ANALYSIS AND DEVELOPMENT OF MEASUREMENT THE EFFECTIVENESS OF CUSTOMER RELATIONSHIP MANAGEMENT SOFTWARE

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ABSTRACT
Currently, the popular strategic business is shifting the company from product oriented to customer oriented. This concept is known as Customer Relationship Management (CRM) that is used to maintain a relation to customers. To evaluate the effectiveness of CRM, software has been designed to develop a measurement of CRM effectiveness using Balance Scorecard and an assessment using Analytical Hierarchy Process (AHP). This software will smooth the progress of comparing the strategic planning from time to time. The operating system of this software is Windows and the programming language is Visual Basic. This software needs input data from questionnaire to achieve accurate and valid result of effectiveness measurement of CRM. The input data from questionnaire provide as a value of customer satisfaction within the perspective of customer satisfaction. Furthermore input data from questionnaire will also be needed to evaluate four perspective and total score of effectiveness measurement of CRM. This work shows that the software alleviates the measurement of CRM effectiveness and can be used to leave out miscalculation. Validation test have been done on PT. Y with the total score of effectiveness measurement of CRM is 3.43. Finally, the calculation of the effectiveness will more effective and more efficient because there is easiness in analysing improvement of target strategic in the four perspective of effectiveness measurement of CRM.

Key Words: Customer Relationship Management (CRM), Visual Basic

INTRODUCTION
The market competitiveness in the era of globalization has changed the marketing model which was initially product centered to customer centered. It means in producing a product or service, firm should consider the need from customer point of view as an important criteria. This paperwork, a model of effective measurement is designed from Balance Scorecard (BSC). With a modification to the four perspectives of BSC which was suggested by Kaplan and Norton, the writer could use the BSC framework in measuring effective of CRM in firm.

THEORETICAL BACKGROUND
Customer Value and Satisfaction
The satisfaction is one’s happy or upset feeling that comes from comparison between impression to the performance (or result) of a product and its expectation. If the performance is under the expectation, customer would feel dissatisfaction. If the performance fulfills the expectation, customer would be satisfied and extremely happy.

To attract and maintain the customer
The firm nowadays should take the customer defection rate into account. It is the rate of customer loss and taking immediate steps to decrease the trend. The cost to attract customer is more expensive than to satisfy the existing customer. A big effort is needed to attract the satisfied customer to shift their attention.

Customer Relationship Management
This is a strategy of information usage, technology and human process to maintain the customer relation with company through some functions within the company such as marketing, sale, service and other support for all customer life cycle. There area some important concepts that support the CRM definition where the concepts should be...
understood and stressed out since they have important role to the success of CRM implementation that is: CLS (Customer Life Cycle) has total time definition where the customer is in relation with the company from the customer's point of view and experience.

**BSC (Balanced Scorecard)**

Balanced Scorecard is a collection of integrated performance measurement derived from the company strategy in a whole. Therefore BSC is a fast, precise and comprehensive management, measurement and control system and can provide the understanding to the manager on business performance.

The performance measurement considers business unit from four perspectives, finance, customer, business process in the company as well as the process of growth and learning.

**AHP (Analytical Hierarchy Process)**

The process of taking a decision is basically choosing an alternative. The main tool is a functional hierarchy with human perception as the main input.

Basically, the steps in AHP method comprises: defining problem and setting the desired solution.

Making a hierarchy structure is started with general purpose and continued with sub-objective, criteria and the possibility of other alternatives to the very bottom criteria.

Making a matrix of intertwined comparison that illustrates the relative contribution or the effect of each element to the respective objective or criteria one level above it. The comparison is done based on the judgment from the decision taking by assessing the level of interest of one element with other elements.

**RESEARCH METHOD**

**Model of formulation**

In order to reach the mission and recognizing the effective of CRM activity, the company can perform CRM effective measurement by modifying four perspectives in balanced scorecard, they are finance, customer, internal business and growth and learning to four new perspectives which is customer oriented customer knowledge, customer interaction, customer satisfaction and customer value.

The map strategy is an architecture to describe the strategy so that the company can direct all organizational resources effectively to the manifestation of organizational vision.

A good BSC should be able to explain the company strategy through cause and effect relation. The measurement system should identify and set the hypotheses sequence on cause and effect relation between the result measurements with its performance booster.

The measurement used in BSC is the result measurement that will be reached by the company (Lag indicator) and lead indicator as a performance boosting factor that reflects the uniqueness of strategy and factor used to reach that lag indicator.

In measuring the CRM effective in the company, BSC perspective is used in Liker scale, that is, score 5 means very good, score 4 means good, score 3 means fair, score 2 means poor and score 1 means very poor.

In order to know the magnitude of contribution of the respective strategic objective then the value is done for each strategic objective that becomes other strategic target.

The value performed with Analytical Hierarchy Process method.

**Algorithm Method**

In developing this software, it is necessary to set up a rule appropriate with the existing theory.

1. Model of total value of customer satisfaction, customer satisfaction perspective.
2. Model of CK, CI, CS and CV valuing perspective.
3. Model of valuing perspective CK, CI, CS and CV.
4. Model of CK, CI, CS and CV.
5. Model of total value.

**The selection of operation system and programming language**

**Operating system**

The Windows understanding as viewed from the user side is a shell for making relation and running Windows application. While in view of the programming, Windows is working on some tasks and a collection of hundreds of Application
Programming Interface (API) [c] functions. These functions if combined and used appropriately will become a useful application.

The benefit of using windows

The use of windows application has some advantages for the user among others, windows applies the standardized using operating for each application. This standardized operation will certainly be helpful for user in using Windows application. Theoretically, if the user has been schooled to user an application, then other applications will be easily used.

Other benefit from Windows application is more accessible. The user is no longer limited by the amount of memory.

The advantage in Windows is essentially in accessing the hardware, and in designing interface relationship with the user. In fact, time that is mostly spent by the programmer in making an application is resolving the two problems.

The language of visual basic programming

Visual basic is a Windows-based facility of application developer (software developer). "Visual" tends to the method of GUI (Graphical User Interface) establishment with the simplicity in placement and forming an object on the screen without writing much of program lines. The visual basic is not only found in individual programming language, however the system of Visual Basic programming is integrated in Microsoft Excel, Microsoft Access and some other Microsoft application. While the Visual Basic Scripting Edition (VBScript) has been much used as such in ASP (Active Server Page) design and a subset of Visual Basic programming language.

Programming Criteria

In performing the calculation of customer relationship effective measurement, a tool is needed to simplify its calculation. So far, the calculation is performed manually so that each company that has been applied CRM in its implementation needs longer time in performing measurement of CRM effective. This software is made with consistent, accurate, efficient and effective criteria.

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**Story Board**

**Opening Menu**

This menu is an introduction of CRM effective measurement software. Before we come into the main menu, we should pass through this menu first. This menu has 2 main buttons, Exit button and Main Menu button. The buttons have the following functions, Exit buttons function to come out from this software, while Main Menu buttons is for coming into the main menu.

**Main Menu**

If we press the main menu in the introduction menu, then we will come into the main menu. This menu is a menu to fill and process. Before
we use this software, we should give the user id, user name and password. This menu has some menu buttons, that is, Assessment menu buttons, valuing menu buttons, information menu buttons, customer knowledge menu buttons, customer interaction menu buttons, customer value menu buttons, and total value menu buttons.

The Development of Software

Fig. 2. Introduction Menu

Fig. 3 Main Menu

Fig. 4 Information Menu

Fig. 5 Assessment Menu

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Fig. 6. Valuing Menu
Through the method of analytical hierarchy process which is a functional hierarchy with human perception as the main input, then the level of interest of an element compared with other elements will be clearer. This software is able to provide maximum value information from respective matrix Eigen value. Consistency index and Ratio consistency. This rate indicates the consistency level of acceptance of person to the assessment given to a problem based on random consistency rate listed in the table.

Efficiency

After trying the examination in the calculation of CRM effective measurement, both using software or hardware indicating different result. This is evidence that the software of CRM effective measurement that has been made may run as expected, so that if we use the software will shorten the necessary time in calculating CRM effective measurement.

Application simplification

One of the benefit of software is that it can be used by all parties, be it laymen, quality engineering and organization, they can use this software.

CONCLUSION

In developing the computer software, there are still technical things that have not developed. They are:

- questionnaire menu facility for valuing quality dimension, perception and customer satisfaction.
- Facility in printing directly.
- Facilities in picture file minimizing size and are saved in true color format.
- Zooming and bilingual
- Rating the cause of CRM effective from each strategic objective or to the existing four perspectives.

The things above can be developed further for the future. This software can be manifested well.

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