

THE USAGE OF BALANCED SCORECARD IN EVALUATING THE EFFECTIVENESS OF CONTRACTOR PERFORMANCE APPRAISALS IN HEAVY OIL OPERATING UNIT OF PT. CDE

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Abstract. This paper aims to evaluate the effectiveness of existing Contractor Performance Appraisal (PA) in Heavy Oil Operating Unit (HOOU) of PT CDE by using Balanced Scorecard (BSC) and to propose improvement to address the gaps associated with the PA process. PT CDE uses two types of appraisal that is conducted periodically; Contractor Safety Health Environment and Management (CSHEM), and Performance Appraisal Form F100. This evaluation finds that the current PA practice does not demonstrate contribution to HOOU's performance especially in the Capital Stewardship performances targets in BSC 2013. The 2013 scores in HOOU's BSC indicate that the appraisal F.100 results are only echoing the scores in BSC. Further study of BSC and Key Performance Indicators (KPI) for construction is recommended and additional application of assessment tool with leading indicators performance is required in complement to F.100. More over it is required for HOOU to develop a web based application for construction management. Those tools must be aligned with strategic goals of HOOU. This paper adds value to the existing body of knowledge and offers insights for practitioners and researchers.

Keywords: Contractor Performance Appraisal (PA), Balanced Scorecard (BSC), Key Performance Indicators (KPI) Capital Stewardship

1. Introduction

PT CDE is Oil and Gas Company, a Contractor for Production Sharing Contract (PSC) of Special Task Force for Upstream Oil and Gas Business Activities (SKK Migas) an institution established by the Government of the Republic of Indonesia. In doing its obligation to SKK Migas, PT CDE utilizes services provided by other Business Partners (Contractors). The procurement of services is regulated by SKK Migas under PTK-007 regulation and requires periodic contractor's performance appraisals and reporting to SKK Migas.

One of the key objectives for PT CDE is to have a formal (legal) Contractor performance documentation that can be used to apply the appropriate sanction to non-performing Contractor, in compliance to PTK-007 regulation. This will also address requirement from corporate standardized process to meet Operational Excellence (OE) expectation and to avoid doing business with non performing Contractors. The objectives of performance appraisals for PT CDE are:

- Select well performed contractor to be the preferred business partner.
- Better manage current business and anticipate future contracts. Evaluation of current and past performance increases the likelihood of successful future contract performance.
- To maximize improvement opportunity of contractor's competency, to improve the management and delivery of products and services, and to improve communications

The business partners or contractors performance appraisals are conducted in regular basis using CSHEM review and Contractor Performance Appraisal F.100.

This paper aims to evaluate the effectiveness of Contractor Performance Appraisal F.100 in Heavy Oil Operating Unit (HOOU) of PT CDE by using Balanced Scorecard (BSC) and to propose improvement to address the gaps associated with the process. Some terms, figures and numbers provided in this paper are slightly changed or hidden to comply with company's policy in data protection.

2. Conceptual framework

2.1. Theoretical foundation

Niven (2002) quotes a saying from William Thompson (Lord Kelvin), 1824–1907, “When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind.”

The Balanced Scorecard (BSC) provides managers with the instrumentation they need to navigate to future competitive success. The Balanced Scorecard translates an organization's mission and strategy into a comprehensive set of performance measures that provides the framework for a strategic measurement and management system, Kaplan & Norton (1996).

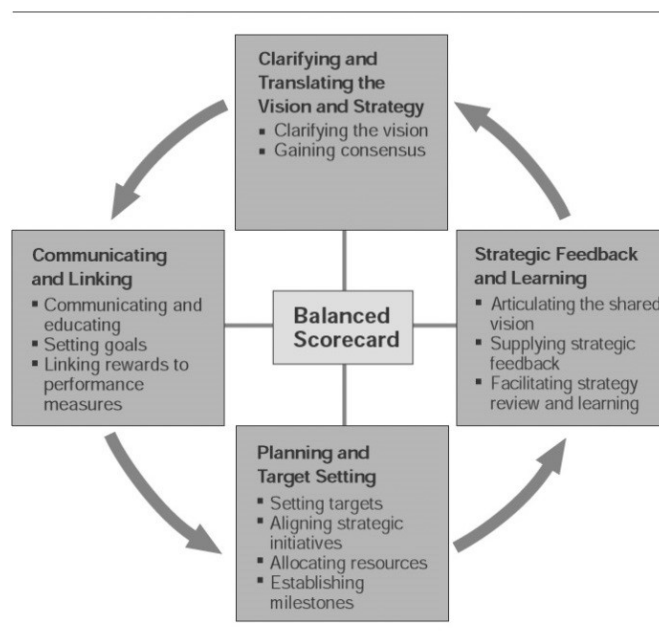


Fig. 1: The Balanced Scorecard as a Strategic Framework for Action Source: Robert S. Kaplan and David P. Norton, "Using the Balanced Scorecard as a Strategic Management System," *Harvard Business Review* (January-February 1996).

PT CDE uses balanced scorecard in translating corporate's mission and strategy into a comprehensive set of performance measures for financial and non-financial targets. In executing company's strategy, PT CDE utilizes its business partners or contractors. The effective contractor management is one of company's strategic goals in Capital Stewardship focus that is involving cross function team in PT CDE. The contractor's performance is evaluated regularly using two appraisal tools.

For Safety Health and Environment (SHE) performances, PT CDE uses CSHEM review that is conducted minimum three times for each contractor: Pre-Job Review, Work-in-Progress Engagements, and End-of-Contract Evaluations. The metrics used in CSHEM review are related with company's strategic goal in Operational Excellence (OE), which is to "Achieve an Incident and Injury Free Workplace" to become a world class company. The metrics in PT CDE's BSC are in the Operational Excellence section. The results of CSHEM review can be used for both as leading and lagging indicators of OE performances.

The other PA is F.100 appraisal, is aimed to measure the contractor's performance related with objectives of cost, time, and quality. The metrics of these objectives are used in PT CDE's BSC under Capital Stewardship section. The company's strategic goal in Capital Stewardship focus is "More effective contractor management". The F.100 appraisal is conducted every six months and/or at the end

of contract life, and therefore the results can be classified as ‘lagging’ rather than ‘leading’ indicators of performance.

2.2. Chart design of problem solving

As mention before the metrics used in CSHEM review to measure contractor’s performance are related with company’s BSC metrics. This study will not address CSHEM review, however to figure out the metrics used, below is a table of Operational Excellence (OE) metrics of HOOU 2008.

Table 1: An example of OE Metrics

Performance Measure	2008 Target Rate	2008 Actual YTD	
		#	Rate
Days Away From Work (DAFW)			
• Company	0.014 (internal) 0.045 (B plan)	3	0.067
• Contractor		4	0.017
• Workforce (Comp. + Cont.)		7	0.025
Total Recordable Incident (TRI)*			
• Company	0.09 (internal) 0.15 (B plan)	5	0.112
• Contractor		42	0.178
• Workforce (Comp. + Cont.)		47	0.167
Motor Vehicle Crash (MVC)**			
• Company	0.50 (internal) 0.85 (B plan)	7	0.564
• Contractor		27	0.518
•Workforce (Comp. + Cont.)		34	0.527

Note:
 * : fatality, DAPWC, MTC
 ** : Serious, major MVC

The study will be limited to Contractor Performance Appraisal F.100, to evaluate the effectiveness of this appraisal to achieve company’s strategic goal in Capital Stewardship focus that is “More effective contractor management”.

The chart design of problem solving is as below.

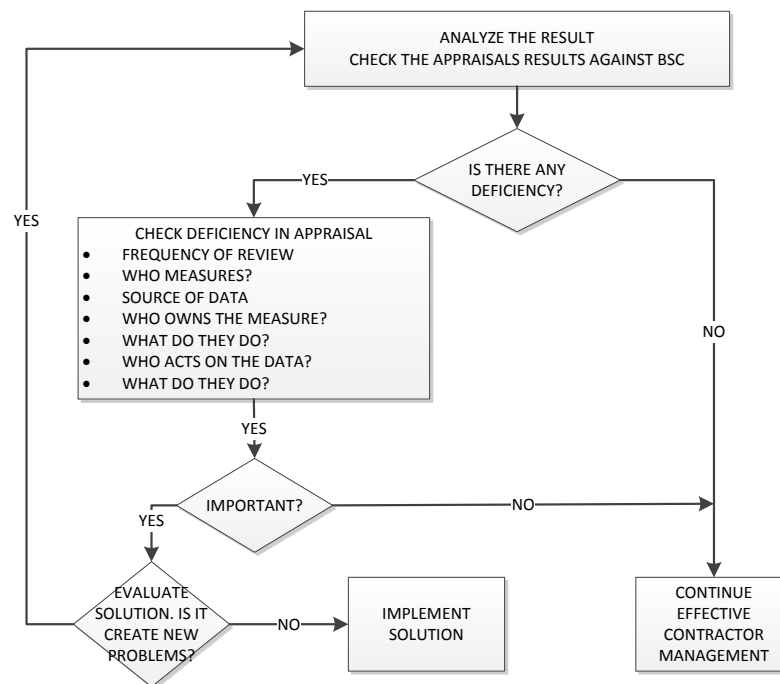


Fig. 2: Chart Design of Problem Solving

3. Methodology

The methodology used for the evaluation begins by giving brief introductory about current process and parties involved in the PA. Moreover, it gives a detail explanation about form F.100, description of the case study used, how data is collected, the types of data used, and finally the problems encountered during the study.

3.1. The Process Flow

The PA process is described in a formal Business Process and Procedure (BPP) P7.3 Joint Contractor Performance Appraisal F.100 & CSHEM Review. Appraisal F.100 is conducted based on PTK-007 as part of PSC’s responsibility to guide/assist Local Supplier. First appraisal period: shall be done within 6 (six) Months after actual Contract Commencement Date. Second and Subsequent appraisal period: Minimum 1 (one) appraisal within 6 months after the latest appraisal (as a discretion of Contract Owner) or at the end of Contract. In the case that Contractor has received Yellow Sanction in previous appraisal, Contract Owner shall determine timeline for next appraisal by considering Fairness to Contractor (provide ample time for Contractor to improve), and business/operational requirements.

The process is starting from Supplier Qualification (SQ) Specialist to remind Contract Owner to conduct Contract Performance Appraisal using form F.100 and CSHEM Interim Review and submit back to SQ Team. Tender Admin Team to Process the result and update Supplier Performance Management (SPM) database.

Detail of process flow including roles and responsibilities of parties involved shown in below figure.

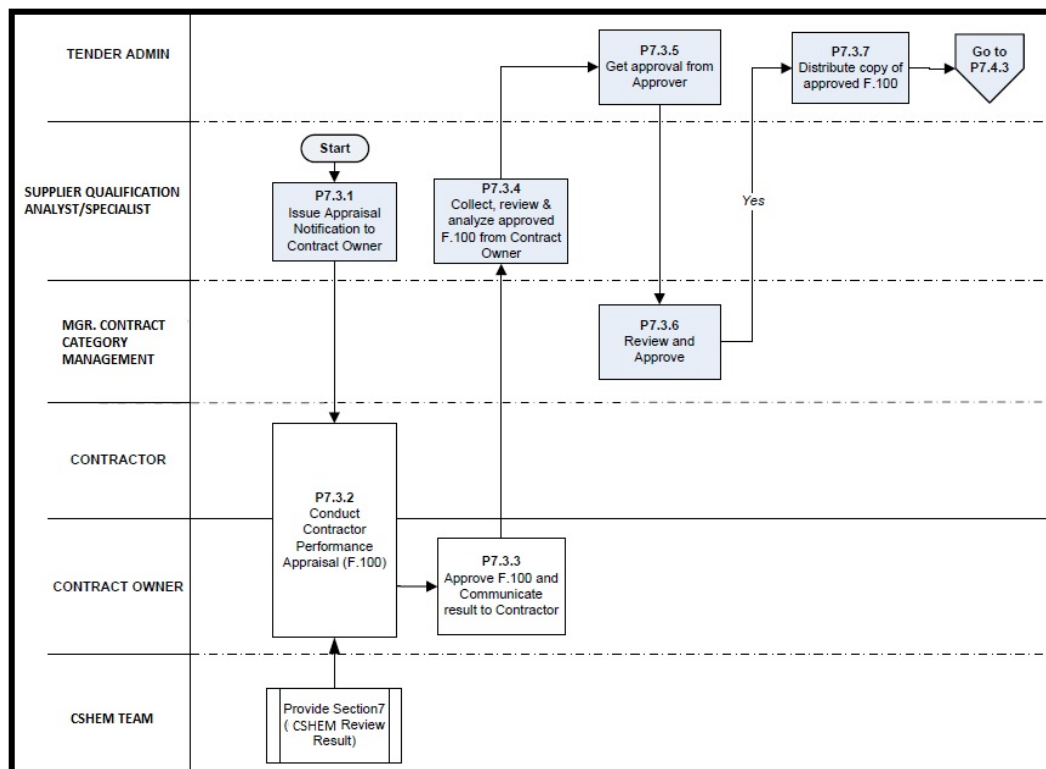


Fig. 3: The Flow Process of Joint Contractor Performance Appraisal F.100 & CSHEM Review

3.2. The Appraisal Form and Rating System

The appraisal form F.100 is consisted of ten sections where the appraisals results as the heart of the form are recorded in section 5. This section is consisted of three main categories:

1. Section 5A: Performance of Work or Services

The fixed four items and ten sub items of performance indicators under this section:

- a. Timeliness with three sub items: Delivery, Work Completion, and Response of Occurred Problem
- b. Management and Supervision with three sub items: Present, Supervision Ability, and Result
- c. Craftsmanship with two sub items: Required Certificate Ownership and Employees ability to carry out his/her task.
- d. Security with two sub items: Security of Company Assets, and Environment Security
- e. Additional item “Others”. This item may be changed by Contract Owner to include other relevant performance indicator.

2. Section 5B: Meeting of Obligation

The fixed five items and eight sub items of performance indicators under this section:

- a. Providing of Requirement Services with two sub items: Providing Service as Mentioned in the Contract, and Quality of Service.
- b. Providing Contractor's Materials with one sub item: Providing Supporting Materials as Mentioned in the Contract.
- c. Providing Contractor's Tools/Equipment with one sub item: Providing Supporting Tools/Equipment as Mentioned in the Contract.
- d. Use of PT CDE Materials with two sub items: Right Usage, and Efficient Usage.
- e. Use of PT CDE Equipment with two sub items: Maintenance of PT CDE Facility, and Maintenance of PT CDE Equipment
- f. Additional item “Others”. This item may be changed by Contract Owner to include other relevant performance indicator.

3. Section 5C: Work Forces Matters.

The fixed four items and nine sub items of performance indicators under this section:

- a. Payment with two sub items: In Accordance w/ Wages Standard for Non-Staff, and On-Time Payment.
- b. Coordination with two sub items: Coordination of Contractor with their employee(s), and Coordination of Contractor with PT CDE.
- c. Communication with two sub items: Communication between PT CDE, Contractor, and their employee(s), and Peaceful Working Environment.
- d. Law and Regulation Compliance with three sub items: Jamsostek/ASKES, Company Regulation, and Business Ethic.
- e. Additional item “Others”. This item may be changed by Contract Owner to include other relevant performance indicator.

In rating the performance, the qualitative assessments are translated to quantitative weighting in five classes: Poor performance, Below Average, Average, Above Average, and Excellent performance.

Table 2: Example of Sub Item’s Evaluation Guidance

Weight :		I = 30	II = 50	III = 70	IV = 85	V = 100
NO.	ITEM	I	II	III	IV	V
5A. PERFORMANCE OF WORK SERVICES						
a	Timeliness	<ul style="list-style-type: none"> Always late More than 6x late during 6 months evaluation period, or Late more than 100% time duration 	<ul style="list-style-type: none"> Occasionally late 4x till 6x late during 6 months evaluation period, or Late more than 50% time duration 	<ul style="list-style-type: none"> Mostly on time 1x till 3x late during 6 bulan evaluation period, or Late more than 20% time duration 	Always on time, or on time with max 5% time duration	Always on time and frequently faster than request, or faster than estimate completion date.
b	Supervision	<ul style="list-style-type: none"> No Supervision Finding more than 3x job without supervision during 6 months evaluation period 	<ul style="list-style-type: none"> Limited Supervision Finding 3x job without supervision during 6 months evaluation period 	<ul style="list-style-type: none"> Sufficient Supervision Finding 2x job without supervision during 6 months evaluation period 	<ul style="list-style-type: none"> Good Supervision Finding 1x job without supervision during 6 months evaluation period 	<ul style="list-style-type: none"> Effective and efficient supervision Job always under supervision
c	Craftmanship	<ul style="list-style-type: none"> Often find unskilled employee or untrained or not having certification/permit as required More than 3x not follow the SOP and/or caused the equipment damage by the carelessness of BP employees during 6 months evaluation period 	<ul style="list-style-type: none"> Sometimes find unskilled employee or untrained or having invalid certificate/permit 3x not follow the SOP and/or caused the equipment damage by the carelessness of BP employees during 6 months evaluation period 	<ul style="list-style-type: none"> Employee moderately have skill and training and having valid certificates/permit 2x not follow the SOP and/or caused the equipment damage by the carelessness of BP employees during 6 months evaluation period 	<ul style="list-style-type: none"> Employees are skilled and trained and having valid certificate/permit 1x not follow the SOP and/or caused the equipment damage by the carelessness of BP employees during 6 months evaluation period 	<ul style="list-style-type: none"> Employee has experience and skill and well trained and having valid certificate/permit Always follow the SOP and keep on good condition of CDE equipment and good job
d	Security	<ul style="list-style-type: none"> Create unsafe environment for CDE assets More than 3x CDE Asset lost during 6 months evaluation period 	<ul style="list-style-type: none"> Do not support safe environment 1x till 3x CDE Asset lost during 6 months evaluation period 	<ul style="list-style-type: none"> Relatively support safe environment for CDE assets No CDE Asset lost during 6 months evaluation period 	<ul style="list-style-type: none"> Support safe environment No CDE Asset lost and maintained during 6 months evaluation period 	<ul style="list-style-type: none"> Create safe environment for CDE No CDE assets lost and well maintained during 6 month evaluation period

3.3. The Sample

This case will focus on an operating unit of PT CDE that is HOOU by zooming down to a department under this unit. The Maintenance and Facility Engineering (MFE) department is chosen for the case study based on consideration of its size: the portfolio of projects and number of contractors working under MFE are the highest among departments under HOOU. Historical BSC of MFE 2013 and Contractor Appraisals result 2013 are used for this study. PT CDE employed four contractors under four years period contract Construction Services Work Unit Rate (CS WUR). The services provided by these CS WUR are site preparation works that basically is civil works, surface facilities construction that are piping and mechanical works, electrical and instruments works. All four CS WUR are utilized by MFE in 2013 to execute its portfolio.

3.4. Data Processing and Analysis

Five appraisals result during 2013 appraisal period are used in this evaluation together with 2013 balanced scorecard of MFE. From MFE’s BSC only Capital Stewardship objective is taken to be analysed together with F.100 results.

Table 3: Capital Stewardship Metrics MFE 2013

OBJECTIVES	CRITICAL SUCCESS FACTORS	MEASURES	UNITS	Responsibility Team (Sharing KPI)	Weighting (%)	2013 Score	Remarks
Capital Stewardship		CSOC Metrics				29	
Effective Projects Portfolio Management	Effective Surface Facilities Planning and Execution of HO Well Development Program projects	Ready For Drilling (RFD-HO Well Program)	YTD 2013 No of RFD (Cumm.)	OE, IM	3	2	Slowing down construction activities due to weathers condition & resources availibilities
			Monthly Average Stock RFD (Year 2013 & before)	OE, IM	3	4.5	
		Well POP after Rig Release (HO Well Program)	No of POP (Cumm)	OE, IM	6	3	Weather condition (rain) that slowing down the construction activities (so muddy & slippery). Mitigation is to provide dedicated equipment (backhoe loader) to continuously dress-up the road and also resource availability
			Cycle time new producers meet rig ready to IM to POP	OE, IM			
		Well POI after Rig Release (HO Well Program)	No of POI (Cumm)	OE, IM	6	3	
			Cycle time new injector meet rig ready to IM to POI	OE, IM			

1. **Analysis on Frequency of Review:** three samples have six month period and two samples have reviewed more than six period. So the minimum frequency of review is every six month.

Table 4: Summary of 2013 Appraisal F.100 Results

CONTRACTORS	CONTRACT PERIOD	APPRAISAL PERIOD	APPRAISAL DATE	OVERAL RATING	DESCRIPTION
CS WUR A	Mar 2009 - Mar 2013	2nd H 2012	07-Mar-13	84.2	ABOVE AVERAGE
	Apr 2013 - Jan 2014	Apr 2013 - Jan 2014	23-Jan-14	75.0	ABOVE AVERAGE
CS WUR B	Jan 2010 - Jan 2014	1st H 2013	21-Agust-13	85.0	ABOVE AVERAGE
CS WUR C	Mar 2010 - Mar 2014	2nd H 2013	20-Feb-14	59.4	BELOW AVERAGE
CS WUR D	May 2010 - May 2014	2nd H 2013 - Feb 2014	24-Mar-14	65.4	AVERAGE

2. **Analysis on Who Measure:** The appraisal attendance lists are used to analyse “who measure”. The Appraisals are lead by Contract Owner with attendee as tabulated below.

Table 5: The Attendee of 2013 Appraisal F.100

CONTRACTORS	APPRAISAL DATE	OVERAL RATING	ATTENDANCE LIST					TOTAL
			CONTRACT OWNER	CSHEM TEAM	USER	CONTRACTOR	BP PROJECT CONTROL	
CS WUR A	07-Mar-13	84.2	N/A					N/A
	23-Jan-14	75.0	1	1	2	7	2	13
CS WUR B	21-Agust-13	85.0	2	0	0	8	0	10
CS WUR C	20-Feb-14	59.4	3	0	4	11	0	18
CS WUR D	24-Mar-14	65.4	3	0	4	8	0	15

3. **Analysis Source of Data:** During appraisal session, only contractor provided data by presenting slides of their achievement during the period. After presentation session, the contractor is evaluated with questions on section 5 of the F.100. The rating based on user, and supervision business partner perspective about the contractor. So the appraisal is very sensitive to the data provided by the appraiser. Unfortunately the user and business partner provide ratings without backup of written formal documents.
4. **Analysis on Owner of the Process and They Roles and Responsibilities:**
 - a. Supplier Qualification Specialist under a sub team of Supply Chain Management team:
 - Issue reminder to conduct Joint CSHEM and F.100 Appraisal of Contract Implementation to Contract Owner.
 - Assist/guide Contract Owner on how to fill out F.100 and the appraisal process.
 - Collect, review and analyse approved F.100 from Contract Owner and submit the result to Tender Admin.
 - b. CSHEM Team:
 - Provide Latest CSHEM Interim Review Score for the Contractor.
 - Assist/guide Contract Owner on how to conduct CSHEM Interim Review.
 - c. Contract Owner:
 - Conduct Joint Appraisal F.100 and CSHEM Interim Review with Contractor.
 - Obtain signatures from Contractor Representative and Contract owner Manager and submit signed F.100 form to SQ Specialist.
 - d. Tender Admin Team:
 - Get approval of F.100 from Manager; distribute Copy of approved F.100 to Contract Owner & Contractor and Update SPM database.

5. **Analysis on F.100 results related with MFE’s BSC:** related with who act on the data and what they do, below is the remarks on the F.100 for contractor with “Below Average” performance. The Contract Owner communicates the result to SQS team and warning letter will be issued to the Contractor. Strategic feedback is provided for future improvements. However in relating with MFE’s BSC, the result of F.100 can only confirm the “Yellow Flags” of 2013 scores. The F.100 can be considered only echoing the lagging indicators on the BSC.

OVERALL (Avg of A,B,C) : 59.39

Remarks: Refer to [REDACTED] letter No 2097/JKT/2014 to [REDACTED] President Director on 4 February 2014

Below average on performance of works or services.

Violation to the contract on the Sub-contracting provision

Failure to provide resources with unacceptable reason

Failure to complete Work Order in timely manner

Delays in supplying goods/services two (2) times within a year in accordance with the provisions in the previously agreed agreement, which are not fatal for the Cooperation Contract Contractor's operations. The standards on tolerable limits to delays shall be determined separately by the Cooperation Contract Contractor

Being unable to supply the goods/services in accordance with the provisions in the previously agreed agreement with consequences that are not fatal for the Cooperation Contract Contractor's operations

<p style="text-align: center; font-size: small;">Company Representative</p> <p style="font-size: x-small;">obc 24/2/14</p> <p style="font-size: x-small;">Name: [REDACTED]</p>	<p style="text-align: center; font-size: small;">Contractor Representative</p> <p style="font-size: x-small;">24/2/14</p> <p style="font-size: x-small;">Name: [REDACTED]</p>
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Fig. 4: Remarks on F.100 result

4. Research Finding and Solution of Problems

4.1. Findings

The first finding related with F.100 is the Contractors do not have and manage BSC or KPI, however for CSHEM review they have and maintain the same performance measure that align with Operational Excellence strategic goal of HOOU.

The other findings are;

- The frequency of review that is conducted every six months might be considered enough only for long term contract. The second half appraisals were conducted after year end, so the results only represent “lagging indicator” following the end year BSC scores of MFE.
- The number of appraiser as the key person that attending the appraisal session is considered not enough to give accurate information for justification and clarification and they were attending without written formal documents or record of contractor’s performance.

ATTENDANCE LIST

CS WUR B [REDACTED] Appraisal 1 H 2013
Teladan CR C, 21 August 2013

No.	NAME	TITLE	EMAIL	SIGN
1.	[REDACTED]	[REDACTED] Gtl	[REDACTED]	[REDACTED]
2.	[REDACTED]	[REDACTED] Gtl	[REDACTED]	[REDACTED]
3.	[REDACTED]	[REDACTED] Constr.	[REDACTED]	[REDACTED]
4.	[REDACTED]	[REDACTED] Pm	[REDACTED]	[REDACTED]
5.	[REDACTED]	[REDACTED] Gtl	[REDACTED]	[REDACTED]
6.	[REDACTED]	HSE Suptd	[REDACTED]	[REDACTED]
7.	[REDACTED]	PC	[REDACTED]	[REDACTED]
8.	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
9.	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
10.				

Fig. 5: Lack of appraiser

- The CSHEM team only appeared one time in the attendance list of all samples. The latest CSHEM Interim Review Score for the Contractor that should be recorded in the F.100 is absent in all samples.

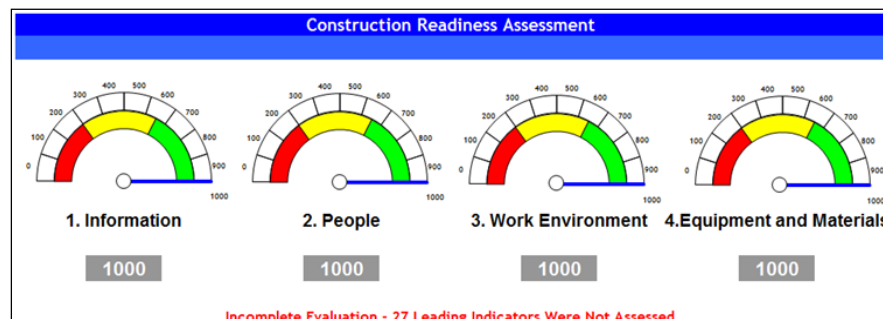
Lain-Lain						
					Average / Rata-Rata SC	75.6
					OVERALL	75.0
(6) RATING / Penilaian						
SCORE	EXCELLENT Baik Sekali >90-100	ABOVE AVERAGE Diatas Rata-Rata >75-90	AVERAGE Rata-Rata >60-75	BELOW AVERAGE Dibawah Rata-Rata >40-60	POOR Kurang 0-40	
ITEM 5A	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ITEM 5B	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ITEM 5C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
OVERALL	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(7) CHESM INTERIM PERFORMANCE REVIEW / Hasil penilaian berkala CHESM						
Score / Rating :					CHESM Representative	
Date :						

Fig. 6: The CSHEM representative in F.100

4.2. Solution of problems

Traditional methods and their measures may not adequately identify issues that may exist, such as lack of sufficient identification of warning signs of potential project failure, lack of a method for showing that a project is on the right track, and lack of connectors that can fill the gaps between these traditional measures and the degree to which the project is “on-the-right-track.” It may be that current methods lack of ability to provide real-time indications of emerging problems that impact project outcomes in a timely manner (CII 2006). Solutions of problems are:

- BSC is just not specific enough to stand alone as a performance measurement tool (Barr 2010). BSC is considered give no room for benchmarking and learning growth perspectives, creates confusion in practice mainly due to multiple interpretation and application of measurement methods (Wibisono 2012). Further study is required to adopt a ‘key performance indicators’ (KPIs) for construction that must be implemented to existing and future contracts in complement to the limitation of BSC. The proposed KPIs should be aligned with Capital Stewardship strategic goal of HOOU. This will eliminate the gap of first finding.
- For short term action to increase effectiveness and efficiency of Contractor Performance Appraisal it is required for PT CDE to implement tools that can introduce “leading indicators” in project basis assessment. The frequencies of review are minimum three times; before, during, and after project execution. Any finding in these assessments can be used as input for F.100 appraisal event. Below figure are example of tools that can be utilized by MFE immediately since they are available in corporate’s project resources company.



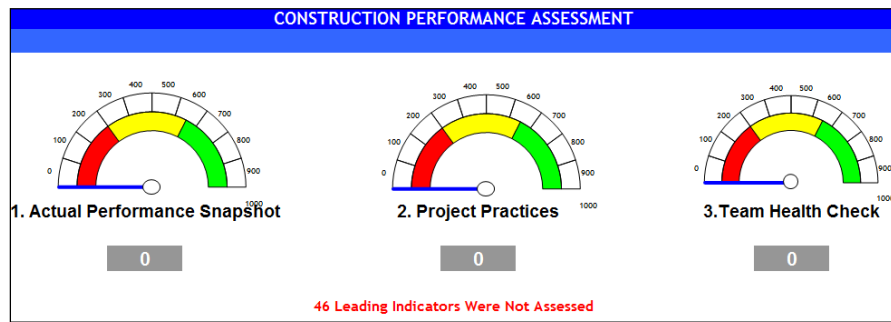


Fig. 7: Assessment tools with leading indicators for construction

- For long term strategy to eliminate the other findings, PT CDE is required to develop an “Integrated Construction Management System”. This could be a Web Based Application that can be accessed by Contract Owner, CSHEM Team, Users, Project Control of Seconded Business Partner, and Contractors. Other alternative is to upgrade the current Contractor Cost Management System (CCMS) that has been implemented in PT CDE since 2008. The CCMS currently managed by Contract Owner and can be accessed by Contractor, User, and Project Control of Seconded Business Partner.

5. Discussion and Recommendation

The objectives of contractor performance appraisals for PT CDE as mention earlier in this paper can’t be achieved by only deploying CSHEM and F.100 to HOOU. The current CSHEM review is only good for Operational Excellence strategic focus as it provides leading and lagging indicators of contractor’s SHE performances to HOOU. The BSC of HOOU that is reviewed monthly can use CSHEM interim review to select well performed contractor to be the preferred business partner in achieving Operational Excellence strategic goals.

However for the Capital Stewardship strategic focus which requires assessment of contractor’s readiness and performance before, during, and after executing the projects, it requires new tools with leading indicators of contractor’s performance to be implemented with F.100 appraisal.

In this paper, further study of BSC and KPI for contractor is recommended. New tools such as “Construction Readiness Assessment” and “Construction Performance Assessment” are introduced and are recommended to be implemented as soon as possible. For long term action, PT CDE or its operation unit HOOU is recommended to develop a web based application, an “Integrated Construction Management System”. By doing these recommendations the objectives of contractor performance appraisal can be achieved.

6. References

- [1] Barr, S (2010), “Why the Balanced Scorecard IS NOT a KPI Measurement Tool”, <<http://kpilibrary.com/topics/why-the-balanced-scorecard-is-not-a-kpi-measurement-tool>> (accessed on June 30, 2014).
- [2] Construction Industry Institute (2006), “Project Health Indicator Tools: Assessing Project Health during Project Execution”, CII IR220-2, pp 1.
- [3] Kaplan, Robert S., and David P. Norton. (1996), "Chapter 1 - Measurement and Management in the Information Age". The Balanced Scorecard: Translating Strategy into Action. Harvard Business Press. Books24x7. <<http://common.books24x7.com/toc.aspx?bookid=2415>> (accessed June 30, 2014).
- [4] Niven, Paul R (2006) "Chapter 1 - Performance Measurement and the Need for a Balanced Scorecard". Balanced Scorecard Step-by-Step: Maximizing Performance and Maintaining Results, Second Edition.

John Wiley & Sons. Books24x7. <<http://common.books24x7.com/toc.aspx?bookid=16869>> (accessed June 30, 2014)

- [5] Wibisono, D (2012), “How to Create a World Class Company: Panduan Bagi Manajer dan Direktur”, Penerbit PT Gramedia Pustaka Utama, Jakarta, pp 353.