Performance Measurement in Facility Management Department Using Balanced Score Card at PT. XYZ

Tony Nurdiansyah School of Business & Management, Bandung Institute of Technology (ITB) Jl. Ganesha 10 Bandung 40132, Indonesia Email: tony.nurdiansyah@sbm-itb.ac.id

Abstract

Leading organizations have been using Balanced Score Card to strategically measure the financial and non-financial performance of different operational functions within their firms. Facility Management (FM) is a discipline involving a variety of non-core operations and maintenance services to support the main business of an organization. To support business continuity, Facility Management team has to execute job related to the building maintenance and management, food services, gardening, cleaning, logistic, etc. In order to maintain performance meet with expectation in the field of Facility Management, the Balanced Score Card concept is already implemented in PT. XYZ, however the concept is not well developed and implemented. This paper will propose comprehensive Balanced Score Card concept to enhance organization performance at Facility Management of PT. XYZ.

Keyword:

Facility Management, Performance Measurement, Balanced Score Card

1. Introduction

The Balanced Score Card is strategic planning and management system_that is used extensively in business and industry, government, and nonprofit organizations worldwide to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organization performance against strategic goals. It was originated by Robert Kaplan and David Norton as a performance measurement framework that added strategic non-financial performance measures to traditional financial metrics to give managers and executives a more 'balanced' view of organizational performance. The Balanced Score Card has evolved from its early use as a simple performance measurement framework to a full strategic planning and management system. The "new" Balanced Score Card transforms an organization's strategic plan from an attractive but passive document into the "marching orders" for the organization on a daily basis. It provides a framework that not only provides performance measurements, but helps planners identify what should be done and measured. It enables executives to truly execute their strategies.

This new approach to strategic management was first detailed in a series of articles and books by Kaplan and Norton. Recognizing some of the weaknesses and vagueness of previous management approaches, the Balanced Score Card approach provides a clear prescription as to what companies should measure in order to 'balance' the financial perspective. The Balanced Score Card is a management system (not only a measurement system) that enables organizations to clarify their vision and strategy and translate them into action. It provides feedback around both the internal business processes and external outcomes in order to continuously improve strategic performance and results. When fully deployed, the Balanced Score Card transforms strategic planning from an academic exercise into the nerve center of an enterprise.

PT. XYZ is leading company in oil and gas industry in Indonesia that operates its business spread out in some island in Indonesia, including Sumatera, Java, Kalimantan and many others. As worldwide company, PT. XYZ has facilities that provide camp life for employees to support day to day operation. The camp is the center for working, socializing and children's schooling. There are houses for nationals and expatriates, guesthouses and temporary accommodation for visitors and those on short-term work assignments. Various services are available in camp to provide for everyday needs. These include a commissary, banks, post office, gas station and fire station. Water and power are all company provided. Internet access is available, through a service provider at dial-up speed. Recreational facilities inside the camp include a swimming pool, gym, tennis courts, an 18-hole golf course, bowling alley, soccer fields, and squash and basketball courts. In addition, there are mosques and churches with regular services of worship. All facilities are maintained by Facility Management Department. Facility Management consists of Business Support, General Services, Building Maintenance, Housing Maintenance, Outdoor Maintenance, and Industrial Health. The main function is to maintain its facilities and improve its services to get customer satisfaction. Following is the detail of main job for each sub department:

	Facility M	lanagement Dep	partment by Sub	Dept Function	
Sub Dept	Building	Business	General	Outdoor	Industrial
	Office &	Support	Services	Maintenance	Health
	Housing				
	Maintenance				
Job	Maintain and	Administration	Accommodation	Maintain and	Control:
Function	repair: House,	and Control,	Services,	Cleaning:	Industrial
	office, and	Planning and	Office Services,	Golf Course	Hygiene,
	public	Budgeting	Food Services,	Road	consulting
	building,	Coordination,	Packing and	Traffic sign	Environmental
	Refrigeration,	Customer	Moving Services	Plant Nursery	Sanitation,
	Electrical	Services,		Waste	Food and food
	system,	Purchasing,		Management	stuff sampling
	Plumbing	Asset Cycle			analysis
	system,	Inventory,			
	Instrumentatio	Contract			
	n Mechanical,	Monitoring			
	Water treating				
	plant				

Table1. Facility Management Scope of Work

Atkin & Brooks (2000) define Facilities Management (FM) as, "an integrated approach to operating, maintaining, improving and adapting the buildings and infrastructure of an organization in order to create an environment that strongly supports the primary objectives of that organization".

The existing system of score card at PT. XYZ is established trough top down method where the target is given from corporate management. There are four performances to be measured as below:

- 1. Operation Excellent (OE) Metric that consists of activities related to safety performance.
- 2. Financial Metrics; is related to financial spending plan both operation expense budget and capital expense budget.
- 3. Operational Metrics; is related to operational activities in Facility Management.
- 4. Organization Capability; is related to performance measurement for business partner.

The problem raised on the current practices is that in each aspect has no detail score card and doesn't cover all sub functional department and also doesn't meet with the Balanced Score Card perspective that starting from learning and growth, internal/business process, customer and financial.

2. Balanced Score Card Concept.

The Balanced Score Card approach works extremely well for companies that operate under an integrated facilities management. If Company is to survive and prosper in information age competition, they must use measurement and management system derived from their strategies and capabilities (Kaplan & Norton, 1996). Balanced Score Card provides executives with a comprehensive framework that translate a company's vision and strategy into a coherent set of performance measures. The Balanced Score Card should be used as communication, in forming and learning system, not controlling system. The Balanced Score Card suggests that we view the organization from four perspectives, and to develop metrics, collect data and analyze it relative to each of these perspectives. Following are four perspectives in Balanced Score Card:

• Learning and Growth Perspectives.

Learning and Growth Perspectives identifies the infrastructure that the organization must build to create long-term growth and improvement. Organization learning and growth come from three principle sources: people, system, and organization procedures. This perspective includes employee training and corporate cultural attitudes related to both individual and corporate self-improvement. In a knowledge-worker organization, people -- the only repository of knowledge - are the main resource. In the current climate of rapid technological change, it is becoming necessary for knowledge workers to be in a continuous learning mode. Metrics can be put into place to guide managers in focusing training funds where they can help the most. In any case, learning and growth constitute the essential foundation for success of any knowledge-worker organization.

Kaplan and Norton emphasize that 'learning' is more than 'training'; it also includes things like mentors and tutors within the organization, as well as that ease of communication among workers that allows them to readily get help on a problem when it is needed

• Internal Business Process Perspectives Internal Business Process Perspectives identify the critical internal business process in which the organization must excel. Metrics based on this perspective allow the managers to know how well their business is running, and whether its products and services conform to customer requirements (the mission). These metrics have to be carefully designed by those who know these processes most intimately; with our unique missions these are not something that can be developed by outside consultants. • Customer Perspective

Customer perspective identify the customer and market segment in which business unit will compete and the measures of the business unit's performance in these targeted segments. Recent management philosophy has shown an increasing realization of the importance of customer focus and customer satisfaction in any business. These are leading indicators: if customers are not satisfied, they will eventually find other suppliers that will meet their needs. Poor performance from this perspective is thus a leading indicator of future decline, even though the current financial picture may look good.

• Financial Perspective

Financial performances measures indicate wheatear a company strategy, implementation, and execution are contributing to bottom line improvement. Financial objectives typically related to profitability – measured.

Following is strategic map of Balanced Score Card:

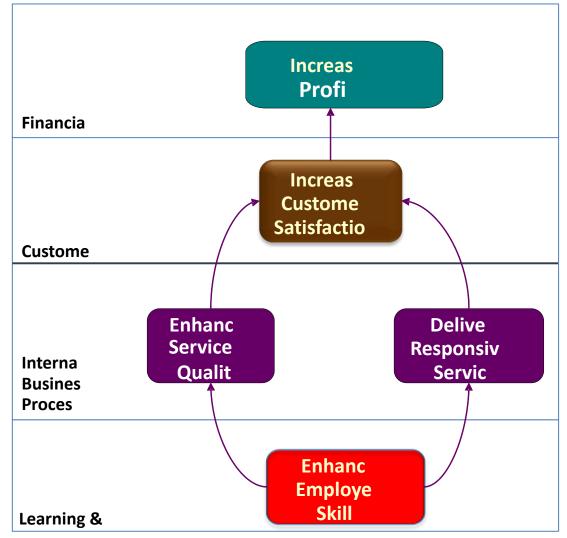


Fig1. BSC Strategy Map

The primary focus of the Balanced Score Card is on translating the organization's strategy into measurable goals. Having understood what is important for the business, performance measures are designed to monitor performance and targets are set up for improvement.

3. Performance Measurement : Current Score Card

To ensure that all activities under Facility Management Team are well implemented and meet with customer expectation, Performances Measurement System must be implemented. The existing performance measurement system in Facility Management Team in PT. XYZ is already implemented through Balanced Score Card approach. Following is the existing score card in Facility Management team:

a. Building Office and Housing Maintenance

Maintenance team has scope of work to maintain and repair house, office, public building, refrigeration, electrical system, plumbing system, instrumentation, mechanical and water treating plant. Following is the detail score card:

No	Measure	Definition	РМ	SG	Weigh t (%)
OE	Metrics				40
1	Fatality	Number of Fatality	0	0	5
2	DAFW	Number of DAFW	0	0	5
3	TRI	Number of TRI	0	0	5
4	MVC	Number of MVC	0	0	5
5	BBS Observation	Number of observations (2*12*Number of Employee)	288	317	5
6	Leadership Behavior Matrices (LBM)	Number of Visit to Operation (Minimum 12 LBM per year per Leader (GL,TL,TM,Mgr)	48	53	5
7	Work Page Break Compliance	Percentage of Work Page Break Compliance	95%	100%	5
8	Hazard Hunt	Number of Hazard Identification and Reported (Min.3/month/Team for Operation Team and 1/month/Team for Office Team)	144	158	5
Fina	ancial Metrics				20
9	OEB Gross	OEB net (\$MM)			10
10	CEB	Approved CEB to spend (\$MM)			5
11	AFE Closed	Percentage of Projects closed within 4 months from completion date	100%	100%	5
Ope	erational Metrics				30
12	Service Ability of Electrical, Plumbing and Air Condition work for Vacant Houses	Percentage of Electrical, Plumbing, and AC are Completed meet Schedule of Housing Renovation	90%	95%	5
13	Project Mile stone	Percentage of Completion Project	80%	88%	2.5
14	Work Order (DIWO and Regular)	(Number of WO Completed than /number of Incoming WO) x 100%.	80%	90%	2.5
15	MTBF of Central and Split/Window Air Condition	Mean Time Between Failure of Central and Split/Window Air Condition In days	90	100	5
17	MDT of Central and Split/Window Air Condition	Mean Down Time of Central and Split/Window Air Condition In days	1	0.5	5
18	Equipment Utilization Rate	Equipment Utilization/ Applied hrs (5 hrs/ working days)> Genie Equipment and Jet Pump	80%	88%	2.5

19	FM Service Satisfaction	% of WAAL/Customer Feedback scoring H and M vs Total	75%	85%	2.5
20	Lean Sigma	Complete to Conduct 8 (Eight) Lean Sigma	1	2	5
Org	anizational Capability				10
21	CHESM WIP	Total successful Conduct CHESM WIP	8	9	5
22	Appraisal (F-100)	Total successful Conduct Contractor Appraisal	8	9	5
ΤΟΤ	TAL SCORE				100

b. Business Support

Business Support Administration and Control has main job for planning and budgeting Coordination, purchasing and contract development. Following is the detail score card:

No	Measure	Definition	РМ	SG	Weight (%)
OE I	Metrics				40
1	Fatality	Number of DAFW	0	0	5
2	DAFW	Number of TRI	0	0	5
3	TRI	Number of MVC	0	0	5
4	MVC	Number of observations (2*12*Number of Employee)	0	0	5
5	BBS Observation	Number of Visit to Operation	120	132	5
6	Leadership Behavior Matrices (LBM)	Percentage of Work Page Break Compliance	12	13	5
7	Work Page Break Compliance	Number of Attendance Monthly HES Meeting	95%	100%	5
8	Hazard Hunt	Number of Attendance Weekly Meeting	180	198	5
Fina	Incial Metrics				20
9	OEB Gross (\$.MM)	OEB Nett (\$MM)	0.63	0.57	10
10	CEB	Approved CEB to spend (\$MM)	0.00	0.00	5
11	AFE Closed	Percentage of Projects closed within 4 months from completion date	100%	100%	5
Ope	rational Metrics				30
12	General Material Service availability	Percentage of Available Material Compare to Requested	90%	95%	5
13	Furniture & Housing Appliances Service availability for Vacant Housing	Percentage of Available Furniture & Housing Appliance Compare to Total Vacant Houses are Ready	90%	95%	5
14	Fixed Asset Management (inventory / Tagging)	Percentage of Completing Inventory / Tagging	85%	90%	5
15	Call Pick Up time	Total successful call must be pickup within 6 seconds	87%	95%	5
16	Successful Call Ratio (SCR)	Percentage of call user successfully handled by FM Customer Service (>90% from total incoming phone call)	90%	99%	5
17	WO Management	Number of COMMIT and JDE Work Request completed compare to total of incoming successful call, request by emails, oral request	90%	95%	2.5

18	Lean Sigma	Complete to Conduct 1 (one) Lean Sigma	1	2	2.5
Org	anizational Capability				10
19	Appraisal (F-100)	Total successful Conduct Contractor Appraisal	2	3	10
ΤΟΤ	AL SCORE				100

c. General Services

General services has main job to provide accommodation services, provide room cleaning and setting, room reservation, laundry Services, provide office cleaning and setting, office furniture, office sanitation, meeting equipment, food services, packing and moving Services

No	Measure	Definition	РМ	SG	Weight (%)
	Vetrics				40
	1	Number of DAEW	0	0	
1	Fatality DAFW	Number of DAFW Number of TRI	0	0	5
2 3	TRI	Number of MVC	0	0	5 5
4	MVC	Number of observations (2*12*Number of Employee)	0	0	5
5	BBS Observation	Number of Visit to Operation	120	132	5
6	Leadership Behavior Metrics (LBM)	Percentage of Work Page Break Compliance	12	13	5
7	Work Page Break Compliance	Number of Attendance Monthly HES Meeting	95%	100%	5
8	Hazard Hunt	Number of Attendance Weekly Meeting	180	198	5
Fina	Incial Metrics				20
9	OEB Gross (\$.MM)	OEB Nett (\$MM)	0.63	0.57	10
10	CEB	Approved CEB to spend (\$MM)	0.00	0.00	5
11	AFE Closed	Percentage of Projects closed within 4 months from completion date	100%	100%	5
Ope	rational Metrics				30
12	General Material Service availability	Percentage of Available Material Compare to Requested	90%	95%	5
13	Furniture & Housing Appliances Service availability for Vacant Housing	Percentage of Available Furniture & Housing Appliance Compare to Total Vacant Houses are Ready	90%	95%	5
14	Fixed Asset Management (inventory / Tagging)	Percentage of Completing Inventory / Tagging	85%	90%	5
15	Call Pick Up time	Total successful call must be pickup within 6 seconds	87%	95%	5
16	Successful Call Ratio (SCR)	Percentage of call user successfully handled by FM Customer Service (>90% from total incoming phone call)	90%	99%	5
17	WO Management	Number of COMMIT and JDE Work Request completed compare to total of incoming successful call, request by emails, oral request	90%	95%	2.5
18	Lean Sigma	Complete to Conduct 1 (one) Lean Sigma	1	2	2.5

Orga	anizational Capability				10
19	Appraisal (F-100)	Total successful Conduct Contractor Appraisal	2	3	10
ТОТ	AL SCORE				100

d. Outdoor Maintenance.

No	Measure	Definition	РМ	SG	Weight (%)
OE N	letrics				40
1	Fatality	Number of Fatality	0	0	5
2	DAFW	Number of DAFW	0	0	5
3	TRI	Number of TRI	0	0	5
4	MVC	Number of MVC	0	0	5
5	BBS Observation	Number of observations (2*12*Number of Employee)	96	106	5
6	Leadership Behavior Matrices (LBM)	Number of Visit to Operation (Minimum 12 LBM per year per Leader (GL,TL,TM,Mgr)	48	53	5
7	Work Page Break Compliance	Percentage of Work Page Break Compliance	95%	100%	5
8	Hazard Hunt	Number of Hazard Identification and Reported (Min.3/month/Team for Operation Team and 1/month/Team for Office Team)	144	158	5
Fina	ncial Metrics				20
9	OEB Gross	OEB Nett (\$MM)			10
10	СЕВ	Approved CEB to spend (\$MM)			5
11	AFE Closed	Percentage of Projects closed within 4 months from completion date	100%	100%	5
Oper	rational Metrics				30
12	Service Ability of Outdoor Facilities work for Vacant Houses	Percentage of Outdoor Facilities are Completed meet Schedule of Housing Renovation	90%	95%	5
14	Project Mile stone	Percentage of Completion Project	80%	88%	5
15	Work Order (DIWO and Regular)	(Number of WO Completed than /number of Incoming WO) x 100%.	80%	90%	5
16	Equipment Utilization Rate	Equipment Utilization/ Applied hrs (5 hrs/ working days)> Manitou Equipment, Back Hoe Loader and Crane Truck	80%	88%	5
17	FM Service Satisfaction	% of WAAL/Customer Feedback scoring H and M vs. Total	75%	85%	5
18	Lean Sigma	Complete to Conduct 8 (Eight) Lean Sigma	1	2	5
Orga	nizational Capability				10

19	CHESM WIP	Total successful Conduct CHESM WIP	4	5	5
20	Appraisal (F-100)	Total successful Conduct Contractor Appraisal	4	5	5
TOT	AL SCORE				100

e. Industrial Health

Industrial heal has main job to control industrial environment, environmental sanitation and industrial hygiene. Following is the detail scorecard:

No	Measure	Definition	РМ	SG	Weight (%)
OE	Metrics				40
1	Fatality	Number of Fatality	0	0	5
2	DAFW	Number of DAFW	0	0	5
3	TRI	Number of TRI	0	0	5
4	MVC	Number of MVC	0	0	5
5	BBS Observation	Number of observations (2*12*Number of Employee)	168	185	5
6	Leadership Behavior Matrices (LBM)	Number of Visit to Operation (Minimum 12 LBM per year per Leader (GL,TL,TM,Mgr)	48	53	5
7	Work Page Break Compliance	Percentage of Work Page Break Compliance	95%	100%	5
8	Hazard Hunt	Number of Hazard Identification and Reported (Min.3/month/Team for Operation Team and 1/month/Team for Office Team)	144	158	5
Fina	ancial Metrics				20
9	OEB Gross	OEB Nett (\$MM)			10
10	CEB	Approved CEB to spend (\$MM)			5
11	AFE Closed	Percentage of Projects closed within 4 months from completion date	100%	100%	5
Ope	rational Metrics				30
12	Industrial Hygiene and Sanitation Inspection	Percentage of Conducting Inspection meet Schedule Inspection	90%	95%	5
13	Incinerator Operation Compliances	Compliance of Incinerator Operation 99,99%	100%	100%	5
14	Municipal Operation Compliances	Compliance of MSWMF Operation	100%	100%	5
15	Stray Dog in Camp	Percentage of Captured Stray Dog Found in Camp vs Total Reported	85%	90%	5
16	Work Order (DIWO and Regular)	(Number of WO Completed than /number of Incoming WO) x 100%.	80%	90%	2.5
17	FM Service Satisfaction	% of WAAL/Customer Feedback scoring H and M vs Total	75%	85%	2.5
18	Lean Sigma	Complete to Conduct 8	1	2	5

		(Eight) Lean Sigma			
Org	anizational Capability				10
19	CHESM WIP	Total successful Conduct CHESM WIP	2	3	5
20	Appraisal (F-100)	Total successful Conduct Contractor Appraisal	2	3	5
TOT	AL SCORE				100

4. Research Methodology

The research methodology conducts through problem identification, data analysis, existing score card analysis, assessment to identify the problem on implementing Balanced Score Card, and propose improvement in Balanced Score Card. The main purpose and outcome of this was to identify theoretical gaps in the literature relating to performance measurement in Facility Management. Following is the research methodology flow process:

Problem Identification	Existing Balanced Score Card is not captured
	critical aspect in Facility Management
	operation
Research Objective	Develop improvement in current score card
5	using Balaced Score Card Approach
Data collection and	Data monthly performance, and conduct
analysis	interview to employee and management
	\Box
Existing score card	Literature review of the Balanced Score Card
analysis	
ja a	
Propose improvement	Mapping of weighting involvement of each
in Balanced Score Card	perspective in each department
	r ··· · · · · · · · · · · · · · · · · ·
Recommendation	Score card recommendation to enhance
	organizational performance
Eig 2 Da	escarch methodology

Fig.2. Research methodology

5. Research Finding

From the existing score card in PT. XYZ, shown that the concept of Balanced Score Card has been implemented with modification as per company and Department business strategy. Following is comparison between existing score that has been used by Facility Management and Balanced Score Card frame work by Kaplan:

Description based on BSC Perspectives	Existing score card	Finding
Financial	Financial Metrics	Focuses on measure operating expend
		budget (OEB) and capital expend
		budget (CEB)
Customer	No available, replaced by	Only focuses on Health, Environment
	Operation excellent	and Safety (HES) performance
Internal	Operational Metrics	Not specific measure the core process
Process		in each sub department
Learning	Organizational Capability	Only focuses on CHESM (Contractor
and Growth		HES Safety Management) and appraisal
		of business partner. It doesn't measure
		the employee performance

6. Discussion and Recommendations

Based on score card analysis and comparison with Balanced Score Card perspective, it is shown that the current score card that has been implemented by Facility Management in PT.XYZ, but has been modified as business need. However internal process and learning and growth need to be improved. Following is aspect that should be included in existing score card for improvement:

a. Building and Housing Maintenance

Description based on BSC Perspectives	Existing Score card	Improvement Recommendation (Should be included into the current score card)
Financial	Financial Metrics	ОК
Customer	Operation Excellent Metrics Given from Corporate. Consist of all activity that focuses on safety and compliance	 Measure customer satisfaction index Measure percentage compliance with service level agreement
Internal Process	Operational Metrics	 Measure time to complete work (MTTR) Mean Time to Repair each work order related to preventive and corrective job Data integrity
Learning and Growth	Organizational Capability	 Measure employee skill level on maintenance of building Measure training and

	development achievement (Plan vs Actual)
--	---

b. Business Support

Description based on BSC Perspectives	Existing Score card	Improvement Recommendation (Should be included into the current score card)
Financial	Financial Metrics	ОК
Customer	Operation Excellent Metrics Given from Corporate. Consist of all activity that focuses on safety and compliance	 Measure customer satisfaction index Measure percentage compliance with service level agreement
Internal Process	Operational Metrics	- Measure time to complete contract development
Learning and Growth	Organizational Capability	 Measure employee skill level on contract development Measure training and development achievement (Plan vs Actual)

c. General Services

Description based on BSC Perspectives	Existing Score card	Improvement Recommendation (Should be included into the current score card)
Financial	Financial Metrics	ОК
Customer	Operation Excellent Metrics Given from Corporate. Consist of all activity that focuses on safety and compliance	 Measure customer satisfaction index Measure percentage compliance with service level agreement
Internal Process	Operational Metrics	 Measure food selection criteria Measure food quality Measures cleanliness in food services, accommodation and offices services,

Learning and Growth	Organizational Capability	- Measure employee skill level on contract food, accommodation and office management
		- Measure training and development achievement (Plan vs Actual)

d. Outdoor Maintenance

Description based on BSC Perspectives	Existing Score card	Improvement Recommendation (Should be included into the current score card)
Financial	Financial Metrics	ОК
Customer	Operation Excellent Metrics Given from Corporate. Consist of all activity that focuses on safety and compliance	 Measure customer satisfaction index Measure percentage compliance with service level agreement
Internal Process	Operational Metrics	 Measure time to complete grass cutting in the golf course Measure time to complete grass cutting in the garden housing Measure time to repair street damage (asphalting and concreting)
Learning and Growth	Organizational Capability	 Measure employee skill level on outdoor maintenance, particularly on golf course management and street maintenance management Measure training and development achievement (Plan vs Actual)

e. Industrial Health

Description based on BSC Perspectives	Existing Score card	Improvement Recommendation (Should be included into the current score card)
--	---------------------	---

Financial	Financial Metrics	ОК
Customer	Operation Excellent Metrics Given from Corporate. Consist of all activity that focuses on safety and compliance	 Measure customer satisfaction index Measure percentage compliance with service level agreement
Internal Process	Operational Metrics	ОК
Learning and Growth	Organizational Capability	 Measure employee skill level on Industrial Health Measure training and development achievement (Plan vs Actual)

7. Conclusion

This research study has focused on the evolving role of performance measurement within Facility Management organizations in PT. XYZ. Balanced Score Card enables organizations to perform a comprehensive assessment of their services performance. As this paper examined several evaluation criteria that should be included in existing Facility Management score card in PT. XYZ. Organizations should develop a Balanced Score Card that is tailored to the needs of their business, and periodically change it as their needs change. Measuring the satisfaction level of those receiving Facility Management services is most critical part of the process. Organizations should use a variety of methods to obtain input directly from their internal customers, including periodic email surveys online, paper suggestion boxes and administrative assistant feedback sessions. All of these are excellent ways to "hear the voice of the customer" and identify areas for improvement.

8. References

- 1. Kaplan, Robert S. (1996) *The Balamced Score Card: Translating Strategy into action*, Harvard Business School
- 2. Atkin, B., Brooks, A. (2005) Total Facilities Management. 2nd ed. Blackwell.
- 3. Wibisono, D (2003) *Business Research: Guidance for Practitioners & Academia*, Gramedia Pustaka Utama
- 4. Wibisono, D (2006) Performance Management: Concept, Design & Technique to Improve Company Competitiveness, Penerbit Erlangga
- 5. David G Cotts, (1998) *The facility Management Handbook*. 2nd ed, AMACOM
- 6. Wibisono, D (2012) How To Create World Class Company, Penerbit Gramedia Jakarta
- 7. Wibisono, D (2011), Managemen Kinerja Korporasi dan Organisasi, Penerbit Erlangga