of specialised skills
- Benefits
 - ➔ Risk of main contractor can be reduced
 - ➔ Subcontractors are more efficiently

Problems of Subcontracting

- Quality of subcontractor ⇔ quality of work
- Bid shopping
 - ➔ Multi-layer subcontracting
- High fragmentation of work
 - ➔ Unclear accountability

Requires a framework to distinguish between
between capable and incapable subcontractors

Initiatives for Controlling S/C

- Mandatory disclosure of S/C firms
 - ➔ US listing laws (e.g. California Subletting and Subcontracting Fair Practice Act)
- Restricting the percentage of sublet
 - ➔ US Army Corps of Engineers, US DOT
- Best value vs. lowest price
 - ➔ Australian Constructors Association
- Subcontractor registration scheme
 - ➔ US, Australia, Singapore

S/C Registration in HK

- Voluntary S/C registration scheme
 - ➔ Launched in November 2003
 - ➔ Maintained by Hong Kong Construction Association
- Covers 41 trades in 3 categories
 - ➔ Structural and civil
 - ➔ Finishing
 - ➔ Electrical & Mechanical



Performance Appraisal

- Purpose
 - Should be able to differentiate good and bad subcontractors
 - To ensure subcontractors are performing (Hsieh, 1998; Sozen & Kucuk, 1999)
- Current practice
 - Lack of a systematic subcontractor performance appraisal framework

Performance Appraisal

- Previous studies
 - Reporting system for construction managers (Mendel, 1985)
 - Computer-based system for controlling subcontracted works (Russell, 1984)
 - Subcontractor rating method using neural network (Albino, 1998)
 - Factor-based model for subcontractor management (Wang, 2005)

Balanced Scorecard

- For business performance appraisal (Kaplan & Norton, 1992)
 - Monitor degree of fulfilment
- Benefits
 - Fair and transparent
 - Reliable
 - User-friendly

Aim and Objectives

- Aim
 - To determine if balanced scorecard can be applied to S/C appraisal
- Objectives
 - To devise a conceptual balanced scorecard model
 - To develop a prototype model



Research Methodology

- Literature review
 - Identify quantitative indicators
- Questionnaire Survey
 - Determine importance of criteria & quantitative indicators
 - Establish baseline and target levels
- Prototyping
 - Model design and development



Performance Levels



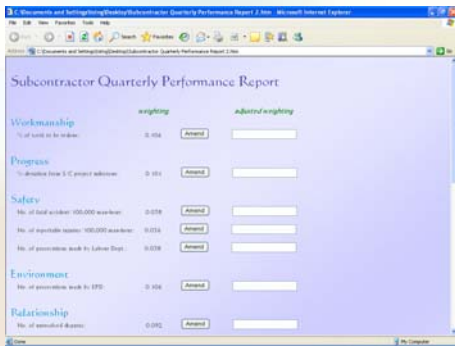
Conceptual Scorecard

Criteria	Poor	Acce	Ave	Good	Exc	Weighting	Score
	10	30	50	70	90		
Workmanship							
% of work that has to be redone	>4.25	4.25	3.42	2.58	<1.75	0.106	30
Progress							
% deviation from S/C's project milestones	>7.13	7.13	6.05	4.96	<3.88	0.101	70
Safety							
No. of fatal accidents per 100,000 man-hour	>0.63	--	--	--	<0.63	0.038	90
No. of reportable injuries per 100,000 man-hr	>1.4	1.4	1.32	1.23	<1.15	0.036	
No. of prosecutions made by Labour Dept	>0.13	--	--	--	<0.13	0.038	

Prototype Model



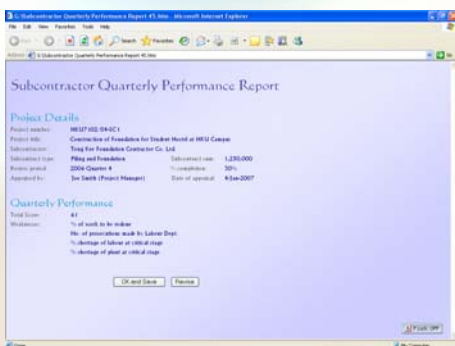
Prototype Model



Prototype Model



Prototype Model



Conclusions

- The industry is more conscious on the project performance
 - Subcontractors are accepting more in responsibilities and risk
 - Contractors encounter difficulties in managing subcontractors
- Subcontractor appraisal has not been undertaken seriously enough
 - Considered as additional paper work

Conclusions

- Greater attention should be placed on subcontractor performance
- A balanced scorecard framework can be derived
- S/C performance appraisal can be conducted on-line
- Exchange of data on subcontractor performance is possible

Thank you

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