The effects of customer orientation on customer integration, process flexibility and financial performance

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Abstract
The purpose of this research is to determine how a customer orientation affects customer integration and the resulting impact on process flexibility and financial performance. An empirical study was carried out using a sample drawn from the automotive industry in Thailand and structural equation modeling was employed.

Keywords: Customer Orientation, Customer Integration, Automotive

Introduction
Scholars (Jaworshi and Kohli 1993) suggest that firms should focus on market orientation because it is a determinant of a firm's performance. When a firm adopts a market orientation approach, it requires that the firm's resources are devoted to developing this. If a firm focuses too much on market orientation, its business performance may not improve very much, and it may waste its resources on a particularly low competitive intensity (Jaworshi and Kohli 1993). Therefore, the results from adopting market orientation depend on environmental contexts (Jaworshi and Kohli 1993). In this research, the emphasis is on a single element of market orientation, which is customer orientation. Based on a current study(Braunscheidel and Suresh 2009), the linkage between market orientation and a firm's supply chain agility is well known. However, the link between customer orientation and process flexibility in a supply chain context is still overlooked, in particular the alignment of customer orientation to key customers in the supply chain. In addition, market orientation is considered to be the basis for managing the supply chain in order to gain better performance (Min et al. 2007). Therefore, how a firm can align its customer orientation with external firms, such as customers' access to resources through their network, to benefit from this by enhancing process flexibility and performance is a potential gap for research. In addition, this research emphasizes customer orientation because customer orientation is considered to be the primary focus of market orientation (Jaworshi and Kohli 1993). Moreover, the concept of market orientation has been extensively tested in the context of an individual firm rather than by the links with external firms, by looking at, for instance, the key customers. Therefore, the purpose of this study is to investigate the ability of a firm to generate market information such as market trends and market needs and the effects of this on process flexibility and financial performance.

Theoretical Background and Hypotheses

The resources based view (RBV) and the relational view (RV)

Resources are valuable, rare, imperfectly imitable and non-substitutable and these resources are the key to explaining sustained competitive advantage (Barney 1991). Barney (1991) also points out that the resources can be the assets, processes, information and knowledge that help a firm to develop and deploy strategies to increase efficiency and effectiveness. Customer orientation, one of the key elements of organizational culture, is considered to be a resource (Grawe et al. 2009). This is because customer orientation involves acquiring information about the buyers from the market and disseminating it across the businesses (Narver and Slater 1990). Therefore, manufacturers should understand a buyer's entire value chain (Day and Wensley 1988). Since internal resources are limited a firm needs to acquire resources from the supply chain partners. Therefore, competitive advantage can be achieved through combining a firm's resources and its supply chain partners' resources. Moreover, it is suggested (Dyer and Singh 1998) that the relation view (RV) of the firm is complementary to the RBV. Based on the RV perspective, the critical resources that firms need may be located outside the firms and be embedded in inter-firm routines and processes (Dyer and Singh 1998). Acquiring and sharing information with key supply chain partners should be considered routine, and it requires two firms to work together regularly. This leads to a close relationship being established that allows firms to combine and exchange their assets, knowledge and capabilities, for example inter-firm knowledge sharing routines. From the RV perspective, a competitive advantage will result when an exchange relationship is built (Dyer and Singh 1998).

Defining the studied constructs

Customer orientation (CO) is defined as an organizational culture that facilitates the understanding of targeted buyers and allows for the continuous creation of customer value (Narver and Slater 1990). Some scholars (Deshpande and Webster 1989, Grawe et al. 2009, Narver and Slater 1990) point out that the main focus of customer orientation is to emphasize the seeking of supply chain opportunities and constraints from the perspective of customers in order to create value for potential customers. Customer integration is defined as "the degree to which a manufacturer partners with its external partners (customers) to structure inter-organizational strategies, practices and processes into collaborative, synchronized processes" (Flynn et al. 2010, Stank et al. 2001). Process flexibility is a manufacturer's capability to adjust or modify the operational processes to speedily accommodate changes, for example in production volumes or product mixes with minimal penalties in terms of efficiency (Kristal et al. 2010, Rosenzweig et al. 2003). Finally, financial performance is related to cost performance. In general, financial performance can be captured by a set of measures such as total cost reduction, financial liquidity, net profit and growth in profit (Flynn et al. 2010, Kim 2009).

Relationship between customer orientation and customer integration

One element of key strategic orientation is customer orientation (Grawe et al. 2009). Grawe et al. (2009) also point out that this organizational culture is reinforced by the sharing of information and intelligence across a firm continuously. In the supply chain context, information sharing is extended to a firm's supply chain partners. This leads to improvements in the accuracy of demand information, which helps to reduce the manufacturer's product design and production planning time and also enable it to have a better response to customer needs (Flynn et al. 2010). Thus, interaction with critical customers can enable a firm to acquire external resources and the

necessary information that a manufacturer uses to satisfy and retain its customers (Lee et al. 2004, Min et al. 2007). Therefore, in order to generate market information, firms should collaborate with their key customers in order to acquire market information to respond to their target customers' needs and create value for their customers. This allows the following hypothesis to be proposed:

H1: Customer orientation has a positive relationship with customer integration.

Relationship between customer integration and process flexibility

From to the RBV perspective (Barney 1991) and the RV perspective (Dyer and Singh 1998), internal and external manufacturing resources and information can contribute to a competitive advantage, depending on how firms manage them. When two firms form a long-term relationship, this allows them to combine resources in a unique way, resulting in a competitive advantage being realized (Dyer and Singh 1998). Supply chain partners such as customers can be sources of flexibility (Manoj and Mackelprang 2012). Manoj and Mackelprang (2012) add that supply chain partners can understand and anticipate each other's needs well and this leads to better performance capabilities. In addition, this study adopts the logic of a relationship between resources and competitive capability (Rosenzweig et al. 2003) to frame the relationship between customer integration and process flexibility. This leads to the following hypothesis being proposed:

H2: Customer integration has a positive relationship with process flexibility.

Relationship between customer orientation and process flexibility

Based the work of Braunscheidel and Suresh (2009), a level of market orientation has a positive direct impact on external flexibility, including volume flexibility and mix flexibility. The authors add that a firm with a high level of customer orientation can scan the competitive landscape and pay attention to its customers. Shared information within a firm can help it to respond to the customers' needs. A firm with a high level of customer orientation should be able to anticipate changes in these needs and develop new products and services (Day 1994). Therefore, a firm's ability to adjust or modify operational processes to respond to the changes should be improved as a result of adopting customer orientation. This leads to the following hypothesis being proposed:

H3: Customer orientation has a positive relationship with process flexibility.

Relationship between process flexibility and financial performance

Linking competitive flexibility with business performance, including market performance, is well reported (Kristal et al. 2010, Rosenzweig et al. 2003). The literature also indicates that flexibility, such as product flexibility, volume flexibility, lunch flexibility and distribution flexibility, is significantly associated with financial performance (Vickery et al. 1999). Therefore, this leads to the following hypothesis being established:

H4: Process flexibility has a positive relationship with financial performance.

Relationship between customer integration and financial performance

Researchers (Flynn et al. 2010, Rosenzweig et al. 2003) confirm the link between supply chain integration, including customer integration, and firm performance (that is, financial performance). In addition, flexibility capability is found to be an important capability as it helps firms to increase their performance (Curkovic et al. 2000). This is consistent with the work of

Droge et al. (2004), which shows that integration has an influence on flexibility and reduces costs; consequently, this leads to improved performance, including an increase in the profit ratio. Thus, this leads to the following hypothesis being proposed:

H5: Customer integration has a positive relationship with financial performance

Relationship between customer orientation and financial performance

The focus of customer orientation is to satisfy the customers and it is believed to lead to the production of superior value for the customers and contributes to the firm's ability to out-perform in the market (Day 1994, Narver and Slater 1990). The link between market orientation and performance is already confirmed (Jaworshi and Kohli 1993, Narver and Slater 1990). A firm's performance can be improved by market orientation since market orientation helps a firm to focus on responding and adapting to its market needs effectively. This allows the following hypothesis to be proposed:

H6: Customer orientation has a positive relationship with financial performance.

The hypotheses can be summarized in diagrammatic form, as shown in Figure1.

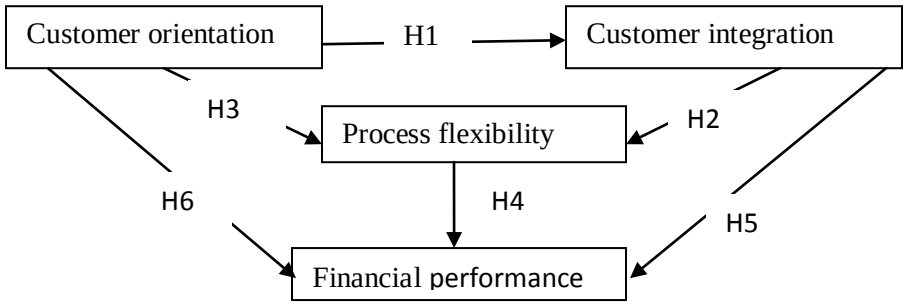

Figure 1 – The hypothesized model

Research Design

Measures and questionnaire design

The unit of analysis was at the firm level and those in strategic positions, such as the president, vice president of purchasing, managing director, supply chain director and procurement manager, were the prospective respondents. The adapted items of supply chain integration and combinative competitive capabilities were taken from previous studies, such as that of Flynn et al. (2010). A 7-point Likert scale was used with "1" for "strongly disagree" and "7" for "strongly agree". Our study employed the Q-sorting technique, which comprised three separate stages: (1) item creation; (2) structured interview and Q-sort; and (3) large-scale testing (Moore and Benbasat 1991). Three Q-sort rounds were completed prior to distributing the final questionnaires to the prospective respondents for a large-scale survey.

Sample and data collection

The sample frame was the list of members of Thailand Automotive Industry 2011, which consists of 1,858 companies. The research targeted both tier 1 and tier 2 automotive suppliers with at least 100 employees. After screening for unrelated business operators, firms unwilling to participate in the survey and those with invalid addresses, 698 firms remained as potential

participants in the study. The response rate was 37.10%. Table 1 provides a profile of the respondents in the survey. Table 2 provides a profile of the companies by number of employees, annual sales, type of firm ownership and position in the supply chain.

Table 1- The sample profile

Job Title	Frequency	Percentage
President/CEO	22	8.49
Vice president/Director	21	8.10
General manager	35	13.51
Manager (plant manager, supply chain, logistics, purchasing/ procurement and operations)	116	44.80
Others (engineering, manufacturing/ production, project, sales and marketing)	65	25.10
Total	259	100%

Table 2- Company profile

Characteristics of firms	Frequency	%	Characteristics of firms	Frequency	%
No. of employees			Ownership		
Less than 200	62	23.75	100% Thai owned	78	29.89
200-499	70	26.82	Joint-venture	90	34.48
500-999	66	25.29	Wholly foreign owned	93	35.63
More than 1,000	63	24.14	Total		
Total	261	100.00		261	100.00
Annual sales(in millions Baht			**Company position**		
				196	75.10
Below 200	49	18.77	Supplier tier 1	65	24.90
201-499	40	15.33	Supplier tier 2	261	100.00
500-999	35	13.41	Total		
1,000-2,999	74	28.35			
Above 3,000	63	24.14			
Total	261	100.00			

Data Analysis and Results

Structural equation modelling (SEM) was used to analyse the data and their relationships (Hair et al. 1998) and then a two-step approach was carried out to test the hypotheses: (1) a test measurement model to check the validity and reliability of the item scales; and (2) a test structural model (Anderson and Gerbing 1988). Table 3 shows the details of the summarized statistics for each construct with the mean, standard deviation, correlation matrix of the measured variables and square root of the average variance extracted (AVE). For the overall fit it is recommended that the goodness of fit index (GFI), adjusted goodness-of-fit index (AGFI), comparative fit index (CFI), normed fit index (NFI), root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR) should be checked (Hu and Bentler 1999, Shah and Goldstein 2006). The overall model fit is good, with χ^2 = 284.916, df = 160, p = 0.000, GFI = 0.905, AGFI = 0.875, NFI = 0.902, CFI = 0.954, RMSEA = 0.055 and SRMR = 0.054.

The scale reliability of each construct was assessed using Cronbach's Alpha. The Alpha value of every factor was greater than 0.70, indicating that it was a very good statistical result (Hair et al. 1998). The instruments for the constructs were validated by exploratory factory analysis using principal axis factoring with oblique factor rotation and the results confirmed the structure of the constructs and confirmatory factor analysis. The convergent validity was checked for construct validation by using confirmatory factor analysis and standardized factor loading, which was greater than 0.5, indicating good convergent validity among the instruments of each construct (Byrne 2001). In addition, the AVE of each construct was assessed and the AVE should be at least 0.5 for it to be considered adequately convergent and a construct reliability (CR) value between 0.6 and 0.7 is acceptable (Hair et al. 1998). The t-value represents an estimate of the regression weight divided by its standard error and it should be above 2 (Droge et al. 2004). The results are presented in Table 4. A non-response bias analysis was conducted and it was found that the data did not have an indicator for early versus late responses (Armstrong and Overton 1977).

Table 3- Mean, standard deviations, and correlations of the construct

Variable	Mean	SD	CO	CI	PF	FP
CO	5.88	0.96	**0.73**			
CI	5.65	0.94	0.158*	**0.73**		
PF	5.44	0.92	0.256**	0.528**	**0.74**	
FM	5.34	0.94	0.041	0.288**	0.438**	**0.79**

*Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed) Note: CO =customer orientation; CI = customer integration, PF = process flexibility, FP = financial performance. The square root of average variance extracted is given along the diagonal

Table 4- Assessment of reliability and construct validity

Items	**Factor loading**	***t*-value**	**Cronbach's Alpha**
CO: Customer Orientation (CR =0.85, AVE =0.54)			0.843
Our business objectives are driven primarily by customer satisfaction.	0.765	1.00	
Our strategy for competitive advantage is based on our understanding of customer's needs.	0.736	11.042	
We measure customer satisfaction systematically and frequently.	0.732	10.992	
We often look for measurements to increase customer value or decrease product costs.	0.738	9.830	
We give close attention to after-sales service.	0.703	10.645	
CI: Customer integration (CR=0.85 , AVE =0.53)			0.850
We establish more frequent contact with our major customers	0.735	10.421	
Our major customers are linked with information network	0.739	10.540	
Our major customer share market information with us.	0.744	1.00	
Our major customer shares demand forecast with us.	0.712	15.592	
We share our available inventory with our major customer.	0.714	10.985	
PF: Process flexibility (CR=.0.88 ,AVE = 0.55)			0.877
Ability to rapidly change production volumes.	0.733	11.592	
Ability to rapidly modify methods for components	0.732	11.575	
Ability to rapidly modify methods for materials	0.741	11.748	
Ability to respond to changes in delivery requirements	0.735	11.636	
Ability to manufacture broad product mix within same facilities	0.750	11.946	

Ability to changeover to a different product quickly	0.746	1.00	
FP: Financial Performance (CR =0.87, AVE =0.63)			0.866
Net profit before taxes	0.919	23.007	
Net profit margin	0.941	1.00	
Total costs reduction	0.667	12.838	
Financial liquidity	0.615	11.554	

Note: ''a'' means that the regression weight was fixed at 1.00, not estimated. N = 261

Structural model

AMOS 20 with the maximum likelihood estimation method to estimate the relationship among constructs and to test hypotheses was performed. Overall fit indices of the structural model indicated that our theoretical model fitted the data (Bollen 1989) (χ^2 209.961 with degrees of freedom =151, *p*= 0.001, (CMIN/df =1.390); GFI=0.931, AGFI=0.903; CFI=0.978; NFI=0.928; RMSEA=0.039 and SRMR =0.049). These indices indicated that all measures of fit exceeded the recommended values. The results of structural model are presented in Figure 2. The results of testing six hypotheses are listed below.

H1: Customer orientation has a positive relationship on customer integration. This hypothesis is supported, as the parameter estimate (0.276) is significant (t=3.669, *p* = 0.000).

H2: Customer integration has a positive relationship on process flexibility. This hypothesis is supported, as the parameter estimate (0.636) is significant (t= 8.432, *p*= 0.000).

H3: Customer orientation has a positive relationship on process flexibility. This hypothesis is supported, as the parameter estimate (0.132) is significant. t= 2.063, *p* = 0.039)

H4: Process flexibility has a positive relationship on financial performance. This hypothesis is supported, as the parameter estimate (0.528) is significant (t = 5.388, *p* = 0.000)

H5: Customer integration has a positive relationship on financial performance. This hypothesis is not supported, as the parameter estimate (0.037) is not significant (t=0.528, *p*=0.690).

H6: Customer orientation has a positive relationship on financial performance. This hypothesis is not supported, as the parameter estimate (-0.129) is not significant (t-value = -1.907, *p*=.057).

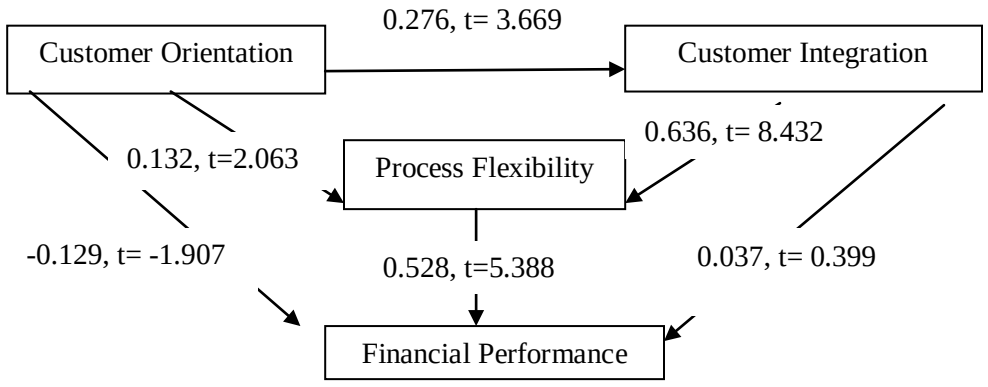

Figure 1 – Structural model

Direct, indirect and total effects

With respect to customer orientation this has a direct effect (0.276) on customer integration, but no indirect effect on it. It has both a direct (0.132) and indirect effect (0.176) on process flexibility, with the total effect being 0.308. With respect to customer integration this has a direct effect (0.636) on process flexibility but no direct effect on financial performance. However, it has an indirect effect (0.336) on financial performance via process flexibility. With respect to customer orientation this has a direct effect on financial performance (-0.129) and an indirect effect (0.070) on financial performance via process flexibility.

Discussion and implication

The findings illustrate that H1, H2, H3 and H4 are statistically significant and, therefore, supported, but H5 and H6 are not supported. H1 and H3 indicate that customer orientation has a direct positive relationship with customer integration and also has a direct impact on process flexibility capability. In addition, a high level of customer integration leads to better process flexibility capability. The empirical results also confirm the role of customer integration in that it partially mediates between customer orientation and process flexibility capability. The results also suggest that a high level of process flexibility capability leads to better financial performance, whereas the path coefficient from customer orientation to financial performance is not statistically significant and is negative. This finding is in contrast to that of a prior study (Narver and Slater 1990). It may imply that there may be some factors, such as the environmental context, acting as a mediator between customer orientation and financial performance. It is possible that too much focus on customer orientation may provide a direct negative effect on financial performance. Therefore, this linkage should be further investigated. In addition, the path coefficient from customer integration to financial performance is not statistically significant. This reinforces the notion that process flexibility mediates the relationship between customer integration and financial performance.

The direct effect of customer orientation on process flexibility is weaker than the indirect effect of customer orientation on process flexibility via customer integration. This may imply that firms should implement customer integration when they already have a high degree of customer orientation. The direct effect of customer integration on financial performance is very strong. This means that customer integration has a positive direct relationship with process flexibility. Hence, if firms implement customer integration well, process flexibility should be improved. The findings reveal that financial performance is strongly and directly influenced by process flexibility. Therefore, if firms have improved process flexibility, this subsequently leads to improvements in financial performance.

This research provides numerous implications for managers in terms of the impact of adopting customer orientation on process flexibility. The results support the RBV and the RV theory that customer orientation and customer integration are valuable resources. These strategic resources are embedded in its network. The way that firms utilize the resources through integrating with key customers has a potential to improve their process flexibility. This reinforces the fact that aligning customer orientation with key customers provides strong empirical evidence of building, acquiring and applying resources that become of high potential strategic value. This inter-firm relationship, in this case integrating with key customers, provides a potential strategic value for resources that is difficult to imitate and the inter-firm relationships have the potential to have an impact on a firm's capability. In addition, the study's findings can also be added to the literature

on supply chain management. Furthermore, the findings also confirm the role of customer integration as a partial mediator. In contrast with prior literature, this empirical study suggests that customer orientation has no direct relationship with financial performance and also customer integration has no direct relationship with financial performance. If firms focus too much on implementing customer orientation, this may be wasteful or lead to a negative impact on financial performance. With respect to managerial implications, the study's findings confirm the relationship between customer orientation and customer integration, the relationship between customer integration and process flexibility capability, the relationship between process flexibility and financial performance and the relationship between customer orientation and process flexibility capability. This study can be a guideline for supply chain managers or executives of firms with a strong degree of customer orientation; they should take further steps to implement customer integration, which helps to enhance their process flexibility, which yields a better financial performance. A high level of customer integration leads to better process flexibility. If they want to increase their financial performance, the priority should be improving process flexibility.

Conclusion

The main contributions of this study are that firms should adopt customer orientation and then implement customer integration in order to receive a high level of total effects. The indirect effect of customer orientation on process flexibility via customer integration is higher than the direct effect of customer orientation on process flexibility. Improved process flexibility leads to improved financial performance and process flexibility is observed to mediate in the relationship between customer integration and financial performance. However, this study was carried out in the automotive industry of an emerging economy and further studies in alternative industrial contexts are recommended. These studies should be extended to include the role of supplier integration and the effects of other competitive capabilities on firm performance.

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