Strategic Quality Management Costing and Firm Sustainability: An Empirical Investigation of ISO 9000 Manufacturing Firms in Thailand

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Abstract

The study aimed to investigate the effects of the strategic quality management costing (SQMC) on firm sustainability. The resource-based view was applied to explain the five dimension attribute of SQMC. The ISO 9000 manufacturing firms in Thailand were selected as the sample in this study. The questionnaire was used as the instrument for data collection from 195 accounting executive of ISO 9000 manufacturing firms in Thailand. The Ordinary Least Squares (OLS) regression analysis was a method for testing the hypotheses. The results showed that dimension of strategic quality management costing including dynamic customer learning cost and value chain creativity budget emphasis positively impact goal achievement. Moreover, the findings suggested how that goal achievement had a positive relationship with firm sustainability. Finally, this study generates theoretical and managerial contributions, conclusion, limitation, and suggestions for future research.

Keywords: Strategic Quality Management Costing, Goal Achievement, Firm Sustainability.

1. Introduction

Globalization impacts all facets of our social, economic, and political lives. Access to international markets, information, low-cost resources in the developing economies, and efficient supply-chain and logistics services have transformed the way manufacturing organizations are doing business (Kuivanen, 2008; Manyika et al., 2012). Consequently, manufacturing organizations are similar in a way that they are all keen to adopt the best practice in work settings, which found that large size manufacturing organizations use established quality management tools (Garstenauer, Blackburn, & Olson, 2014).
The reason that quality management (QM) is a management function that ensures the quality of the products, services and/or operation processes of an organization and it contributes to the competitiveness and maintains the sustainability of the organization (Chin-Keng, 2011).

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Interesting, quality cost is the most reliable tool for evaluation of efficiency and effectiveness of the realized measures for quality promotion and a basis for all decisions referring to quality (Akenbor, 2014). The concept of "quality costs" is the costs incurred in design, implementation, operation and maintenance of a quality management system (Akenbor, 2014; Sedevich-Fons, 2012). However, the evidence showed that the quality cost system initiative and maintaining in practice within organizations remain difficult for most organizations (Kanapathy & Rasamanie, 2011; Schiffauerova & Thompson, 2006). Further, different of consult with experts, and use efficient methods to determine some areas to invest and improve which these factors can contribute significantly to smooth the process of quality cost system implement throughout the organization (Arabian et al., 2013).

Based on the earlier mentioned above, it can be claimed that work is needed to better understanding drive manufacturing organizations improvement using quality cost to support successfully of QM. Hence, the key research question in this study is, "How does strategic quality management costing influence firm sustainability?" with the key objective to explore and highlight the relationships between strategic quality management costing and its consequences. In this study, the unit of analysis is based on the population that is ISO 9000 certified manufacturing firms in Thailand. Lastly, the results of this study could create the theoretical and managerial contributions for developing a new perspective of accounting costing for quality management practices.

2. Literature reviews and hypotheses development

Based on the extensive literature reviewed, to clearly understand the relationships among new dimensions of strategic quality management costing, its consequences and the resource-based view theory elaborated to explain the aforementioned relationships. In this study, strategic quality management costing is the main variable and the center of this study. This study purposes that strategic quality management costing is positively related to firm sustainability by the mediating effects of goal achievement. Figure 1 illustrates the relationships among strategic quality management costing, antecedents, and consequences.
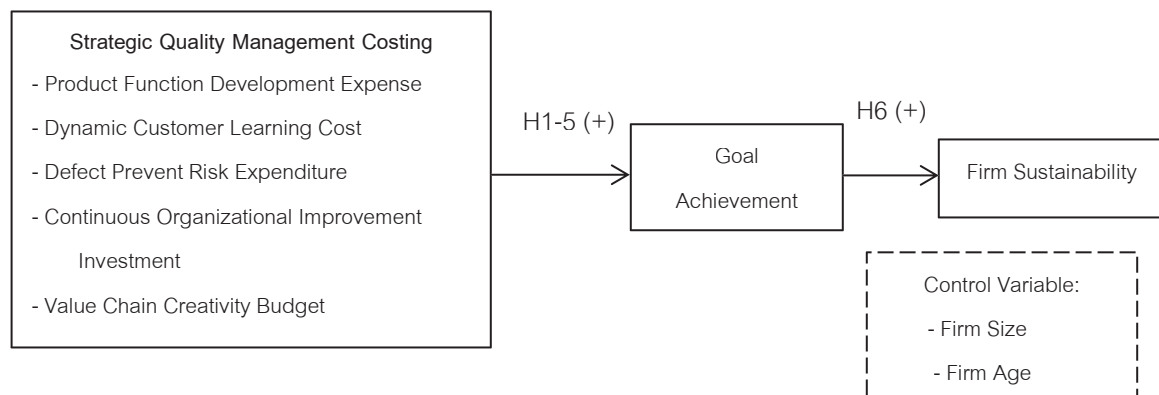

Figure 1: Conceptual model of strategic quality management costing and firm sustainability:

An empirical investigation of ISO 9000 manufacturing firms in Thailand

2.1 Strategic Quality Management Costing (SQMC)

Strategic quality management costing (SQMC) refers to the firm's capabilities to collect, classify, analyze, and report the quality-related cost and usefulness of quality cost information aims to measure and evaluate the relative importance of quality problems and identifies major opportunities for cost reduction and improving quality lead to firm sustainability (Akenbor, 2014; Sedevich-Fons, 2012). Hence, the SQMC focus on conformance costs, which is cost and expenses those incurred by a process of quality management systems. The SQMC can play a significant role in a firm's sustainability efforts because if manage well organizations will have the potential energy to establish valuable, unique resource according to concept a resource-based view (Barney, 1991).

The SQMC proposes to enhancement the knowledge of the quality management practices and quality cost system on complex nature of manufacturing firms. Thus, strategic quality management costing provides a conceptual framework accounting costing for support a core of quality management practices of ISO 9000 manufacturing firms. Moreover, strategic quality management costing provides a quality-relate information to support manager succeed monitoring, controlling, assessing and improving existing management systems, and achieving quality objectives.

According to the discussion above and the fundamentals the theory of resource-based view, this study classifies strategic quality management costing into five distinctive dimensions comprising product functional development expenditure, dynamic customer learning cost, defect prevention risk expenditure, continuous organizational improvement investment, and value chain creativity budget.

2.1.1 Product Function Development Expense (PFD)

Product function development expense refers to the firm's ability to managing cost accounting associated with allocation resource for activity performs about design, develop, production the characteristics and features of products in order to achieve customer satisfaction (Akao,1990; Pizzini, 2006). Quality function deployment is defined as a method to develop design quality aimed at satisfying customers and translating the customers' demands into design targets and major quality assurance points to be used throughout the production phase (Akao, 1990). Pizzini (2006) claims that accurate product costs can be built from accurate records of compilation cost data by appropriate cost accounting methods, allocating factory overhead by accurate and appropriate criteria calculation of product costs by using real, complete cost data, and careful processing that calculates the product cost. Hence, a firm must have the expense for product development, understand the changes constantly taking place in the marketplace, and are the necessary talents and resources available. Thus, the hypothesis 1 is proposed as follows:

Hypothesis 1: Product function development expense is positively related to goal achievement.

2.1.2 Dynamic Customer Learning Cost (DCL)

Dynamic customer learning cost refers to the firm's ability to managing cost for accessing customer expectation, customer requirement, and customer needs through customer database investment

and communications regularly for understanding a customer change (Feng et al., 2012; Phokha & Ussahawanitchakit, 2010; Van-Raaij, 2005). According to the customer learning capability can develop a marketing strategy and create superior value for customers (Feng et al., 2012; Phokha & Ussahawanitchakit, 2010; Theoharakis & Hooley, 2008). In addition, decreasing costs of computing for increasingly sophisticated methods of customer data collection and a database has become a core asset for organizations of all types and sizes (Van-Raaij, 2005). Further, a cost of quality analysis links improvement actions with associated costs and customer expectations, this is considered as the pairing of reduced costs and increased benefits for quality improvement (Kiani at al., 2009). Thus, the hypothesis 2 is proposed as follow:

Hypothesis 2: Dynamic customer learning cost is positively related to goal achievement.

2.1.3 Defect Prevention Risk Expenditure (DPR)

Defect prevention risk expenditure refers to the firm's ability to managing cost accounting system for establishing the systematic and methodology for protecting probability of failures in the work operations (Arabian et al., 2013; Suthummanon & Sirivongpaisal, 2011). The prevention costs are cost related to activities and trained to guarantee good quality and prevent poor quality in services of products. Fundamentally, the failure costs will be decreased if organizations invest in prevention or appraisal activities properly (Arabian et al., 2013; Suthummanon & Sirivongpaisal, 2011). Obviously, risk management is most important with protecting because risk can occur in all decisions that put the execution of the firm's strategy. Studies in risk management advances are identified and measured operational risk (DeLoach, 2000; Meulbroek, 2001). At the point, the usefulness of quality cost report helps managers to understand a situation of risk and to successfully quality standards. Thus, the hypothesis 3 is proposed as follow:

Hypothesis 3: Defect prevention risk expenditure is positively related to goal achievement.

2.1.4 Continuous Organizational Improvement Investment (COII)

Continuous organizational improvement investment refers to the firm's ability to managing accumulates cost information for ongoing activity aimed at raising the level of organization-wide performance through focused incremental changes in quality control circle operations (Juergensen, 2000; Wu & Chen, 2006). According to Wu and Chen (2006) that continuous improvement is an ongoing activity aimed at raising the level of organization-wide performance through focused incremental changes in processes. Further, continuous improvement is the philosophy of improvement initiatives that increases success and reduces failure (Juergensen, 2000). However, quality improvements in the manufacture may do not usually have instantaneous results in warranty cost reductions, customer satisfaction or revenue expansion. Hence, manage requires cost information relevant to the decision for investment, is accurate, complete and timely. Sedevich-Fons (2012) reveals that issuing quality cost reports is a function normally assigned to process improvement either quality. Thus, the hypothesis 4 is proposed as follow:

Hypothesis 4: Continuous organizational improvement investment is positively related to goal achievement.

2.1.5 Value Chain Creativity Budget (VCC)

Value chain creativity budget refers to the firm's ability to cost information management for determining and monitoring the resource for establishing, sharing and exchanging valuable resources in business processes for increasing the operating capacity of organization (Horngren, Dater & Rajan, 2012; Schmitz, 2005; Wei-Hang, 2010). Value chain creativity refers to the concept that the creativity of firms is considered as an important feature upon which any event is planned and should be regarded as a skilled achievement or an act of creativity (Brown, 2005). The value chain activities are supported by a set of supplementary activities of accounting, finance, human resources and information technology (Horngren, Dater, & Rajan, 2012; Schmitz, 2005; Wei-Hang, 2010). Thus, a firm can use the budget for controlling and planning purposes and value added for the firms (Libby & Lindsay, 2010). Importantly, the formulations of methodology for assigning cost of quality-related activities are the stage of setting about estimating and measuring cost of quality. Thus, the hypothesis 5 is proposed as follow:

Hypothesis 5: Value chain creativity budget is positively related to goal achievement.

2.2. The Effects of Goal Achievement on Firm Sustainability

2.2.1 Goal achievement (GA)

Goal achievement refers to what is shown in the final process operational of the firm such as achieve its objectives, mission, vision, policies, and strategies (Zaccaro & Klimoski, 2011). Goal achievement is focused on the company's ability to generate opportunities through business process continues to increase their profits, market share, and competitive in the future (Modi & Mishra, 2011; Sampattikorn, Ussahawanitchakit, & Boonlua, 2012). Based on the earlier mentioned above, it can be claimed that goal achievement is the result of organization performance management can be applied effectively. In this study, goal achievement refers to perceiving of a firm about the operational outcome including achieving organizational purposes both financial and non-financial, return on stakeholder, increase productivity and profitability, and markets share (Modi & Mishra, 2011; Sampattikorn, Ussahawanitchakit, & Boonlua, 2012; Zaccaro & Klimoski, 2011). Thus, the hypothesis 6 is proposed as follow:

Hypothesis 6: goal achievement is positively related to firm sustainability.

2.2.2 Firm Sustainability (FT)

Sustainability thinking drives innovation in technology, production, marketing and innovation in business models and solving sustainability challenges will take the skills and experience of everyone and firms can find new solutions by looking across their own global operations for unique solutions (McPhee, 2014). In addition, firm sustainability was the business approaches by firms to consider creating an opportunity for businesses to improve their profitability, competitiveness, and market share for future

(Mohamed, 2008). Following the resource based view theorists describe the internal resources of a firm is its ability to combine the firm's survival and sustainable development to achieve superior performance (Barney, 1991). In this study, firm sustainability refer to firm's perception of the sustainable development in firm performance views are the increase of innovation, knowledge and assets to make the continual performance, survive in the business, financial stability, and cultural organizations, which meets the needs of the present and future growth (McPhee, 2014; Mohamed, 2008).

3. Research Methods

3.1. Sample Selection and Data Collection Procedure

The population of this study is ISO 9000 certified firms in the Thailand manufacturing industry. For that reason, ISO 9000 quality management system are standards set for improving performance through quality management. The Thai manufacturing had a substantial growth in the last three decades and has established itself as the biggest income earner for the country (Das, Kumar, & Kumar, 2011). Currently, competition in the global market requires Thai manufacturing firms to improve the standards of quality management. Moreover, an increasing number of Thai manufacturing firms have adopted formal quality management systems (Jayaram, Choon, & Laosirihongthong, 2014). For the survey, this study used a database maintained by the Thai Industrial Standards Institute (TISI) of the Ministry of Industry in Thailand (Thai Industrial Standards Institute: Website) to select ISO 9000 certified manufacturing firms from different industrial sectors and dispersed across Thailand.

The questionnaires are directly distributed to by mail survey. The key participants are accounting executive of each firm in this study. Of the survey completed and returned, all 195 were usable. In order to protect the possible bias between respondents and none- respondents, a test to compare the mean of all variable between early and late respondents are conducted corresponding to the test for non-respondents bias with reference to Armstrong and Overton (1977). The result shows that statistic is not significant between early and late responses. This study indicated that there is no data non-possible in bias.

3.2. Variables and measurement

3.2.1. Dependent variable

Firm sustainability is measured by a four-item scale. It illustrates business outcomes in the form of creating innovation, assets, product and service quality, survive in the business, financial stability and cultural organizations which meet the needs of the present and future growth. This construct is adapted from Robkob and Ussahawanitchaikit (2009).

3.2.2. Independent Variables

Strategic quality management costing is the main variable in this study which is classified into five distinctive dimensions: product function development expense, dynamic customer learning cost, defect prevention risk expenditure, continuous organizational improvement investment, and value chain creativity budget. This construct is developed as a new scale.

Product function development expense is measured by a four-item scale based on its definition that covers the systematic system of manage product development system based on the activity performs about allocation resource, investment technology, and employee training programs (Akao,1990; Pizzini, 2006). This construct is developed as a new scale.

Dynamic customer learning cost is measured by a four-item scale based on its definition that covers development and investment about access customer and utilizes information from customers to support quality management and create superior value for customer's demand on change (Feng et al., 2012; Phokha & Ussahawanitchakit, 2010; Van-Raaij, 2005). This construct is developed as a new scale

Defect prevention risk expenditure is measured by a four-item scale based on its definition that covers development the risk protect systems incurred defect in the operate work which focused cost classification and reporting usefulness on risk management about a defect (Arabian et al., 2013; Suthummanon & Sirivongpaisal, 2011). This construct is developed as a new scale.

Continuous organizational improvement investment is measured by a four-item scale based on its definition that covers important continuous improvement by use budget appropriation and cost classification and reporting usefulness control and evaluations cost and benefits (Juergensen, 2000; Wu & Chen, 2006). This construct is developed as a new scale.

Value chain creativity budget is measured by a four-item scale based on its definition that covers budget appropriation, incentive, and cost and expense reporting about value-creating activities (Horngren, Dater, & Rajan, 2012; Schmitz, 2005; Wei-Hang, 2010). This construct is developed as a new scale.

3.2.3. Mediating Variables

Goal achievement is measured by a four-item scale based on its definition, namely the achievement of the objectives into business strategies consists of both financial and non-financial outcome, return on stakeholder, increase productivity and profitability, and markets share. This construct is adapted from Ninlaphay, Ussahawanitchakit, & Boonlua (2012).

3.2.4. Control Variables

This study uses firm age and firm age as control variables which they have an effect on proposed relationships following: Firm age is defined as the period of time in operating business.

Firm age is significantly relative to cost management because different firm ages may present different organizational attributes and resource deployment (Chen & Huang, 2009). In this study, firm age is represented by dummy variables including 0 (15 years or less) and 1 (more than 15 years). Firm size is defined as the number of employees currently registered full-time in firms (Delmotte & Sel, 2008; Nakata, Zhu, & Izberk-Bilgin, 2011).

Firm size is an important factor in the implementations of cost accounting practices because large organizations have sufficient resources for approaching of new knowledge and modern practices in cost information to the firm (Joshi, 2001). In this study, firm size is represented by dummy variables including 0 (150 employees or less) and 1 (more than 150 employees).

3.3 Reliability and Validity

To assess the measurement reliability and validity, factor analysis was firstly used to investigate the underlying relationships of a large number of items and to determine whether they can be reduced to a smaller set of factors. The factor analyses conducted were done separately for each set of the items representing a particular scale due to limited observations. All factor loadings are greater than the 0.40 cut-off (Nunnally & Berstein, 1994). The reliability of the measurements was evaluated by Cronbach alpha coefficients which based on the Cronbach alpha coefficients which are greater than 0.70 (Hair et al., 2006). Thus, the scales of all measures appear to produce internally consistent results. All variables have factor loading scores between 0.490-0.948, indicating that there is in the validity construct. Cronbach's Alpha coefficients are shown to be from 0.881 to 0.959. Thus, the reliability and validity of all variables are accepted.

3.4. The Ordinary Least Squares Regression Analysis

Multiple regression analysis is an appropriate method for examining the hypothesized relationships. In this study, the model of the relationships is depicted as follows:

Equation 1: $\quad GA \quad = \quad \alpha_{01} + \beta_1 PFD + \beta_2 DCL + \beta_3 DPR + \beta_4 COI + \beta_5 VCC + \beta_6 FA + \beta_7 FS + \varepsilon_1$

Equation 2: $\quad FT \quad = \quad \alpha_{02} + \beta_8 GA + \beta_9 FA + \beta_{10} FS + \varepsilon_2$

Where:	FT	=	Firm sustainability
	GA	=	Goal achievement
	PFD	=	Product function development expense
	DCL	=	Dynamic customer learning cost
	DPR	=	Defect prevention risk expenditure
	COI	=	Continuous organizational improvement investment
	VCC	=	Value chain creativity budget
	FA	=	Firm age
	FS	=	Firm size
	β	=	Regression coefficient
	α	=	Constant
	ε	=	Error

4. Results and discussion

Table 1: Descriptive statistics and correlation matrix of each dimension of strategic quality management costing, goal achievement and firm sustainability

Variables	PFD	DCL	DPR	COI	VCC	GA	FT	FA	FS
Mean	4.19	4.27	4.21	4.23	4.11	3.83	3.97	n/a	n/a
S.D.	0.56	0.53	0.54	0.52	0.60	0.54	0.52	n/a	n/a
PFD	1								
DCL	.722***	1							
DPR	.636***	.750***	1						
COI	.494***	.543***	.615***	1					
VCC	.503***	.537***	.632***	.805***	1				
GA	.440****	.534***	.520***	.490***	.522***	1			
FT	.409***	.481***	.521***	.551***	.573***	.724***	1		
FA	.056	.039	.024	.029	-.030	.030	.095	1	
FS	.007	-.059	-.070	.006	-.024	.109	.105	.190**	1

** $p < 0.05$, *** $p < 0.01$

Table 1 represents the results showed that the correlation between independent variables, Pearson correlation analysis ranged from 0.409 to 0.805 which it less than 0.9 (Hair et al., 2010). Thus, the multicollinearity problems are not a concern for this analysis. Moreover, this study test variance inflation factors (VIFs) are used to test intercorrelations between variables. The maximum value of VIFs is from 1.049 to 3.157, well below the cut-off value of 10 (Hair et al., 2010), meaning each variable is not correlated with each other.

Table 2: Results of regression analysis for the effects of each dimension of strategic quality management costing, goal achievement and firm sustainability

Independent Variables	Dependent Variables	
	Goal Achievement	Firm Sustainability
	Equation 1	Equation 1
Product Function Development Expense (DFD)	.004	
	(.085)	
Dynamic Customer Learning Cost (DCL)	.282***	
	(.099)	
Defect Prevention Risk Expenditure (DPR)	.124	
	(.097)	
Continuous Organizational Improvement Investment (COI)	.016	
	(.100)	
Value Chain Creativity Budget (VCC)	.244**	
	(.102)	
Goal Achievement (GA)		.721***
		(.050)
Control Variables :		
Firm Age (FA)	-.013	.187
	(.154)	(.133)
Firm Size (FS)	.136**	.012
	(.057)	(.049)
Adjusted R2	.367	.523
Maximum VIF	3.157	1.049

** $p < 0.05$, *** $p < 0.01$

Table 2 represents the results of hierarchical regression analysis of the relationships among strategic quality management costing dimensions and its consequences. Firstly, the analysis revealed that product function development expense has no significant effect on goal achievement (β_{01} = 0.004, p > 0.10). The possible explanation is that changes in the competitive landscape and increased global competition necessitate accurate product costing (Cooper, 1988), but achieving accurate product costs are difficult (Lamminmaki & Drury, 2001), because that a firm has several limitations in adapting its accounting practices function link with the product development process. In addition, Davila and Wouters (2004) points out that the two factors driving the use of different methods to manage product development costs are (1) the important criteria other than the cost of quality and (2) the difficulty in building model cost

behavior of resource-sharing. The results suggest that **Hypothesis 1 is not supported**. That shows product function development expense has no effects on goal achievement.

Secondly, the analysis revealed that dynamic customer learning cost support has significant positive relationships with goal achievement (β_{02} = 0.282, p < 0.01). The results is consistent with many researchers who found that customer learning is the capability of a firm to acquire, understand, disseminate, and utilize information from customers to develop a marketing strategy and create superior value for customers (Feng et al., 2012; Phokha & Ussahawanitchakit, 2010; Theoharakis & Hooley, 2008). In addition, firms can find business opportunity by using customer data analysis and taking advantage of relationships with a customer to increase market share (Kumar et al., 2009; Ramani & Kumar, 2008). The results suggest that **Hypothesis 2 is supported**. These findings support that the firms with higher dynamic customer learning cost have more goal achievement.

Thirdly, the analysis revealed that defect prevention risk expenditure has no significant effect on goal achievement (β_{03} = 0.124, p > 0.10). The possible reason for this is that it is caused by defining and measuring the problem of defect prevention risk cost and communication reporting. This is similar to prior evidence in the work of Roden and Dale (2001) who claimed that the difficulty of defining a quality cost system is explained, there are different approaches which can be used in identifying and measuring the costs involved in the quality process. This was supported by Paraschivescu (2016) who found that analysis, risk assessment, and prevention in the areas of quality are a complex activity that needs a multidisciplinary approach to the culture of quality and accountability. The results suggest that **Hypothesis 3 is not supported**. That shows defect prevention risk expenditure has no effects on goal achievement.

Fourthly, the analysis revealed that continuous organizational improvement investment has no significant effect on goal achievement (β_{04} = .016, p > 0.10). The possible explanation is that continuous organizational improvement investment should have a competitive advantage and financial performance in the long-term, while a firm processes linkage interest and focuses on the short-term for operations. Furthermore, Bessant, Caffyn and Gallagher (2001) indicate that firms impossibly conduct the activities of continuous improvement (CI) there might not be easy to achieve in one step because from behavior perspective supports that the proposed operations are required at five levels, from trying out ideas, through structure and CI system, CI strategy, autonomous innovation, and finally learning organization. Thus, CI can be successful after achieving these five levels. The results suggest that **Hypothesis 4 is not supported**. That shows continuous organizational improvement investment has no effects on goal achievement.

Fifthly, the analysis revealed that value chain creativity budget support has significant positive relationships with goal achievement (β_{05} = 0.244, p < 0.05). This is consistent with the study realized by Perez-Araos et al. (2006) who found that the ability to learn, acquire, foster and integrate relevant knowledge within the value chain of the organization has been recognized as one of the most important competencies that lead to successful achievement. Furthermore, the value chain is a tool that enables

organizations to increase competitiveness by reducing costs or differentiate their products through the analysis of events that shows the difference clearly which an impact on the production industry (Eades et al., 2002). Then, many firms can use the budget for controlling, planning purposes, and building value-added support for the organization to achieve its goals (Libby & Lindsay, 2009). In addition, this is consistent with Slater, Hult and Olson (2010) who suggest that increased capacity of creativity is the ability in responding to the business environment and developing new capabilities that lead to competitive advantage. The results suggest that **Hypothesis 5 is supported**. Thus, these findings support that the firms with higher value chain creativity budget have more goal achievement.

Lastly, it has been demonstrated that goal achievement has significant and positive effects on firm sustainability (β_8 = .721, p < .01). Goal achievement is focused on the company's ability to generate opportunities through a business process that continues to increase their profits, market share, and competition in the future (Modi & Mishra, 2011; Sampattikorn, Ussahawanitchakit, & Boonlua, 2012). Thus, goal achievement is the result of the firm's operation to be a key driver factor that can further its economic sustainability by increasing its social and ecological efficiency. The results suggest that **Hypothesis 6 is supported**. Thus, these findings support that the firms with higher goal achievement have more firm sustainability.

For the two control variables, firm age has no a significant effect on goal achievement but firm size has a significant and positive relationship with goal achievement (β_7 = .136, p < .05), meaning that firm size is an important factor for the design and implement about costing information of firm because as large organizations have more resources support, and is likely to achieve more business with fewer resources (Joshi, 2001). Nevertheless, firm age and firm size has no a significant relationship with firm sustainability (β_9 = .187, p > .10; β_{10} = .012, p > .10), meaning that firm age and firm size do not impact firm sustainability.

In summary, these findings reveal that dynamic customer learning cost and value chain creativity budget have directly a positive influence on goal achievement. Nevertheless, product functional development expenditure, defect prevention risk expenditure, and continuous organizational improvement investment have no significant effect on goal achievement. In addition, goal achievement has significant and positive effects on firm sustainability. Therefore, **Hypotheses 2, 5 and 6 are supported but Hypotheses 1, 3 and 4 are not supported**.
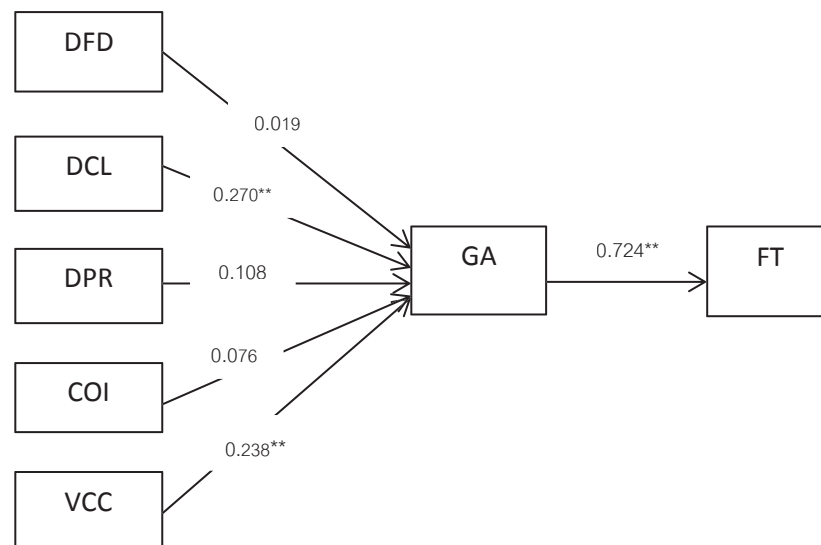
Chi-Square = 25.22, df = 5, P-value = 0.00013, RMSEA = 0.146

Figure 2 Result of Path Analysis of Causal model approach

In addition, to test the effects and statistical significance of the parameters in the structural model and assess the reliability of our regression results. This study used Robustness checks to confirm the relation between five dimensions of SQMC on its consequence by using the path analysis. The result confirmed that dynamic customer learning cost (DCL) and value chain creativity budget (VCC) fit directly and significantly impacted the goal achievement, $\gamma = 0.270$, t = 2.705, p < 0.01 and $\gamma = 0.238$ t = 2.331, p < 0.05, respectively. Next, goal achievement fit directly and significantly impacted the firm sustainability, $\gamma = 0.724$, t =14.429, p < 0.01. These findings of robustness checks indicate the overall reliability of regression results (see Figure 2). Thus, conclude that our base results are robust.

5. Contributions

The results show that strategic quality management costing affects firm sustainability through a mediating variable which is goal achievement. For advancing the resource-based view theory in this study establishes a new dimension of strategic quality management costing, including dynamic customer learning cost and value chain creativity budget. This study also contributes to managerial practices that the executive should allocate resources for customer learning and value chain creativity to improve with quality management activity which it leads to sustainable of a firm. Moreover, the executive must provide the quality cost information for support decision making relevance to measuring and evaluating the quality problems and identifies major opportunities in order to cost reduction and improving quality management lead to firm sustainability. However, this study investigated the specific context of ISO 9000 manufacturing industry only. Therefore, future research may employ different samples from other industries, to gain more research credibility and confirm the generalizability of the research.

6. Conclusion

This study examines the relationship between five dimensions of strategic quality management costing and goal achievement. This study implements resource-based view to explain the relationships among all of the variables in the conceptual model. The sample selected was ISO 9000 manufacturing firms in the Thailand and data collection by questionnaire, thus accounting executive is a key informant. For statistical analysis, multiple regression analysis was used to improve all hypotheses testing.

The results reveal that the strategic quality management costing is a key factor that is a positive effect on goal achievement. In particular, dynamic customer learning cost and value chain creativity budget enhancement seems to be the most important dimension of strategic quality management costing, in that it supports lead to increased goal achievement. In addition, goal achievement has a positive relationship with firm sustainability. Therefore, strategic quality management costing can support goal achievement to enhance the firm's ability to firm sustainability.

The resource-based view is able to explain the overall association of variables and as a new perspective of accounting costing for quality management. Moreover, managerial contribution provides an understanding of the key role of strategic quality management costing and paying attention to improvements appropriate with the context of ISO 9000 certified manufacturing firm. In the future, this conceptual model should apply for other industries to broad the perspective of the research.

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