



Proposed verification method for the content suitability of the customer satisfaction survey

Customer
satisfaction
survey

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Abstract

Purpose – To address multiple problems facing a company's top management with respect to the customer satisfaction survey. Is the customer satisfaction survey still suitable after many years of use? What method should be applied to help ensure better utilization of information from the customer satisfaction survey? Should the three aspects (i.e. quality, delivery, and responsiveness) representing the customer satisfaction continue to be used as part of the survey's main contents. As an ISO 9001:2000 certified company, the customer satisfaction survey is required.

Design/methodology/approach – A method was proposed to help integrate the survey results with other key performance indicators (or ratios). This integration represented the verification effort on the suitability of the customer satisfaction survey. The examinations into the interrelationships between these three aspects the company's performance indicators included three perspectives. They were: no time-factor consideration; one-period time-lag factor; and two-period time-lag factor. The set of key performance indicators was selected jointly with the company's top management.

Findings – The findings indicated that the quality and responsiveness aspects were still suitable. This was because these results were closely related to the production volumes, number of customer complaints, number of customers, and, etc. Therefore, the revision of the customer satisfaction survey needed to focus on adding other aspects such as flexibility and courtesy while doing away with the delivery aspect.

Practical implications – The proposed method, and its findings and recommendations received positive responses from the company's top management. This method utilized and related existing performance information in an integrated manner.

Originality/value – This study generated a potential approach to understand and to help interpret the customer satisfaction survey's results, to boost the utilization of relevant performance information, and likely to assist in a target-setting process during a planning session.

Keywords Customer satisfaction, Performance measures, Quality management

Paper type Case study



1. Introduction

This case study stemmed from several needs that related to the survey on customer satisfaction at one private company. The first one represented the need to assess and evaluate the content suitability of the company's annual customer satisfaction survey. The second need reflected the desire by the company's top management to find a better

way for enhancing the use of the results from this annual survey. The third one was the need to develop a practical method that the management team could further integrate the survey's overall results with other performance information. Table I shows the company's profile and information.

2. Problem statement

As the ISO 9001: 2000 certified company, the effort to assess the customer satisfaction level is required. For the firm under study, there existed a standard survey (consisting of many inquiry items) that had been distributed to its customers annually. The average return rate from these customers had been more than 95 percent. These items, presuming that they reflected customer satisfaction, were grouped into three aspects:

- (1) quality;
- (2) delivery; and
- (3) responsiveness.

In the past, the company's overall satisfaction level appeared to be very high. In 2004, the overall satisfaction level (officially known as CSI – customer satisfaction index) was more than 99 percent with all customers returned the company's surveys. Table II shows the 2004 CSI results from the firm's customers.

Generally, when the survey forms were returned, the average score from each item was computed. Then, the following step was to report the findings for the

Company site	Rojana Industrail Park, Ayuthaya 13210, Thailand
Product and production	Tire cord fabric, 18,000 tons/year with the customers in both the domestic and international markets, primarily the ASEAN (Association of Southeast Asia Nations – consisting of ten countries) and other Asia-Pacific region
Employees	520 employees (as of December 2005)
Main customers	Goodyear/Sumitomo, Bridgestone, Firestone, Michelin/Siam Tyre Group, Uniroyal/Goodrich, Pirelli, the Sime Darby Group, Continental/General Tyre, the South Pacific Tyres Group, and Sylverstone

Table I.
Company's profile and background

Survey items	Average points (from 34 customers)
Properties of product	99.90
Mechanical quality and appearance	99.80
On-time supply	100.0
Effective of corrective action	99.78
Response time of complaint	99.72
Production packaging	98.80
Service	99.81
TBM product quality compared	98.00
Average	99.48

Table II.
The 2004 CSI scores

management-review session. During the 1997-2004 records, the results were considered to be excellent with the average scores from each item exceeding 95 percent. However, based on the memos of the past management meetings, there has not been any tangible action to reinforce or to help sustain the excellent CSI levels. In order to continuously improve the CSI, the top management team expressed the need to assess the survey's suitability and applicability.

This need stemmed from the following questions. Did the information of high CSI have any value or usefulness? Did high CSI have other implications to the company such as higher production volumes, consistency with defective items, corresponding with the training effort, and, etc.? Should the effort on the customer satisfaction survey have still been relevant (if not required)? How could the CSI level of 99.48 percent be interpreted by the company? Should the survey be continued in its current form (e.g. questions and frequency) with the emphasis only on quality, delivery, and responsiveness? Figure 1 shows the customer satisfaction survey form while Figure 2 shows the problem and its scope.

3. Objectives and scope of the study

Given the above background and the company's needs, the study's objectives could be stated as follows.

CUSTOMER NAME: _____

No	Items	Rating
1.	Properties of product	
	Remark:	
2.	Mechanical quality and appearance	
	Remark:	
3.	On time supply	
	Remark:	
4.	Effective of corrective Action	
	Remark:	
5.	Response time of complaints or customer 's request	
	Remark:	
6.	Product packing	
	Remark:	
7.	Compare quality of the same product with others	
	Remark:	
8.	Service compare to others	
	Remark:	

Filled by:		
Name:	Title:	Date:
Signature:		

Rating System

Very bad	0-39	Poor	50-59
Bad	40-49	Fair	60-69
Satisfactory	70-79	Good	80-89
Excellent	90-100		

** Please fill in value according to rating system. Maximum rating represents the best supplier regarding to the item asked.
(Note: the firm under study is the supplier from the customer point of view.)

Figure 1.
Customer satisfaction
survey

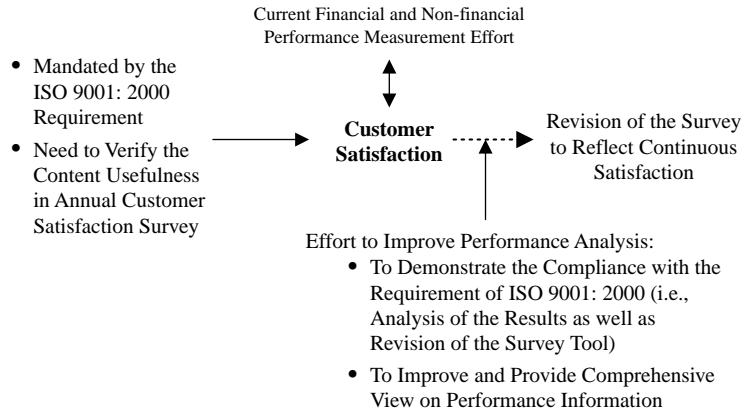


Figure 2.
The scope of the study

- It was to propose a method that helps assess the suitability of the customer satisfaction survey. This assessment was to be accomplished by examining the information usefulness of the customer satisfaction level or the CSI with respect to other performance results.
- It was to demonstrate a comprehensive and integrated view of the company's performance information.

4. Literature review

In order to elaborate the needs from and the problem facing the company's top management, it is important that the following terms be discussed. They are:

- customer satisfaction;
- ISO 9001: 2000; and
- performance measurement.

The practices on quality management have always begun with customers (Sink and Tuttle, 1989). In the past, the focus was primarily on customer requirements. It was a compliance-based effort with the balanced emphasis on both regulations and competition. These requirements reflected the practices that were more likely obligated or mandated. Owing to intense competition, the focus on quality management shifted to customer satisfaction. It represented the degree of customer perception to which their needs are fulfilled (Thornton, 2005). According to Talor (1995) and Reis *et al.* (2003), the customer satisfaction included both products and services that are beyond the consideration of zero defects and fitness for purpose. During the past decade, due to extensive globalization, the new emphasis began to emerge. This has been referred to as customer delight and experience (Keiningham *et al.*, 2004). It indicated and displayed the ability of the company to provide a set of tangible and intangible benefits that were beyond generally – accepted basics such as product specifications and functions, full-service provision, and a combination of which provides value or return beyond what customers expect or have received from the company and its brand (Sandholm, 2005). It also involved how well the company manages customers' experience and relations (Ahn *et al.*, 2003).

A bakery shop which provides the best taste products with plenty of smiles from its staffs may not be referred to as customer delight if a customer (who has both hands full of bags) does not receive a courtesy of having a door opened when walking out. In addition, achieving customer delight and experience requires the management of the company to realize that it is dynamics and merely represents “a moving target or goal.” There is no fixed target to accomplish customer delight. For example, the hotel is obligated to provide a safe and clean room. The competition forced the hotel to offer room services, a room bar, bathroom accessories, internet connection, and, etc. Only few well-recognized hotels are offering a microwave, plastic wrap for leftover foods, next-days weather report, real-time flight information, and so on. As the competition increases and intensifies, more examinations into customer delight will be critical to ensure business success, public reputation, and outstanding recognition. In the near future, the most likely challenges on quality management will be the identification of the possible tasks to ensure customers have positive experience about products and services (before-, during-, and after-sales). As indicated by this trend, a company’s management needs to strengthen the use of customer satisfaction information.

Based on the previous discussion with respect to quality management, there have been many ways to assess the level of customer satisfaction from both the quantitative and qualitative perspectives. Typically, the ratios of market share, percentage of repeated customers, percentage of revenues from repeated customers, and percentage of revenues from rework represent the quantitative effort to assess and evaluate the customer satisfaction level. On the other hand, the use of focus groups, face-to-face interviews, and surveys reflect the qualitative approach in assessing the customer satisfaction level. Specifically, the survey represented an attempt to create feedback and communication with customers as a company tried to retain its existing customers and/or to attract its potential customers. During the past decade, there has been a shift in a company’s practice from only conducting the survey to both conducting the survey and assessing its suitability. The reason is that, often, the customer satisfaction survey does necessarily not lead to the benefits in terms of financial and non-financial values as expected. It is important that the customer satisfaction information be analyzed in new ways that recognize its potential. According to the customer experience management excerpt attached to www.kinesis-CEM.com, higher customer satisfaction does not mean higher income in a proportionate way. For many firms, a conventional analysis appears to lack an effort to develop a relationship between satisfaction and business outcomes. It was discovered that 60-65 percent of customers, who had defected from their companies, were considered as satisfied or happy (Keiningham *et al.*, 2004).

It is generally accepted that the trends in quality management have been influenced by several factors (e.g. competition, standards, and economic conditions) in addition to customer requirement, satisfaction, delight, and experience. The impacts of existing standards relating to how an organization can systematically manage its quality simply cannot be overlooked. The International Organization for Standardization (ISO) is a non-profit organization established to enhance international cooperation and commerce by coordinating the development and dissemination of standards for uniform business practices. First adopted and issued in 1987, the ISO 9000 represented a series of standards for requirements in quality management systems. The primary purpose is to level the playing field for the management of quality for the world’s commercial products and services. The review and update on each issued ISO standard

have been performed approximately every five years. The overall goal has always been to ensure that the standards are to be consistent with the proven contemporary practices. The standard had minor revisions in 1994. However, the 2000 update was a major one. It incorporated several concepts that would provide a better alignment with what are considered to be best practice and well-proven strategies with respect to quality management systems (www.1stncclass.com).

To enhance quality management in a systematic manner, the concept of continual improvement is added to the previous ISO 9000 Series. Another fundamental difference in the new standards' requirements is the extension of customer awareness and concern beyond a customer complaint system to the need to an actual evaluation of customer satisfaction (www.1stncclass.com). In other words, for ISO 9001: 2000, the customer satisfaction assessment is mandated by Requirement 8.2.1. Although the paper provides the discussion on customer delight in order to demonstrate the emerging trends in quality management. However, the effort on assessing the customer satisfaction level is still prevailing in most companies today. In addition, the concept of customer satisfaction represents one of the key criteria embedded in the Malcolm Baldrige Award for excellence in quality management, and also a fundamental feature of most contemporary practices in quality models (Prybutok and Cutshall, 2004).

Generally, the quality management practices should be consistent with performance measurement and strategic objectives of an organization. The knowledge on customers feeling, attitude, needs, want, and current deficiency of products or services is critical. The greatest challenge depends on how well this information from customers is used to strategize future activities. Since, the executives and managers need to measure and monitor the business performance in the key critical areas such as financial, operational, customers, stakeholders, strategies, and the resources, it is important that the customer satisfaction survey's results are used in conjunction with (and should not be independent from) other performance information. One of the most important components of performance measurement is the set of key performance indicators (indexes or ratios). These indicators are classified as financial or non-financial. The financial indicators are derived from or directly related to the firm's accounting system such as a profit and loss statement or a balance sheet; e.g. inventory levels or cash on hand, liquidity, return on assets or return on investment, and, etc. The non-financial indicators are opposite since they intend to provide information on productivity, customer satisfaction, supplier contributions, innovation on processes and product development, resource utilization, etc.

Owing to the need to have a better and a more integrated view on information from performance measurement, several concepts have been developed to fulfill this need, namely the scorecard framework. There are many available scorecards such as Sink's, and Kaplan and Norton's. These scorecards advocate the need to measure and relate both financial and non-financial areas within an organization. For example, Sink (1985) stated that there were seven criteria that represented the term performance:

- (1) profitability;
- (2) quality;
- (3) productivity;
- (4) quality of working life;
- (5) innovation;

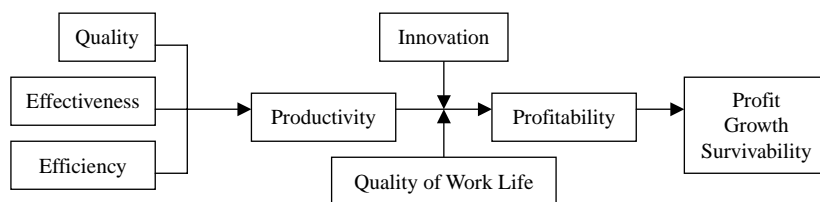
- (6) effectiveness; and
- (7) efficiency.

They were assumed to have cause-and-effect relationships. At the same time, Kaplan and Norton (2004) proposed the popular balance scorecard, consisting four perspectives. They (i.e. customers, financial, internal business, and innovation and learning) were assumed to have mutual impacts. Figure 3 shows the Sink's performance scorecard.

5. Methodology

There were several steps that had been taken for project completion:

- (1) Understanding of the implications for each of the three main aspects that reflect the term customer satisfaction. Table III demonstrates the results from this step.
- (2) Linking between the anticipated implications and the expected outcomes as a subsequence of fulfilling the items in the customer satisfaction survey. These dependent variables were carefully chosen together with the company's management to reflect the expected impacts from the high customer satisfaction level. Figure 4 shows the results from this step.
- (3) Examining and establishing the possible interrelationships between each performance indicator and the customer satisfaction results. There were three circumstances to be examined. The first one was the relationship without the time-factor consideration. The second examination was into the relationship with the time-lag factor of one year. The last focus was on the relationship with



Source: Adapted from Sink (1985)

Figure 3.
Performance scorecard

CSI aspects	Implications
Quality	Properties of product Mechanical quality and appearance Product packing Product quality relatively to other suppliers' of the same product
Delivery	On-time delivery
Responsiveness	Effective of corrective action Response time of complaints or other customer's request Service comparing with competitors

Table III.
Identification of aspect
implications on customer
satisfaction

the time-lag factor of two years. This study used the Minitab program for identifying the equations that represent these relationships. The consideration of the time-lag factor was incorporated to explore gradual impacts from customer satisfaction, and to ensure the confidence of the findings. The reason for this incorporation was that Sink's performance measurement discussed the need to understand high quality may not lead to the more productive level immediately. It should be recognized that there were more than nine indicators that the company's top management used to monitor the performance level. When this method was proposed, it was agreed together with the management team that, initially, it would be tested with performance information primarily derived from the production/plant unit. As a result, the nine selected indicators were carefully chosen because they were possibly related to the customer satisfaction level. Table IV shows the results of the customer satisfaction survey as well as to the nine performance indicators selected.

Circumstance 1. (To identify whether the customer satisfaction results had any impact on the levels of performance indicators at the same year)

$$\text{Model : } Y_{2004} = (a)X_{2004} + b \quad (1)$$

Circumstance 2. (To identify whether the customer satisfaction results of a previous year had any impact on the levels of performance indicators in the current year)

$$\text{Model : } Y_{2004} = (a)X_{2003} + b \quad (2)$$

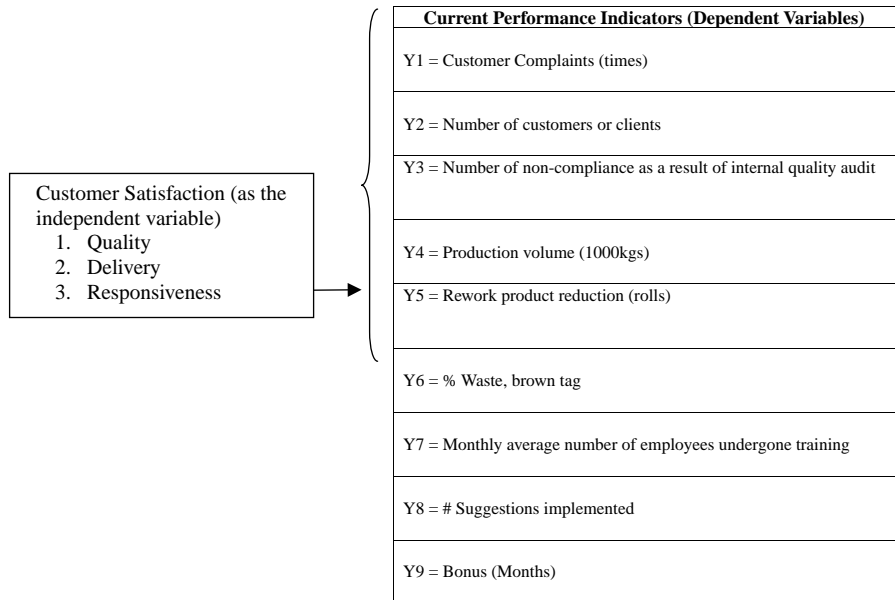


Figure 4.
Relationships with current performance measurement effort

Year	Performance indicators									Customer satisfaction (points)		
	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Quality	Delivery	Resp.
1997	42	27	40	13,237	2,520	14.64	11.75	0	1.50	97.54	99.95	99.01
1998	22	29	36	10,507	2,292	14.55	12.20	0	0.50	98.38	99.72	98.15
1999	14	30	32	14,267	2,274	14.43	12.29	0	0.00	98.90	100.0	98.92
2000	15	32	29	16,019	2,160	14.23	12.37	2	0.00	98.84	100.0	99.24
2001	12	32	29	14,963	2,025	13.99	12.48	3	1.50	99.62	100.0	99.03
2002	11	33	25	17,261	2,076	14.00	12.70	3	2.25	98.98	99.80	99.51
2003	11	33	23	17,379	2,047	13.95	12.70	3	2.55	98.74	100.0	99.67
2004	10	34	23	17,532	2,010	13.78	12.85	5	2.55	99.13	100.0	99.77

Notes: Y1, customer complaints (times); Y2, number of customers or clients; Y3, number of non-compliance or NC finding from internal quality audit or IQA; Y4, production volume (1,000 kgs); Y5, rework product (rolls); Y6, percentage of waste, brown tag; Y7, average number of employees undergone training on the monthly basis; Y8, number of suggestions implemented; Y9, bonus (months); Q, quality; D, delivery; and R, responsiveness

Table IV.
Demonstration of data used for testing the customer satisfaction survey

Circumstance 3. (To identify whether the customer satisfaction results of two years ago had any impact on the levels of performance indicators in the current year)

$$\text{Model : } Y_{2004} = (a)X_{2002} + b \quad (3)$$

6. Analysis of results

The equations were identified, based on $\alpha = 0.05$ and $\text{Adj-}R^2 \geq 50$ percent. Based on all the interrelationships identified, the information regarding the quality and responsiveness aspects of the customer satisfaction survey was useful in predicting or forecasting the performance levels for several key performance indicators. On the contrary, the delivery aspect did not result in any significant implication on or relationship with any of the selected key performance indicators. In other words, the positive impacts from achieving high satisfaction in service delivery did not have any impact on customer complaints, number of customers, etc. At the same time, the high scores on quality and service responsiveness could, with high confidence, predict the results with respect to the number of customer complaints, number of customers, and downtime of machines in the production line. Based on these overall results, it is generally accepted that there were likely more than two aspects (i.e. quality and responsiveness) that drove or influenced the performance levels indicated by these nine ratios due to variations in $\text{Adj-}R^2$. Table V displays the results.

To further analyze these results, the following findings can be summarized. Without the time-lag factor, the quality and responsiveness aspects of the customer satisfaction survey could be used to help plan or estimate the production volumes, the percentage of waste, and even the number of customers expected. On the other hand, these two aspects could indicate the expected numbers of customers, the percentage of waste, and the rework amount for the following period. For the future prediction of two periods, the quality and responsiveness aspects could help estimate the number of customer

Table V.
Overall findings on the
interrelationships

No time-lag effect Model	Adj- R^2	Time-lag factor of one year Model	Adj- R^2	Time-lag factor of two years Model	Adj- R^2
Y1 = 1,587 - 15,9Q	77.52	Y1 = 544.2 - 5.4Q	62.94	Y1 = 454.1 - 3.01R - 1.46Q	97.89
Y2 = -449.1 + 2.38Q + 2.47R	82.69	Y2 = -339.4 + 1.86Q + 1.89R	84.75	Y2 = -126.8 + 1.61Q	59.63
Y3 = 1,271 - 7.4R - 5.2Q	79.97	Y3 = 620.4 - 0.01Q	54.59	Y3 = 477.8 - 4.6Q	67.17
Y4 = -489.052 + 4,272R + 816Q	97.09	Y4 = -327,515 + 3,474Q	73.39	Y4 = -132,196 + 1,504Q	56.74
Y5 = 275,002 - 2,564Q	73.92	Y5 = 273,801 - 1,531R - 1,021Q	83.85	Y5 = 148,123 - 1,288Q	73.79
Y6 = 79.16 - 0.368R - 0.288Q	85.66	Y6 = 73.20 - 0.35R - 0.248Q	80.89	Y6 = 41.90 - 0.282Q	66.32
Y7 = -31.37 + 0.44Q	52.09	Y7: No relationship		Y7: No relationship	
Y8 = -281 + 2.85R	57.69	Y8 = -291.5 + 2.97R	59.09	Y8 = -175.1 + 1.80Q	48.96
Y9: No relationship		Y9 = -184.6 + 1.88R	56.21	Y9 = -256.7 + 1.22Q + 1.39R	97.57

complaints as well as the bonus period for staffs with high confidence. Interestingly, the ability to help the company anticipate the production volume (Y4) and the percentage of waste (Y6) declined with the longer time-lag factor consideration. This may be due to the immediate-impact nature of customer satisfaction on production. When customers were satisfied, they tended to order high volumes. More interestingly, the bonus periods (Y9) could be confidentially predicted with the two-period time-lag factor, based on the quality and responsiveness levels. Potentially, this may be used to highlight the need to be consistently courteous and considerate by the staffs when dealing with the company's customers. To demonstrate the linkage with the specific performance indicator, the brief analysis on three examples is as follows.

- (1) *Customer complaint.* From the three experimental conditions, the ability to predict the number of customer complaints has the highest confident level at 97.89 percent with the time-lag factor of two-year, based on the level of quality and responsiveness responses. This might imply the need to actively engage with customers on the continuous basis.
- (2) *Number of customers.* High quality and responsiveness to customers could help translate into the higher number of customers, especially with the time-lag factor of one period. However, with the two-period time-lag consideration, the impacts from the responsiveness aspect became very minimal.
- (3) *Bonus period.* The findings provided a very interesting premise. The customer satisfaction level, from all three aspects, has no relationship with the determination of the bonus period. As a time-lag factor increases, the impact becomes more apparent, especially from the quality and responsiveness aspects. In fact, the levels from both aspects can be used to provide the expected number of the bonus period (97.57 percent confidence with the time-lag factor of two-year).

7. Discussion and limitations

The proposed method to assess the usefulness of the customer satisfaction survey has been provided and presented. For the first objective of the study, this method identified the need to revise the key aspects that represent the customer satisfaction of one company. The initial results indicated the information usefulness only for the quality and responsiveness aspects. For the second objective, the more integrated view of performance information was also demonstrated. The information from the customer satisfaction level should not be analyzed in isolation from other current performance information. In other words, the customer satisfaction results should not be used only as compliance evidence to the ISO 9001: 2000 requirement. By integrating with other performance indicators, the better view and understanding on their impacts could be realized. This was especially true for the better awareness on the time-lag effects (gradual increasing or decreasing impacts). The discussion on how to interpret these results helped improve the meeting atmosphere during one management-review session. The initial reaction from the company's top management was positive. This proposed method was practical (by utilizing existing performance information) and provided potentially insightful pictures. These gradual impacts, from both increasing and decreasing points of view, were quite beneficial for initiating improvement interventions. Although the proposed method was perceived to be both useful and

simple, its limitations from both the practical and theoretical perspectives should be addressed.

First of all, more studies and examinations should be made with other financial performance indicators. The impacts on the profits, earning per share, revenue, and growth rate should be further examined in order to add more credibility to this company's ultimate decision on the survey revision (Hallowel, 1996). The second limitation is on the attempt to relate the overall customer satisfaction level with the company's information at the plant and the organizational levels. Even though an extensive discussion was held to ensure that the linkage (to be established between the CSI level and other performance indicators) would reflect what the company's top management perceived as causal relationships, more careful consideration before determining what to be part of this establishment is still needed. For example, one possibility is to relate the customer satisfaction with staffs' quality of work life (Green *et al.*, 2004). This is to avoid the attempt to prematurely link with other unnecessary indicators. The third limitation is a lack of the time factor integration – the third block in Figure 5. The experiment on the proposed method focused only on the time-lag factor due to more interests by the company's top management in regard to the understanding of the immediate and gradual impacts of customer satisfaction. Other alternative approaches in exploring and examining the impacts from customer satisfaction should be observed and adapted in order to help verify the study's analysis (Hallowel, 1996; Bowen and Chen, 2001). The fourth limitation is a need to extend the time-lag factor consideration so that the trends of either increasing or decreasing impacts could be better observed and interpreted. For the proposed method, the time-lags of one- and two-year were used. Finally, the last limitation is on the frequency of data collection. While the data on some of the nine performance indicators were regularly collected on the monthly basis, the survey results were obtained annually. The data for the customer complaints, the number of NC findings from IQA, the production volumes, the rework product, percentage of waste, number of suggestions implemented was computed to obtain the monthly average of one year. This may neglect the effects from seasonal adjustments.

8. Conclusion

For the company's management, the customer satisfaction survey has been quite beneficial in many ways. In addition to the compliance with ISO 9001: 2000, the survey effort can be used to help predict, with high confidence, on the production volumes and the percentage of waste (for the circumstance of no-time factor consideration), the number of customers and the rework (for the circumstance of one-period time-lag effects), and number of customer complaints and the bonus to be paid out to employees (for the circumstance of two-period time-lag effects). By having examined the interrelationships between each of the three aspects within the customer satisfaction

$$(1) \text{ Excluding the Time Relationship: } Y = a + b(X)$$

$$(2) \text{ Including the Time-lag Factor (for } t-1, t-2, t-3, \text{ etc.): } Y_t = a + bX_{t-1}$$

$$(3) \text{ Including the Time-factor: } Y = a + b(X) + c(t)$$

Figure 5.
Possibilities on
interrelationship
development

survey and the current nine key performance indicators, the company's management discovered that the delivery had played no significant role. The review on the survey suitability will have to take this finding into consideration. Based on the final follow-up session with top management, the general feeling was that the high average scores representing the customer satisfaction level alone might not be meaningful. However, by relating to current performance indicators, the view on performance information had been broadened. By addressing the above limitations, this study potentially generated a possible alternative to assess the suitability of the customer satisfaction survey, to help interpret the customer satisfaction survey's results, to boost the utilization of relevant performance information, and likely to assist in a target-setting process during a planning session.

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