

Business Performance Management On New Software Implementation Of Information Technology Project Using Balance Score Card Assessment

(Case Study: CCAI, A Beverage Multinational Company in Indonesia)

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Abstract — The information technology (IT) implementation needs to be assessed on its impact to corporate business performance afterwards. This paper reports the finding of an in-depth, case study of CCAI, a multinational beverage company in Indonesia. The measurement of evaluation used Balanced Scorecard (BSC) tool by examining of data in several years. In spite of this, the evaluation covers to four perspectives of BSC, first is in the Financial Perspective with covers by Growth of Trading Revenue and Net Profit, second is in Internal Business Perspective with Production Fulfill Capacity and Cost of Goods Sold per year, third is in Learning and Growth Perspective with represent by Engagement of Employee and Zero Accident, and the last is Customer Perspective that covers for Customer Satisfaction Level, Product Availability and Earning per Share. Findings suggest that the implementation of IT Project to Internal Business Process Perspective is the highest contribution and indirectly impacted to other BSC Perspectives.

Keywords- *IT Implementation, Financial Perspective, Internal Business Perspective, Learning and Growth Perspective, Customer Perspective.*

I. INTRODUCTION

The impact of new system application on IT project to business performance management is intangible area that might be under-questioned by management, especially on its budget spent and its return [1]. The other issue is how IT would make a contribution to organizational knowledge that is not appear in explicit address whereas IT would make a knowledge management only if IT-supported knowledge distribution leads to improve action [2]. The contribution of some studies of IT to the business performance consist of two main perspectives, a strategy as positioning perspective and a resource based view perspective [3]. In the other way, IT implementation will affect managerial control mechanism whereas management control at the individual level is concerned with monitoring, evaluating, providing feedback, compensating, and rewarding [4] that will impact to business performance. This paper examines the IT

impact on business strategy using Balanced Score Card (BSC) measurement in CCAI, a multinational beverage company in Indonesia. CCAI had implemented the new system application as IT Project to support their daily business operational.

To measure the impact, of this implementation, some data gathering and survey from 2008 to 2011 was conducted.

II. LITERATURE REVIEW

The critical approach of business performance measurement of IT project implementation is starting from business strategy. A business strategy is a plan and coordinated set of actions to seek objectives, purposes and goals and how it expect to go there; it also drives information system (IS) strategy to support business goal to be working well [5], whereas the organizational strategy would complement the business strategy. The business strategy can be transformed into strategic planning and management system used in business activity aligning to strategy vision and organizational communication. Further, to monitor and control to the organizational performance against to the business strategic and goals that will be use balanced scorecard [6].

Ranti [7] in [1] described that the development of IT evaluation methodologies in the last few decades have produced many methods. Some of them briefly explained multidimensional methodologies, such as balanced scorecard, that is a set of financial and operational measured that provide a balanced presentation of both the financial and operational impacts to the system and giving senior managers a comprehensive view of a system's value.

The balanced scorecard translates strategy into vision, mission, and organizational values [7] in five phases: (i) describe the four strategic perspective, (ii) distribute strategic objectives among the perspective, (iii) define the measurement indicators, (iv) set up target, and (v) make the initiatives to reach the target[8]. The four strategic perspective of balanced scorecard are Learning and Growth, Business Process, Financial, and Customer Perspective [9], defined by Kaplan and Norton in 1996. BSC can measure

and telling the truth about the evaluation of existing business performance comparing to the previous year performance, whereas not easy to make standard criteria for BSC in each perspective, meanwhile the perspective that could bring a valuable contribution to company performance in strategic goal[1].

A. The Learning and Growth Perspective

This perspective covers for organizational culture which might be influenced by rapid technology change. Learning and growth constitute the essential foundation for success of any knowledge-worker organization [6]. It also focuses on exploring and exploiting opportunities that emerge over time [10].

B. The Business Process Perspective

This perspective allows managers to know how well their business is running, and whether its products and services meet to customer requirements [6]. This perspective is also known as Internal Process perspective that helps organizations to meet their financial and customer objectives [10]

C. The Customer Perspective

The voice of customer is an indicator tool for company to measure the customer satisfaction that leads the indicator whether customers are not satisfied, they will find other suppliers that will meet their needs [6].

D. The Financial Perspective

The financial perspective focuses on the bottom-line to address shareholder expectations [10]. Many organizations or companies focus on this perspective, therefore they must to implement corporate database to process data by centralized and automated; but the point is that the current emphasis on financials leads to the "unbalanced" situation with regard to other perspectives [6].

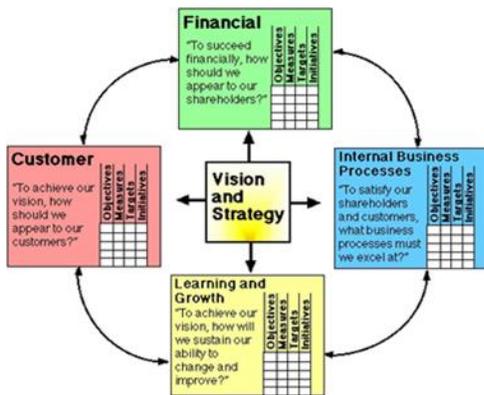


Figure 1. The Balanced Scorecard

Source: Adapted from Robert S. Kaplan and David P. Norton, "Using the Balanced Scorecard as a Strategic Management System," Harvard Business Review (January-February 1996): 76 [6].

III. RESEARCH METHODOLOGY

The roadmap of CCAI starts with their mission, which is enduring. It declares the purpose as a company and serves as the standard against which weigh their actions and decisions; to refresh the world, to inspire the moments of optimism and happiness and to create value and make a difference [12]. CCAI’s vision serves as the framework for Roadmap and guides every aspect of their business by describing what they need to accomplish in order to continue achieving sustainable, quality growth. The value of the company would describe on: (i) People: ‘be a great place to work where people are inspired to be the best they can be’, (ii) Portfolio: ‘bring to the world a portfolio of quality beverage brands that anticipate and satisfy people’s desires and needs’, (iii) Partners: ‘nurture a winning network of customers and suppliers, together we create mutual, enduring value’, (iv) Planet: ‘be a responsible citizen that makes a difference by helping build and support sustainable communities’, (v) Profit: ‘maximize long-term return to shareowners while being mindful of our overall responsibilities’; (vi) Productivity: ‘be a highly effective, lean and fast-moving organization’ [12].

Based on CCAI’s vision and mission, the business performance could be obtained by IT value-driven as a strategic and supporting the business process to achieve the objective, purpose and goals. Moreover, the criteria of BSC assessment are created. In the criteria, each perspective of BSC is listed down to several parameters those has any contribution to organization strategic goal, relating to a new system application or IT project.

Each perspective has its own parameters and is weighted by percentage of contribution to CCAI strategic goal:

- (i) Financial Perspective. Consist of 2 (two) parameters those attributable to Trading Revenue and Net Profit directly. Those parameter are based on actual to actual each year. The weight of this perspective has 0.3 (30% of 100%) impacts to business performance and the other 70% impacts is contributed by other perspective.
- (ii) Internal Business Perspective. This perspective consists of Fulfill Production Capacity parameter and Cost of Goods Sold parameter, which is the first parameter is based on percentage of actual growth and the other is based on percentage of efficiency. This perspective is weighted by 0.2 (20% of 100%) impacts whereas the last is contributed by other perspective
- (iii) Learning and Growth Perspective.

The point of view of learning and growth perspective attributable the impact of IT Before you begin to format your paper, first write and save the content as a separate text file. Keep your text and graphic files separate

until after the project to Engagement and Zero Accident. The engagement means the minimizing ratio of employee turnover in a year. Zero accident is measured by the accident happened year by year. IT project will contribute to this perspective indirectly. This perspective is weighted by 0.2 (20% of 100%) impacts whereas the last is contributed by other perspective.

(iv) Customer Perspective.

The outstanding service will make the customer satisfied and increase the customer loyalty to the organization which might be supported by IT optimally [1]. Therefore, this perspective has three parameters: customer satisfaction, product availability and earning per share. This weight of this perspective is 0.3 (30% of 100%) and the last is contributed by other perspective.

The parameters of each perspective is a critical success factor of CCAI to achieve a good business performance and measured by performance indicators applied that called as parameter's contribution. Each parameter will be benchmarked to unit or actual data comparison year by year. Table 1 shows the parameter and strategic objectives in measuring and evaluating CCAI's performance with BSC analysis.

TABLE 1. CCAI'S PARAMETERS

Parameter	Strategic Objectives	Measures	Benchmark
Financial Aspect	Achieve the sales target Make a profitable business	- Trading Revenue - Net Profit	Actual this year to Actual last year Net Profit to Gross Profit
Internal Business	Fulfill the production capacity Eff cost of good sold	- Capital investment - % GOCS/NR	Sales vs capital investment COGS vs NSR
Learning and Growth	Employee turn over Decrease the accident	- Engagement - Zero Accident	Engagement vs Employee turn over Zero Accident this year to last year
Customer	Customer satisfaction Product availability Good contribution to shareholder's return	- Customer Satisfaction - Available of products - EPS	customer satisfaction index product available vs total in market Actual this year to Actual last year

Source: based on research

After designing the strategic objectives and its measurement parameters, the contribution of each parameter, target achievement, and its scores would be set up. The determined target achievement and scores is listed in Table 2. The parameter in Financial Perspectives (Trading Revenue and Net Profit) has contribution of 50% each to its perspective. The other perspective, Internal Business Process has 40% contribution to Fulfill Production Capacity and 60% contribution to Cost of Good Sold. Moreover, the Engagement and Zero Accident have 50% contribution each to Learning and Growth Perspective, since the last perspective, Customer, has 40% contribution to Customer Satisfaction, 30% contribution to Product Availability, and 30% contribution to Earning per Share.

Furthermore, the parameter score is determined by the defined score and its achievement. Based on this calculation, the total parameter score could be calculated

and being an assessment factors of CCAI business performance.

The final result of CCAI business performance year by year that is measured by BSC would refer to Grade Table (that is presented in Table 3).

TABLE 2. THE CRITERIA OF CCA'S BALANCED SCORE CARD ASSESSMENT

Perspective	Weight	Parameter	Parameter's Contribution	Achievement	Score	Parameter Score	Total Parameter Score
(A)	(B)	(C)	(D)	(E)	(F)	(G) = (D)*(F)	(H) = (B)*(G)
Financial	0.3	Trading Revenue (Actual to Actual)	50%	>= 151	150	75	22.5
				<= 150	100	50	15
		<= 125	50	25	7.5		
		<= 100	30	15	4.5		
		<= 75	20	10	3		
		<= 50	10	5	1.5		
		<= 10	0	0	0		
		<= 0	-10	-5	-1.5		
		<= -10	-20	-10	-3		
		<= -20	-30	-15	-4.5		
		<= -30	-40	-20	-6		
		<= -40	-50	-25	-7.5		
		<= -50	-60	-30	-9		
		<= -60	-70	-35	-10.5		
Internal Business	0.2	Fulfill Prod capacity (in % Actual Gr)	40%	>= 40	200	60	18
				<= 31	150	45	13.5
		<= 30	100	30	9		
		<= 20	30	9	2.7		
		<= 10	0	0	0		
		<= 0	-20	-6	-1.8		
		<= -5	-40	-12	-3.6		
		<= -15	-60	-18	-5.4		
		<= -25	-80	-24	-7.2		
		<= -35	-100	-30	-9		
		<= -45	-120	-36	-10.8		
		<= -55	-140	-42	-12.6		
		<= -65	-160	-48	-14.4		
		Learning & Growth	0.2	Engagement (in Mio AUS)	50%	>= 100	100
<= 90	90					45	9
<= 80	80			40	8		
<= 70	70			35	7		
<= 60	60			30	6		
<= 50	50			25	5		
<= 40	40			20	4		
<= 30	30			15	3		
<= 20	20			10	2		
<= 10	10			5	1		
<= 0	0			0	0		
<= -10	-10			-5	-1		
<= -20	-20			-10	-2		
Customer	0.3			Customer Satsfation (Percentage of customer satsfation)	40%	>= 100	125
		<= 90	113			45	13.5
		<= 80	100	40	12		
		<= 70	88	35	10.5		
		<= 60	75	30	9		
		<= 50	63	25	7.5		
		<= 40	50	20	6		
		<= 30	38	15	4.5		
		<= 20	25	10	3		
		<= 10	13	5	1.5		
		<= 0	0	0	0		
		<= -10	-13	-5	-1.5		
		<= -20	-25	-10	-3		
		Total	1	Product Availability (Percentage product availability)	30%	>= 100	125
<= 80	100					30	9
<= 60	75			22.5	6.75		
<= 40	50			15	4.5		
<= 20	25			7.5	2.25		
<= 0	0			0	0		
<= -20	-25			-7.5	-2.25		
<= -40	-50			-15	-4.5		
<= -60	-75			-22.5	-6.75		
<= -80	-100			-30	-9		
<= -100	-125			-37.5	-11.25		
<= -120	-150			-45	-13.5		
<= -140	-175			-52.5	-15.75		
<= -160	-200			-60	-18		
<= -180	-225	-67.5	-20.25				
<= -200	-250	-75	-22.5				
<= -220	-275	-82.5	-24.75				
<= -240	-300	-90	-27				
<= -260	-325	-97.5	-29.25				
<= -280	-350	-105	-31.5				
<= -300	-375	-112.5	-33.75				
<= -320	-400	-120	-36				
<= -340	-425	-127.5	-38.25				
<= -360	-450	-135	-40.5				
<= -380	-475	-142.5	-42.75				
<= -400	-500	-150	-45				
<= -420	-525	-157.5	-47.25				
<= -440	-550	-165	-49.5				
<= -460	-575	-172.5	-51.75				
<= -480	-600	-180	-54				
<= -500	-625	-187.5	-56.25				
<= -520	-650	-195	-58.5				
<= -540	-675	-202.5	-60.75				
<= -560	-700	-210	-63				
<= -580	-725	-217.5	-65.25				
<= -600	-750	-225	-67.5				
<= -620	-775	-232.5	-69.75				
<= -640	-800	-240	-72				
<= -660	-825	-247.5	-74.25				
<= -680	-850	-255	-76.5				
<= -700	-875	-262.5	-78.75				
<= -720	-900	-270	-81				
<= -740	-925	-277.5	-83.25				
<= -760	-950	-285	-85.5				
<= -780	-975	-292.5	-87.75				
<= -800	-1000	-300	-90				
<= -820	-1025	-307.5	-92.25				
<= -840	-1050	-315	-94.5				
<= -860	-1075	-322.5	-96.75				
<= -880	-1100	-330	-99				
<= -900	-1125	-337.5	-101.25				
<= -920	-1150	-345	-103.5				
<= -940	-1175	-352.5	-105.75				
<= -960	-1200	-360	-108				
<= -980	-1225	-367.5	-110.25				
<= -1000	-1250	-375	-112.5				
Total	1						

Source: CCAI, modified

TABLE 3. GRADE PARAMETER

Grade	Comment	Total S.Prmt
A	Excellent	>= 101
B	Good	<= 100
C	Fair	<= 85
D	Marginal	<= 70
E	Poor	<= 50

Source: research based

IV. THE ANALYSIS

Based on the defined criteria of BSC assessment, the data of CCAI business performance of 2009 to 2012 is simulated in the Table 4 to Table6. The evaluation in Table 4 shows the BSC performance analysis of CCAI for the year 2010 to 2009 with 29.10 performance result. Table 5 shows the 2011 to 2010 performance with the result of 28.20 and the last table (Table 6) represents the comparative performance of 2012 to 2011 with 60.30 performance result.

The balanced scorecard of CCAI in 2010 to2009 is dominated by Internal Business Process Perspective with Total Parameter Score of 16.80, since the lowest parameter score is Customer Perspective (0.30). Furthermore, the second evaluation of CCAI performance in 2011 to 2010 that is shown in Table 5, presents Internal Business Process Perspective as a highest perspective score (13.20) and Financial Perspective is the lowest score (-3.0). The CCAI business performance in 2012 to 2011 has a better improvement with Marginal parameter, which the highest is Financial Perspective (25.50) and the lowest is Learning & Growth and Customer Perspective with 9.00 point of result.

TABLE 4. BALANCED SCORECARD CCAI 2010 TO 2009

Parameter	Aspect's Weight	Parameter's Contribution	Factor 1 (2010)	Factor 2 (2009)	Achievement	Score	Parameter Score	Total Parameter Score	
A	B	C	D	E	F	G	H = G * C	I = H * B	
FINANCIAL PERSPECTIVE									
Trading Revenue (Actual to Actual)	0.3	50%	50	50		0.00	30	15	4.5
Net Profit (Net Profit to Gross Profit)		50%	50	75	(33.33)	(10)	(5)	(1.5)	(4.5)
INTERNAL BUSINESS									
Fulfill product capacity (% actual incremental)	0.2	40%	50	1	4,900.00	140	56	16.8	16.8
Cost of Good Sold (% Efficiency)		60%	72	84	(14.29)	0	0	0.00	0.00
LEARNING & GROWTH PERSPECTIVE									
Employee Engagement (employee engagement score)	0.2	50%	40	40		0.00	30	15	4.50
Zero Accident (Zero Accident this year to last year)		50%	60	60		0.00	30	15	4.50
CUSTOMER PERSPECTIVE									
Customer Satisfaction (Percentage of customer satisfaction)	0.3	40%	45	50	(10.00)	10	4	1.20	3.60
Product Availability (Percentage of outlet growth)		30%	30	37.5	(20.00)	0	0	0.00	0.00
Earning per Share (Actual to Actual)		30%	45	60	(25.00)	(10)	(3)	(0.9)	(2.70)
		100%						97.00	29.10

Source: the processed data, based on research

TABLE 5. BALANCED SCORECARD CCAI 2012 TO 2011

Parameter	Aspect's Weight	Parameter's Contribution	Factor 1 (2011)	Factor 2 (2010)	Achievement	Score	Parameter Score	Total Parameter Score	
A	B	C	D	E	F	G	H = G * C	I = H * B	
FINANCIAL PERSPECTIVE									
Trading Revenue (Actual to Actual)	0.3	50%	1	50	(98.00)	(10)	(5)	(1.50)	
Net Profit (Net Profit to Gross Profit)		50%	15	50	(70.00)	(10)	(5)	(1.50)	
INTERNAL BUSINESS									
Fulfill product capacity (% actual incremental)	0.2	40%	1	50	(98.00)	(10)	(4)	(1.20)	
Cost of Good Sold (% Efficiency)		60%	84	72	16.67	80	48	14.40	
LEARNING & GROWTH PERSPECTIVE									
Employee Engagement (employee engagement score)	0.2	50%	40	40		0.00	30	15	4.50
Zero Accident (Zero Accident this year to last year)		50%	60	60		0.00	30	15	4.50
CUSTOMER PERSPECTIVE									
Customer Satisfaction (Percentage of customer satisfaction)	0.3	40%	45	45		0.00	30	12	3.60
Product Availability (Percentage of outlet growth)		30%	30	30		0.00	30	9	2.70
Earning per Share (Actual to Actual)		30%	45	45		0.00	30	9	2.70
		100%						94.00	28.20

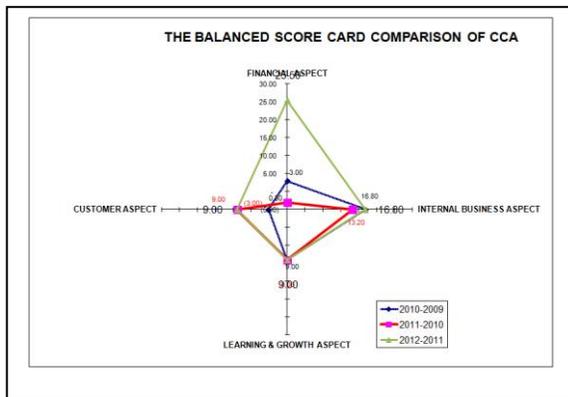
Source: the processed data, based on research

TABLE 6. BALANCED SCORECARD CCAI 2012 TO 2011

Parameter	Aspect's Weight	Parameter's Contribution	Factor 1 (2012)	Factor 2 (2011)	Achievement	Score	Parameter Score	Total Parameter Score	
A	B	C	D	E	F	G	H = G * C	I = H * B	
FINANCIAL PERSPECTIVE									
Trading Revenue (Actual to Actual)	0.3	50%	50	1	4,900.00	140	70	21.00	
Net Profit (Net Profit to Gross Profit)		50%	15	15		0.00	30	15	4.50
INTERNAL BUSINESS									
Fulfill product capacity (% actual incremental)	0.2	40%	45	1	4,400.00	140	56	16.80	
Cost of Good Sold (% Efficiency)		60%	72	84	(14.29)	0	0	0.00	
LEARNING & GROWTH PERSPECTIVE									
Employee Engagement (employee engagement score)	0.2	50%	40	40		0.00	30	15	4.50
Zero Accident (Zero Accident this year to last year)		50%	60	60		0.00	30	15	4.50
CUSTOMER PERSPECTIVE									
Customer Satisfaction (Percentage of customer satisfaction)	0.3	40%	45	45		0.00	30	12	3.60
Product Availability (Percentage of outlet growth)		30%	30	30		0.00	30	9	2.70
Earning per Share (Actual to Actual)		30%	45	45		0.00	30	9	2.70
		100%						201.00	60.30

Source: the processed data, based on research

To make a clear vision of comparison of the BSC performance year by year, the result of each table is presented in Picture 2. This picture will give an input to management as a dashboard performance for some area that might be improved and concerned by management. As a brief, the Learning & Growth Perspective has a stabil position year by year, since Financial Perspective and Customer Perspective make a significant growth.



Source: the processed data, based on research

Figure 2. The Comparison BSC Diagram of CCAI

V. CONCLUSION

BSC could be applied as evaluation tools of business performance, including IT application impact to business performance. The BSC tool will show the best measurement if the researcher could find the four strategic perspectives, strategic objective statements, and the indicator to measure in organization. Furthermore, it might contribute the excellent result if the researcher had discussed to management about the target or objective setup and each initiative parameter. In each period, the organization must to update the performance result in a worksheet or provided system before making general evaluation of business performance in BSC worksheet. The missing data in one period will make miscalculation of BSC result and it might get a bad impact in decision making process for strategic objectives in the future. The unique and clear measurement method of BSC could be drawn by comparison diagram year by year, as a dashboard management system.

In setting the target and criteria standard of BSC, there are many judgement and consideration in simulation. The evaluation result might different in future research if the management could not define the fix parameters into it.

Referring to the performance result of BSC Diagram in this research, CCAI must aware to Financial Performance and Customer Perspective further. They could be analyzed more deeply because of their gap on each year result.

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