

NEW SOFTWARE PERFORMANCE WITH BALANCED SCORE CARD ASSESSMENT: A Case Study on LPGI Jakarta

Brata Wibawa Djojo

Management Department, Economic and Communication Faculty, Binus University
Jl. K.H. Syahdan No. 9, Palmerah, Jakarta Barat 11480.
brata@binus.ac.id

Implementation of information technology (IT), especially new software applications, needs to be evaluated for its impact to organization's business performance related to its strategic goal. The measurement and evaluation of a new software implementation impact in LPGI Jakarta uses Balanced Scorecard (BSC) analysis by making comparison of three-year data. The analysis involves four perspectives of BSC: (1) Financial aspect with the growth of gross premium written (GPW), net premium written (NPW), underwriting profit; (2) internal business aspect: the frequency of policy issued and the average production per policy; (3) people or learning and growth which consists of human error and system error; (4) customer aspect with external endorsement and renewal ratio. This research measures and evaluates for the impact of the implementation of a new software application to the new business performance as Marginal and Fair contribution. At the end of this paper the writer suggests LPGI Jakarta to increase the sales activities to reach the target which is related directly to financial aspect and internal business process aspect.

Keywords: *balanced scorecard, financial aspect, internal business aspect, learning and growth aspect, customer aspect*

ABSTRAK

Implementasi teknologi informasi (TI), khususnya aplikasi software baru, perlu dievaluasi dampaknya terhadap kinerja bisnis organisasi terkait dengan tujuan strategis. Pengukuran dan evaluasi dampak implementasi perangkat lunak baru di Jakarta LPGI menggunakan Balanced Scorecard (BSC) analisis dengan membuat perbandingan data tiga tahun. Analisis ini melibatkan empat perspektif BSC: (1) aspek keuangan dengan pertumbuhan gross premium written (GPW), net premium written (NPW), underwriting profit; (2) aspek bisnis internal, yaitu frekuensi kebijakan yang dikeluarkan dan produksi rata-rata per kebijakan; (3) orang atau pembelajaran dan pertumbuhan yang terdiri dari kesalahan manusia dan kesalahan system; (4) aspek pelanggan dengan dukungan eksternal dan rasio pembaharuan. Penelitian ini mengukur dan mengevaluasi atas dampak dari implementasi dari aplikasi perangkat lunak baru untuk kinerja bisnis baru sebagai kontribusi marjinal dan wajar. Pada akhirnya penulis menyarankan LPGI Jakarta untuk meningkatkan kegiatan penjualan untuk mencapai target yang berhubungan langsung dengan aspek keuangan dan aspek proses bisnis internal.

Kata kunci: *balanced scorecard, aspek financial, aspek bisnis internal, aspek pembelajaran dan pertumbuhan, aspek pelanggan*

INTRODUCTION

The first question commonly asked by an organization's management about new information IT project plan is how much of the budget is. An organization or company must provide the budget for IT project planned covering any requirements of IT equipments (hardware, software, and networking) as well as the IT team's salary. Several years ago many companies conservatively considered IT department as a cost center rather than profit center. One example is that data processing is only used to support operational business rather than to support the strategic unit effectively. Now, most of them realize about IT functions and the contribution to company's strategic issues.

LPGI Jakarta (LPGIJ) is a main branch of a private insurance company in Indonesia which implements a new system application on the last quarter of 2007. The goal is to support not only its operational activities but also for the activities of strategic business units. The new system application is implemented to underwriting, claim, finance and reinsurance processes for general insurance products. It is a pilot project before implementing to other LPGI branch offices, out of the head office area. On the project initiation, the IT team made a cost analysis for this pilot project, but never reviewed the performance impact to company's strategic goals.

Literature Review

Balanced Scorecard

Balanced Scorecards Institute (1998-2010) describes that the balanced scorecard is a strategic planning and management system used to align business activities to the vision and strategy of the organization; improve internal and external communications; and monitor organizational performance against strategic goals. Balanced Scorecard translates mission, values, vision and strategy. The mission is a description of "why we exist", the organization needs guiding principles in its values, the vision is a word picture of the future, and how the organization makes differentiating activities is a strategy (Niven, 2002, p.72-93).

Kaplan and Norton defines that the balanced scorecard is composed of: four strategic perspectives, strategic objectives distributed among the four perspectives, indicators to measure each strategic objective, targets, and initiatives to reach the targets (Wegman, 2008, p. 3-4). The four perspectives of balanced scorecards are *learning and growth*, *business process*, *financial*, and *customer orientation* (Picture 1, Kaplan et al., 1996).

Learning and Growth Perspective

Learning and growth perspective includes employee training and corporate cultural attitudes related to both individual and corporate self-improvement. In current rapid technological change climate, it is necessary for knowledge workers to be in a continuous learning mode. In any case, learning and growth constitute the essential foundation for success of any knowledge-worker organization.

Business Process Perspective

Business process perspective refers to internal business processes. Metrics based on this perspective allow the managers to know how well their business runs, and whether its products and services conform to customer requirements (the mission). The metrics have to be carefully designed by those who most thoroughly know the processes; with our unique missions these are not something that can be developed by freelance consultants. According to business process, an increasing number of insurers can be served and provided for an automated quotation and business acceptance capability

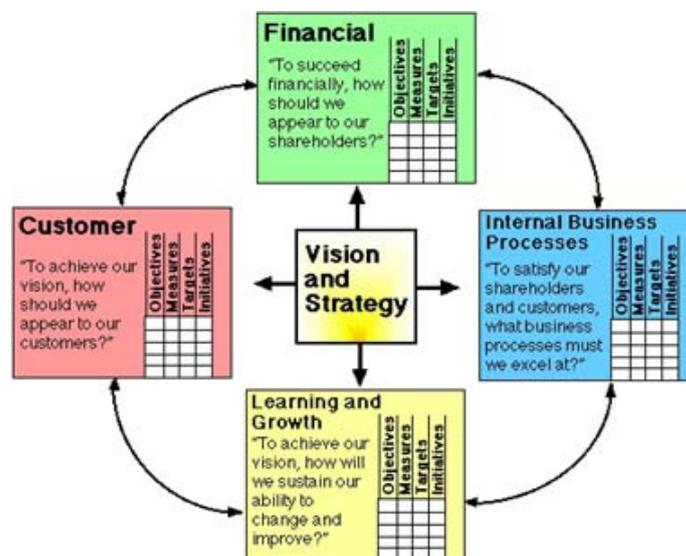
through internet (or underwriting system). This process will progress alongside insurers using external database to validate customer's information before new business accepted (Dockrill, et al., 2001).

Customer Perspective

Recent management philosophy shows an increasing realization of the importance of customer's focus and customer's satisfaction in any business. If customers are not satisfied with the service of a supplier/vendor, they will eventually find other suppliers/vendors that will meet their needs. Poor performance from customer perspective leads to future decline, even though the current financial picture may look good. Satisfaction metrics should be analyzed under category of kinds of customers and kinds of processes. Dockrill, et al. (2001, p.7/26) said that an insurer can make decision regarding where and when to target their new business acquisition and renewal retention efforts.

Financial Perspective

Kaplan and Norton do not disregard the traditional need for financial data. Timely and accurate funding data will always be a priority that managers will do whatever necessary to provide it. In fact, often there is more than enough handling and processing of financial data. With the implementation of a corporate database, it is hoped that more processes can be centralized and automated, but the point is that the current emphasis on financials leads to the "unbalanced" situation regarding to other perspectives. In industry where costs are known at the point of sale, there is immediacy about the assessment of profit. The volatility and uncertainty which surround the pricing needs to be tracked regularly so as to extend the underwriter's understanding of risk (Dockrill, et al., 2001).



Picture 1. Four perspectives of balanced scorecard.

METHOD

The measurement and evaluation on impacts of new software implementation in LPGI Jakarta uses Balanced Scorecard (BSC) analysis by making comparison of three-year data. The analysis involves four perspectives of BSC: (1) Financial aspect with the growth of gross premium written (GPW), net premium written (NPW), underwriting profit; (2) internal business aspect: the frequency

of policy issued and the average production per policy; (3) people or learning and growth which consists of human error and system error; (4) customer aspect with external endorsement and renewal ratio.

RESULTS AND DISCUSSION

Business growth in insurance industry, especially general insurance, can be obtained by increasing the law of the large number of sales. It can be reached by value-driven IT as a strategic and supporting business process, especially when the marketing officers get business and offer the underwriter to do the underwriting activities, including risk analysis, spreading the risk and policy processing.

“Excellent business growth” is a vision of LPGIJ with the mission statements to: (i) increase the law of the large number; (ii) make any cooperation into positive contribution; (iii) make a strong consolidation among marketing group. The business goals of LPGIJ are as a part of strategic business goal in overall organization, which is to achieve the sales target and to give the outstanding performance to service the customers (the insured and the one who is the next process), partners, and clients.

Based on LPGIJ vision, mission, value and strategic goal above, the criteria of BSC assessment are created. In the criteria, each perspective of BSC is broken down to several parameters those has any contribution to organization strategic goal, especially in new business and relating to a new system application.

Each perspective – called *parameter* – has its own parameters and is weighted by percentage of contribution to LPGIJ strategic goal: Financial Aspects, Internal Business Aspects, Learning and Growth Aspect, and Customer Aspect. Each parameter is a critical success factor for LPGIJ to maintain the good performance. To indicate the parameters properly, there are several key-performance indicators applied with its weight. The weight is rated based on its contribution and impact to LPGIJ goal (Tabel 1)

Financial Aspects

The determined Financial Aspects consist of three parameters which are attributable to profit and loss report directly. The weight of this aspect is 0.2 (20% of 100%) which means that the achievement and result in Financial Aspect are not impacted by a new system application only but there are another 80% activities that contributes to Financial Aspect. The growth of gross premium written (GPW) will record for the actual sales in the previous year to the actual sales in the year. This parameter needs to be assessed as long as has a direct contribution to production that is supported by IT. The parameter’s contribution is 30%.

Net premium written (NPW) is a reduction result between GPW and the reinsurance spreading of risk. This parameter needs to be assessed because it shows how strong LPGIJ can retain the risk and how fast the new system can process the spreading of risk to the reinsurance. The parameter’s contribution is 30%. Underwriting profit shows profit to the net premium earned by LPGIJ and shows how IT can make a contribution to the profit. The parameter’s contribution is 40%.

Internal Business Aspects

A new system application has 0.4 (or 40% of 100%) impact weight to internal business aspects at LPGIJ because the policy processes depend on the system application performance that consists of two parameters. First is the frequency of policy issued. This parameter is useful to measure

the speed and performance of the new system application because the policy only can be issued by system application since the manual process is prohibited. The parameter's contribution is 40%. The second parameter is average production per policy. It will show how efficient the business process at LPGIJ and as a parameter to measure the cost deployment per document. The parameter's contribution is 60%.

Learning and Growth Aspect

The point of view of learning and growth aspect attributable to a new system application impact consists of human error and system error. It will evaluate the efficiency of the process and how fast the user can learn and adapt to new system application, beside to evaluate how many bugs exist in application. This aspect takes 0.3 (30% of 100%) of the whole calculation and each parameter has 50% contribution to LPGIJ goals.

Human error is a parameter that showing mistake or failure made by user. This parameter is useful to assess the user's performance. The higher the human error, the lower the performance. Meanwhile, system error is a parameter that evaluating mistake or failure made by the new system application. No system application is perfect. However, when failure happens, the business process will attain unexpected impact.

Customer Aspect

The outstanding service will lead to customer's satisfaction; in a way, it will increase the customer's loyalty to the organization that could be supported optimally by IT. A new system application does not apply customer relationship management module. Therefore, this aspect only takes 0.1 (10% of 100%).

External endorsement is an endorsement that is requested by customers because there is any revision of subject matter insured or customer data. The parameter's contribution is 20%. Renewal ratio is a performance ratio that shows a renewed policy per year. It has a strong relationship to customer satisfaction. The parameter can be measured easily as much as 80%.

Table 1 BSC's Parameters

Parameter	Strategic Objectives	Measurement	Benchmark
Financial Aspect	Achieve the sales target Increasing new business to existing business Get more retail business beside the corporate business Make a profitable business	- Gross Premium Written (GPW) - Net Premium Written (NPW) - Underwriting Result (UWR)	Actual this year to Actual last year Actual NPW to Actual GPW UWR to Net Premium Earned
Internal Business	Prompt service in policy issuing Make a retail business policy effectively	- Frequency of Policy Issued - Average Production per Policy	Policy Issued GPW to Policy Issued
Learning and Growth	Make a policy issuing instruction clearly to avoid human error in data inputting User's learning experience will be improved by the time Make any improvement for system error	- Human Error - System Error	Cancellation by Human Error Cancellation by System Error
Customer	Customer get a clear explanation from marketing/sales person; in order to avoid misdata Give the outstanding performance in customer service Repeat order or renewal business can be maintenance well	- External Endorsement - Renewal Ratio	Endorsement by customer Percentage of policy renewed

Source: taken from research data.

After capturing and comparing data to Factor 1 and Factor 2, the result of achievement can be obtained. To located and make a score for the result of achievement, it will refer to the criteria of BSC assessment which is described in Table 2. The score and parameter were determined based on LPGIJ experience and the organization's performance.

Table 2 The Criteria of Balanced Score Card Assessment

Aspect (A)	Aspect's Weight (B)	Parameter (C)	Parameter's Contribution (D)	Achievement (E)	Score (F)	Parameter Score (G) = (D)*(F)	Total Parameter Score (H) = (B)*(G)		
Financial	0.2	GPW This Year to Last Year (Actual to Actual)	30%	>= 41	140	42	8.4		
				<= 40	120	36	7.2		
				<= 30	100	30	6		
				<= 20	80	24	4.8		
				<= 10	60	18	3.6		
				<= 0	30	9	1.8		
				<= -6	10	3	0.6		
				<= -11	0	0	0		
				<= -21	-10	-3	-0.6		
		Net Premium Written (NPW) (Actual NPW to Actual GPW)	30%	>= 81	140	42	8.4		
				<= 80	120	36	7.2		
				<= 70	100	30	6		
				<= 60	80	24	4.8		
				<= 40	50	15	3		
				<= 20	30	9	1.8		
				Underwriting Profit (U/W to NPE, in Million IDR)	40%	>= 31	140	28	5.6
						<= 30	120	24	4.8
						<= 20	100	20	4
<= 10	80	16	3.2						
<= 0	40	8	1.6						
<= -1	0	0	0						
<= -11	-20	-4	-0.8						
<= -21	-30	-6	-1.2						
<= -31	-40	-8	-1.6						
Internal Business	0.4	Frequency of Policy Issued (Policy Issued, in unit)	40%	>= 151	140	56	22.4		
				<= 150	120	48	19.2		
				<= 125	100	40	16		
				<= 100	75	30	12		
				<= 75	50	20	8		
				<= 50	25	10	4		
		Average Production per Policy (GPW to Policy Issued per year, in Million IDR)	60%	>= 151	120	72	28.8		
				<= 150	100	60	24		
				<= 125	75	45	18		
				<= 100	50	30	12		
				<= 75	25	15	6		
				<= 50	0	0	0		
Learning & Growth	0.3	Human Error (Cancellation by Human Error)	50%	<= 0	120	60	18		
				<= 10	100	50	15		
				<= 25	80	40	12		
				<= 50	60	30	9		
				<= 75	30	15	4.5		
				<= 100	10	5	1.5		
		System Error (Cancellation by System Error)	50%	>= 101	-20	-10	-3		
				<= 0	120	60	18		
				<= 10	100	50	15		
				<= 25	80	40	12		
				<= 50	60	30	9		
				<= 75	30	15	4.5		
Customer	0.1	External Endorsement (Requested Endorsement by Customer, in unit)	20%	<= 0	100	20	2		
				<= 25	80	16	1.6		
				<= 50	60	12	1.2		
				<= 75	40	8	0.8		
				<= 100	20	4	0.4		
				<= 150	0	0	0		
		Renewal Ratio (% Policy Renewed)	80%	>= 151	-20	-4	-0.4		
				>= 121.00	125	100	10		
				<= 120.00	100	80	8		
				<= 110.00	75	60	6		
				<= 100	50	40	4		
				<= 90.00	25	20	2		
<= 80.00	10	8	0.8						
<= 70.00	-25	-20	-2						
Total	1		400%						

Source: LPGIJ that has been modified.

The final result of the measurement of each BSC perspective will refer to BSC Worksheet in Total Parameter column. The sum of total parameter of each aspect will be presented as grade table as follows (Tabel 3):

Table 3. BSC Grade Table

A	Excellent	>=	111
B	Good	<=	110
C	Fair	<=	75
D	Marginal	<=	60
E	Poor	<=	50

Source: LPGIJ that has been modified.

The real data of LPGIJ performance of year by year is simulated in the Table 4 and Table 5 based on the defined criteria of BSC assessment. The first evaluation is in Table 4 that shows the BSC performance analysis of LPGIJ for the year 2008 to 2007 when the new system application was applied in the last quarter. Factor 1 is filled by data in the latest year (2008) since Factor 2 is filled by data in the previous year (2007).

Each parameter has its own measurement unit, i.e. The parameter “GPW” in Financial Aspect states for the value in Million Rupiahs and the parameter “Frequency of Policy Issued” in Internal Business Aspect states for the value in unit.

After comparing Factor 1 to Factor 2, the result will be put in Achievement column and the score based on Table of the Criteria of BSC Assessment (Table 2). Total Parameter of BSC JSXYZ 2008-2007 for Financial Aspect is 27, Internal Business Aspect is 34.3, Learning and Growth Aspect is (6.0) and Renewal Ratio is 1.6. Finally, the total parameter value of this BSC is 56.8 (get D), which means Marginal; so the impact of a new system application for the first year is marginal contribution to LPGIJ strategic goal.

Furthermore, the second evaluation of LPGIJ performance in 2009-2008 can be shown in Table 5 below, which gets Total Parameter Value of 60.8, it comes from the sum of total financial aspect, internal business process aspect, learning and growth aspect, and customer aspect with its each value of 21.4, 25.2, 9.0, and 5.2. It is better than the first measurement, despite of not much increment. The LPGIJ strategic goal has a fair contribution for a new system application for the second year.

Table 4 *Balanced Scorecard LPGIJ 2008 to 2007*

Parameter	Weight	%	Factor 1 2008	Factor 2 2007	Achv.	Score	Parameter Score	Total Parameter
FINANCIAL ASPECT	0.2							
GPW This Year to Last Year (Actual to Actual, in Million IDR)		30%	33,374	24,249	37.63	120	36	7.20
Net Premium Written (NPW) (Actual NPW to Actual GPW, in Million IDR)		30%	14,302	13,689	104.48	140	42	8.40
Underwriting Profit (U/W to NPE, in Million IDR)		40%	338	(21,415)	101.58	140	56	11.20
TOTAL FINANCIAL ASPECT		100%					134	27
INTERNAL BUSINESS ASPECT	0.4							
Frequency of Policy Issued (Policy Issued, in unit)		40%	17,456	9,515	183.46	140	56	22.40
Average Production per Policy (GPW to Document Issued per year, in Million IDR)		60%	1.91	2.55	75.02	50	30	12.00
TOTAL INTERNAL BUSINESS ASPECT		100%					86	34.40
LEARNING & GROWTH ASPECT	0.3							
Human Error (Cancellation by Human Error, in unit)		50%	375.00	118.00	317.80	(20)	(10)	(3.00)
System Error (Cancellation by System Error, in unit)		50%	267.00	158.00	168.99	(20)	(10)	(3.00)
TOTAL LEARNING & GROWTH ASPECT		100%					(20)	(6.00)
CUSTOMER ASPECT	0.1							
External Endorsement (Requested Endorsement by Customer, in unit)		20%	215.00	130.00	165.38	(20)	(4)	(0.40)
Renewal Ratio (% Policy Renewed)		80%	75.20	77.60	96.91	25	20	2.00
TOTAL CUSTOMER ASPECT		100%					16	1.60
TOTAL	1						216.00	56.80

* Note: Achv. = Achievement, the comparison between Factor 1 and Factor 2.

Source: the processed data, based on research

Table 5 *Balanced Scorecard LPGIJ 2009 to 2008*

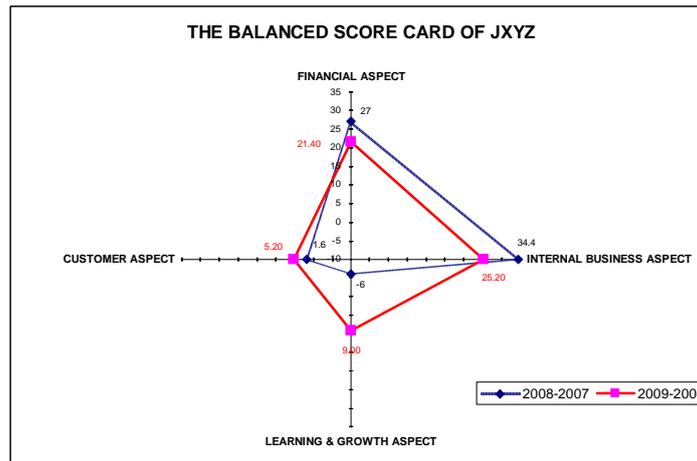
Parameter	Weight	%	Factor 1 2009	Factor 2 2008	Achv.	Score	Parameter Score	Total Parameter
FINANCIAL ASPECT								
GPW This Year to Last Year (Actual to Actual, in Million IDR)	0.2	30%	31,893	33,374	(4.44)	30	9	1.80
Net Premium Written (NPW) (Actual NPW to Actual GPW, in Million IDR)		30%	14,642	14,302	102.38	140	42	8.40
Underwriting Profit (U/W to NPE, in Million IDR)		40%	5,037	338	1,490.24	140	56	11.20
TOTAL FINANCIAL ASPECT		60%					107	21.40
INTERNAL BUSINESS ASPECT								
Frequency of Policy Issued (Policy Issued, in unit)	0.4	40%	22,518	17,456	129.00	120	48	19.20
Average Production per Policy (GPW to Policy Issued per year, in Million IDR)		60%	1.42	1.91	74.08	25	15	6.00
TOTAL INTERNAL BUSINESS ASPECT		100%					63	25.20
LEARNING & GROWTH ASPECT								
Human Error (Cancellation by Human Error)	0.3	50%	243	375.00	64.80	30	15	4.50
System Error (Cancellation by System Error)		50%	151	267.00	56.55	30	15	4.50
TOTAL LEARNING & GROWTH ASPECT		100%					30	9.00
CUSTOMER ASPECT								
External Endorsement (Requested Endorsement by Customer, in unit)	0.1	20%	178	215.00	82.79	20	4	0.40
Renewal Ratio (% Policy Renewed)		80%	82.30	75.20	109.44	60	48	4.80
TOTAL CUSTOMER ASPECT		100%					52	5.20
Total		1					252.0	60.80

* Note: Achv. = Achievement, the comparison between Factor 1 and Factor 2.

Source: the processed data, based on research

Making a comparison of BSC performance year by year clearly, Picture 2 shows the result of year by year of each aspect that could be improved and concerned by organization. Financial aspect on year 2008 relative to year 2007 (2008-2007) gets score of 27, whilst year 2009 relative to year 2008 gets score of 21.40. The internal business aspect on 2008-2007 is better than 2009-2008 with the score of each period is 34.40 and 25.20.

The increment factors for the latest BSC to the previous one are Learning and Growth Aspect (from -6.00 on 2008-2007 to 9.00 on 2009-2008) and Customer Aspect (from 1.60 on 2008-2007 to 5.20 on 2009-2008); it means that a new system application makes a positive impact and there is a good learning experience to users. It seems that a user's learning experience could make a better service to the customer from year to year.



Picture 2. The BSC diagram of LPGIJ
(source: the processed data based on research)

CONCLUSION

BSC is useful to evaluate a new IT system application impact to new business process in LPGIJ that is able to measure and inform the accuracy about the evaluation of the existing business performance compared to the previous year performance. It is not easy to make standard criteria for BSC in each perspective or aspect that could bring a valuable contribution to LPGIJ performance in strategic goal. Referring to BSC analysis of LPGIJ in 2008 to 2007 and 2009 to 2008, the impact of new system application to strategic goal can be ascertained, which is presented by “marginal” and “fair” of each analysis. Moreover, the difference impacts from year by year of LPGIJ performance could be proper evaluated by BSC Diagram that shows a big increment of impact in learning and growth aspect and customer aspect, rather than financial aspect and internal business aspect. Following to the result in BSC Diagram, LPGIJ should aware about the performance degradation by increasing the sales activity that has a direct correlation to financial aspect (GPW, NPW) and Internal business process (frequency of policy issued, and average production per policy).

REFERENCES

- Dockrill, Martin and Fisher, Andrew. (2001), *Underwriting Management: Study Course 815*. London: CII Publishing Division.
- Balanced Scorecard Institute. (2010). *What is the Balanced Scorecard?* Diakses 13 Agustus 2010 dari <http://www.balancedscorecard.org/>
- Balanced Scorecard Institute. (2010), *Balanced Scorecard Basics*. Diakses 13 Agustus 2010 dari <http://www.balancedscorecard.org/BSCResources/AbouttheBalancedScorecard/tabid/55/Default.aspx>.
- Kaplan, R.S. and Norton, D.P. (1996). *The Balanced Scorecard: Translating Strategy into Action*. Boston: Harvard Business School Press.
- Niven, Paul R. (2002). *Balanced Scorecard: Step by Step Maximizing Performance and Maintaining Results*. New York: John Wiley & Sons.