

*Original Article*

# Examining the role of top management leadership style on transportation efficiency and profitability of logistics firms

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## Abstract

Firm performance is important from both research and practical perspectives. Business owners and management must try to improve firm performance in order to stay competitive. The objective of this study was to study the impacts of leadership styles on logistics companies. We investigated the effects of leadership on firm performance in the logistics sector and explored how various styles of leadership influenced the performance of these firms. Survey data from 86 owners of logistics companies in Thailand collected from December 2013 to January 2014 were analyzed. The results showed that the leadership style has a positive influence on firm performance and financial performance in a logistics firm.

**Keywords:** leadership, logistics service provider, trucking firm, performance

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## 1. Introduction

Changing markets and enhanced competition has spurred organizations into delivering greater efficiency, quality, and more flexibility of service. Logistics providers serve an opportunity for businesses to improve customer service, respond to competition, and eliminate assets. They support services that include warehousing, distribution, freight forwarding, and manufacturing.

Such a market environment leads to continuous increases in the demands of clients and puts heavy pressure on logistics service providers. The literature shows many in-

fluences of top management or leaders on firm performance (Eisenhardt, 1989). Some studies show that a CEO provides a moderate amount of influence on financial performance of an organization (Giambatista *et al.*, 2005). Yukl (2008) pointed out that leadership behaviors and management programs can be used to influence a firm's performance. This study aims to find the relationship between the leadership styles of top managers in logistics service firms and the performance of their firms.

## 2. Literature Review and Hypotheses

### 2.1 Performance of a logistics firm

In general, firm performance can be classified into two groups: operational performance and financial performance. Operational performance measures the outcomes of

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an organization's processes such as reliability, speed of delivery, and quality of service. It can also be expressed through a combination of cost, quality, flexibility, delivery, and innovation. Financial performance is measured by gross profit margin, return on sales, operating profit margin return on assets, return on equity, accounts receivable turnover, current ratio, debt ratio, and return on investment (Liu & Lyons, 2011).

Logistics companies can evaluate their performance in terms of financial performance, productivity performance, quality performance, cycle time performance, timeliness, logistics cost, productivity, and capacity (Frazelle, 2001; Garcia *et al.*, 2012). The logistics performance index emphasized that logistics performance depends on the reliability and predictability of the supply chain more than time and cost (Jane, 2011). There is broad consensus that operational performance can be expressed through a combination of cost, quality, flexibility, delivery, and innovation (Liu & Lyons, 2011).

In this paper, we first defined a set of operational and financial performance factors in logistics firms. We conducted interviews of 10 experts who were the owners of 10 trucking companies that were in a logistics association in Thailand. Based on the literature and the results of the interviews, the performance of the trucking firms was classified into two categories: 1) transportation efficiency, which includes the level of utilization of capacity, on-time delivery, and process reliability and 2) financial performance which is the firm's profitability. Transportation efficiency was measured as the level of improvement from the year 2011 to 2013 of load efficiency (actual loading capacity per maximum load capacity), laden miles (driving distance carrying cargo/total driving distance), usage efficiency (total days trucks are actually utilized/total days trucks are available), which is the level of utilization capacity, delivery in full on time, and level of damage or loss of cargos, which is the level of process reliability. Financial performance was measured by the level of profitability of a firm.

## 2.2 Top management and leadership styles

The top management team (TMT) is a group of the most influential senior executives, such as the chief executive officer (CEO), chief operating officer (COO), and chief financial officer (CFO), with the overall responsibility for the organization. They play a key role in influencing the organizational strategies choices and outcomes (Hambrick & Mason, 1984). Leadership is defined as a style of behaviors of leaders which integrates both the organizational requirements and personal interests in order to hit the organization's targets (Zulch, 2014). Leadership is the way leaders influence others in order to get agreement on what needs to be done and how it can be done effectively, and the way they facilitate individual and collective efforts to accomplish the shared objectives (Özsahin *et al.*, 2011). In some studies, leadership styles are classified into transformational and transactional leadership behaviors. Transactional leadership appeals to physical needs, whereas transformational leadership appeals to socio-emotional needs (Jansen, 2011).

Yukl (2008) conducted an in-depth literature review, and he proposed that leadership styles be divided into

three groups: task-oriented; relations-oriented; and change-oriented leadership behaviors. Yukl defined task-oriented leadership style to include short-term planning and scheduling of work activities, determining resource and staffing requirements, directing and coordinating activities, monitoring operations, and dealing with day-to-day operational problems. Relations-oriented behaviors include showing support and positive regard, providing recognition for achievements and contributions, providing coaching and mentoring, consulting with people concerning decisions that will affect them, delegating and empowering subordinates, encouraging cooperation and teamwork, and building a network of information sources inside and outside the organization.

Change-oriented behaviors include monitoring the environment to identify threats and opportunities, interpreting events and explaining why major change is needed, articulating an inspiring vision, taking risks to promote change, and determining how to implement a new initiative or major change. Task-oriented behaviors are most useful to improve efficiency, whereas change-oriented behaviors are most useful to improve adaptation and the relations-oriented behaviors are most useful to improve human resources and relations. In this research, the leadership styles are classified as task-oriented, relation-oriented, and change-oriented leadership style.

## 2.3 Influence of leadership styles on transportation efficiency

Yukl showed that organizational effectiveness, which is reflected by long-term profit growth, return on investment, and stock returns, depends on performance determinants, including efficiency and process reliability, human capital, and the ability to adapt to the external environment. Performance determinants can be enhanced by relevant task-oriented, relations-oriented, and change-oriented leadership behaviors (Yukl, 2008). Wang also showed that the task-oriented behaviors of a CEO are directly linked to the firm's performance in both operational and financial performance. However a CEO's relation-oriented behaviors are indirectly linked to both operational and financial performance of the firm through influence on the attitudes of the employees (Wang, 2011).

Cavazotte and Mihalcea (Cavazotte *et al.*, 2012; Mihalcea, 2014) argued that transformational leadership directly and positively impacts the organizational outcomes of companies in the energy sector and higher profitability for retail business. On the other hand, transactional leadership indirectly impacts the firm's performance through employee work satisfaction. A firm's organizational identity strength is increased by transformational leadership, and thus relates positively to firm performance (Boehm *et al.*, 2014). During major organizational changes such as mergers or acquisitions, the business performance achieved is linked more with transformational culture and transformational leadership (Yidirim & Birinci, 2013).

In general, the literature shows the direct and indirect relationships between leadership style and a firm's performance in a typical operating company. The performance of a firm in these relationships was reported in both financial and operational terms.

**2.4 Hypothesis and model**

The literature shows that leadership style can directly impact operational and financial performances which may be mediated by other factors. For this study, we will assume there are direct relationships between leadership styles and both operational performance, which is regarded as transportation efficiency, and financial performance which is the firm’s profitability. Leadership styles were classified by Yukl into task-oriented, relation-oriented, and change-oriented styles but there was an adjustment in task-oriented styles but there was an adjustment in task-oriented leadership. It was divided into two groups: task-oriented with a clear target setting and task-oriented leadership in satisfying the customer.

Hypothesis 1: Task-oriented with clear target setting leadership positively influences transportation efficiency.

Hypothesis 2: Task-oriented in satisfying existing customer leadership positively influences transportation efficiency.

Hypothesis 3: Relation-oriented leadership positively influences transportation efficiency.

Hypothesis 4: Change-oriented leadership positively influences transportation efficiency.

Hypothesis 5: Task-oriented with clear target setting leadership positively influences firm profitability.

Hypothesis 6: Task-oriented in satisfying existing customer leadership positively influences firm profitability.

Hypothesis 7: Relation-oriented leadership positively influences firm profitability.

Hypothesis 8: Change-oriented leadership positively influences firm profitability.

Hypothesis 9: There is a positive relationship between transportation efficiency and firm profitability.

**3. Methodology**

**3.1 Measures**

The survey was constructed based on the literature and expert interviews. It consisted of three sections: firm demographics; leadership style; and transportation efficiency, which is regarded as operational performance and profitability, which is the financial performance. The instruments of transportation efficiency were measured using the 5-point Likert scale (1 = “Unimportant” to 5 = “Very important”) to measure the improvement in the transportation efficiency. This 5-point Likert scale was also used to identify the improvement of profitability.

By using the reference instrument from a study by Kissi (2013) and the instrument that measures the consideration and initiative structure leadership styles of the study “leadership and control system design” (Abernethy, 2010), we built up a measurement for the three styles of leadership under consideration. In addition, we used the literature concerning the logistics industry to eliminate some questions. Furthermore, we used suggestions from experts who work in trucking logistics firms concerning leadership styles in order to be suitable for trucking industry. We also used the 5-point Likert scale to measure the strength of these leadership styles.

**3.2 Sample**

The trucking company list is from Siam List Database Marketing Company which contains 13,418 logistics companies, and an additional 9,607 logistics companies are

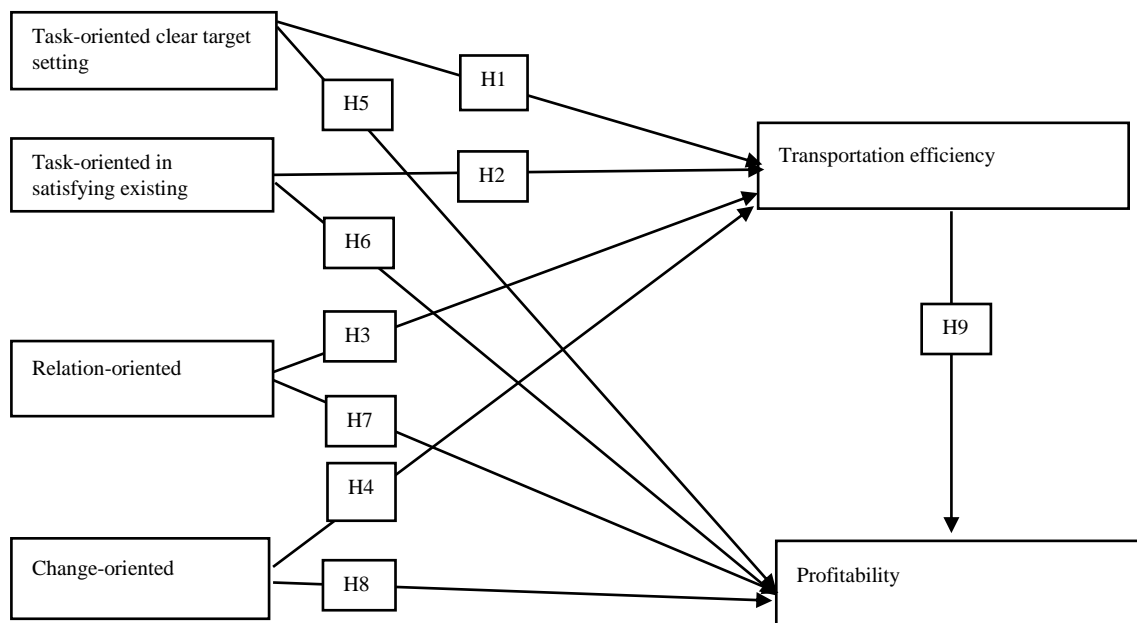


Figure 1. Research model.

from the Ministry of Transportation. However, we found that many of them were no longer in business and could not be contacted. We randomly selected 200 companies from the list and sent the mail surveys between December 2013 and January 2014. In total we received 86 responses which included 14 responses by mail, 25 responses by phone, and 47 responses through an in-person survey.

### 3.3 Statistical method

A reliability test was conducted to consider the appropriateness of an item. Then a factor analysis was performed using the principal component analysis with varimax rotation to establish the dimensionality of leadership styles, transportation efficiency, and firm profitability. Hierarchical multiple regression analysis was conducted to test the proposed hypotheses, which were the relationships between leadership style, transportation efficiency, and firm profitability. The educational level of the top management was used as a control variable (Kissi *et al.*, 2013; Wang *et al.*, 2011).

The pairwise approach was used to address missing data in this study in order to maximize the use of valid data (Liu & Lyons, 2011). The reliability of a questionnaire is concerned with the consistency of responses to questions which is expressed as Cronbach's alpha coefficient (reliability coefficients) (Liu & Lyons, 2011). Levels of 0.70 or more are generally accepted as representing good reliability (Hair, 2006). Factor analysis was used to group the instrument into factors. All factors must have Kaiser-Meyer-Olkin (KMO) measures over 0.6 (Hair, 2006). The goodness of regression was identified based on the significant level of model coefficients and model R squared (Kissi *et al.*, 2013).

## 4. Results of Analysis

### 4.1 Data description

The types of firms in our survey consisted of individual proprietor, juristic partnership, and company limited and the numbers of each type of firm were 35, 27, and 22, respectively. Most firms in the survey had capital less than 25 million Thai baht (81.4%), and only 5.9% companies had capital of over 25 million baht. Most companies in this survey had fewer than 50 employees including drivers (83.7%) and the rest (15.1%) had more than 50 employees. Top management education at these companies was divided into two equal groups: 48.8% had a bachelor's degree or less and 46.5% had a master degree's or higher.

Table 1 shows the details of the demographics of the firms that were interviewed in our survey.

### 4.2 Reliability test and factor analysis

The first step was to test the reliability of the items for the suitability of the questions for our purpose and to find any conflicts. The conclusions were based on Cronbach's alpha. All four groups of questions satisfied the condition of reliability with an alpha greater than 0.8 (Hair, 2006). The results of the reliability test and factor analysis are shown in Table 2.

Table 1. Demographics of respondents.

		Frequency	%
Form of legal organization	Individual proprietor	35	40.7
	Juristic partnership	27	31.4
	Company limited, Public company limited	22	25.6
Capital (THB)	5 million or less	37	43.0
	6-25 million	33	38.4
	Over 25 million	5	5.9
Number of employees	Less than 25	41	47.7
	From 25-50	31	36.0
	upper 50	13	15.1
Education of top manager	Bachelor's degree or less	42	48.8
	Master's degree or more	40	46.5

NOTE: There are some missing values in the survey. Some companies do not provide demographic information.

The items in each group were subjected to a principal components factor analysis with varimax rotation. This analysis produced two factors for task-oriented leadership style which explained 57.3% to 81.7% of task-oriented leadership, task-oriented leadership with clear target setting, and task-oriented in terms of satisfying existing customers. Only one factor for relation-oriented leadership, change-oriented leadership, and transportation efficiency with variance explained 63.9%, 78.1%, and 55.2%, respectively. All factors were suitable for factor analysis with a KMO index over 0.6.

### 4.3 Data description and inter-correlation

Table 3 shows the statistical description and inter-correlation between the factors. Task-oriented leadership was grouped into two groups by factor analysis. The task-oriented leadership with clear target setting group had a mean of 3.45 and the task-oriented in term of satisfying existing customers group had a mean equal to 3.90. We can see that, the manager respondents had a moderate level of task-oriented leadership behaviors. Relation-oriented leadership was grouped into one group with a mean of 3.70. This result showed that the candidates had a moderate level of relation-oriented behaviors. Change-oriented leadership style was grouped into one group and the mean was 3.76. This indicated that the managers had a moderate level of change-orientation in their leadership. The description of transportation efficiency showed a medium level of efficiency with a mean of 3.16. Profitability also had a medium level with a mean of 3.13. This paper used the level of education of the top management to control the firm's performance based on verifications of much prior research (Kissi *et al.*, 2013; Wang *et al.*, 2011).

The level of education was measured by 0 and 1, in which 0 = education lower than a master's degree and 1 = education equal to or higher than a master's degree. The mean of education level was equal to 0.22 which meant that the number of managers who had a level of education lower than a master's degree was greater than those who had a master's degree or higher.

From the inter-correlation information, we can see some differences in the hypotheses. There was a relationship

Table 2. Reliability tests and factor analysis.

How important are these factors to top management?	Factor loading		KMO	Variance (%)	Cronbach's alpha
Task-oriented leadership: extract to 2 factors	Factor 1	Factor 2	0.66	57.3	0.845
Group 1: Task-oriented leadership with clear target setting					
Your company's target level of key performance indicators is shared by employees.	0.868				
Your employees have loyalty to your company	0.855				
Your firm has established good communication between office workers and drivers.	0.933				
Group 2: Task-oriented leadership in term of satisfying existing customers					
Training newly hired drivers		0.801		81.7	
Satisfy existing consignors' needs		0.956			
Satisfy existing consignees' needs		0.882			
Relation-oriented leadership			0.799	63.9	0.879
The corporate philosophy of your founder is shared by employees	0.801				
Your top management has established good communication with employees	0.899				
Your top management has built trust relationships with employees.	0.834				
Your top management listens to employees complaints and discontents	0.878				
Information sharing and transparency among employees	0.703				
Team work	0.654				
Change-oriented leadership			0.696	78.1	0.857
Develop new original product or service	0.862				
Introduce new technologies	0.925				
Copy competitors' innovative attempts	0.864				
Improvement of performance indicators of firm between year 2011 and 2013?					
Transportation efficiency			0.738	55.2	0.83
Transportation volume per truck	0.683				
Load efficiency	0.712				
Laden miles	0.813				
Usage efficiency	0.848				
Delivery in Full on Time (DIFOT)	0.783				
Amount of damage or loss of cargos	0.588				

Table 3. Descriptive statistics and inter-correlation data.

	Mean	SD	1	2	3	4	5	6	7
1 Level of education	0.22	0.42	-						
2 Task-oriented leadership with clear target setting	3.45	0.78	0.133	-					
3 Task-oriented leadership in satisfying customers	3.90	1.13	-0.048	0.000	-				
4 Relation-oriented leadership	3.70	0.76	0.062	0.761**	0.470**	-			
5 Change-oriented leadership	3.76	1.01	-0.085	0.113	0.827**	0.495**	-		
6 Transportation efficiency	3.16	0.57	0.358**	0.322**	0.246*	0.405**	0.273*	-	
7 Profitability	3.13	0.67	0.368**	0.065	0.141	0.158	0.165	0.540**	-

Note: \*P<0.05; \*\*P<0.01, \*\*\*P<0.001

between "level of education" on both transportation efficiency and profitability. Both groups of task-oriented leadership correlated with transportation efficiency but not on profitability. Relation-oriented and change-oriented leadership also correlated with transportation efficiency but not on profitability. Lastly, transportation efficiency had a strong correlation with profitability.

We tested the inter-correlation between leadership styles and trucking firm performance that included transportation efficiency and profitability (Table 3). Table 3 also

shows the correlations between leadership styles in which leadership styles correlated with each other. We can see that relation-oriented leadership had a high correlation with task-oriented leadership with clear target setting with a correlation coefficient equal to 0.761 (P<0.01). Also, relation-oriented leadership had a quite high correlation with task-oriented leadership in satisfying customers with a correlation coefficient equal to 0.470 (P<0.01). Change-oriented leadership had a high correlation with task-oriented leadership in satisfying customers and relation-oriented leadership with

correlation coefficients equal to 0.827 ( $P < 0.01$ ) and 0.495 ( $P < 0.01$ ), respectively.

#### 4.4 Test of hypotheses

Hypotheses 1, 2, 3, and 4 stated that the task-oriented with clear target setting leadership style, task-oriented in satisfying customer leadership style, relationship-oriented leadership style, and change-oriented leadership style had positive relationships to transportation efficiency. The results of the regression are detailed in Tables 4-7. In Table 4, step 1, the level of education was used as a predictor and it was significant ( $\beta = 0.358$ ,  $P < 0.001$ ). In the second step, we added factor task-oriented leadership with a clear target setting into the model. The results of step 2 indicated that the task-oriented leadership with clear target setting significantly predicted transportation efficiency ( $\beta = 0.279$ ,  $P < 0.001$ ). Task-oriented leadership with clear target setting also explained a significant proportion of variance in transportation efficiency ( $R^2 = 0.205$ ,  $P < 0.001$ ) ( $F(2, 79) = 10.168$ ,  $P < 0.001$ ). Hence, hypothesis 1 was supported.

The results showed that task-oriented leadership in satisfying existing customers significantly predicted transportation efficiency ( $\beta = 0.264$ ,  $P < 0.01$ ) (Table 5). Task-oriented leadership in satisfying existing customers also explained a significant proportion of variance in transportation efficiency ( $R^2 = 0.198$ ,  $P < 0.01$ ) ( $F(2, 79) = 9.729$ ,  $P < 0.001$ ). Therefore hypothesis 2 was supported.

Regression was also conducted for relation-oriented leadership and change-oriented leadership. The results are shown in Tables 6 and 7. In these tables, the level of education was also used as a control variable. The second step showed the results of regression analysis. The relation-oriented leadership significantly predicted transportation efficiency ( $\beta = 0.384$ ,  $P < 0.01$ ) and it also explained a significant proportion of variance in transportation efficiency ( $R^2 = 0.275$ ,  $P < 0.01$ ) ( $F(2, 79) = 14.978$ ,  $P < 0.001$ ). The change-oriented leadership also significantly predicted transportation efficiency ( $\beta = 0.306$ ,  $P < 0.01$ ) and explained a significant proportion of variance in transportation efficiency ( $R^2 = 0.221$ ,  $P < 0.01$ ) ( $F(2, 74) = 10.497$ ,  $P < 0.001$ ). Therefore, hypotheses 3 and 4 were also supported.

Since this test separately analyzed the influence of each leadership style on transportation efficiency, we can see the influence of each style. The results were consistent with the general literature that reported that leadership style can influence firm efficiency but there are some differences. For example, the results of Yukl reported that task-oriented leadership affected efficiency, relation-oriented leadership affected human capacity, and change-oriented leadership affected the ability to adapt to an external environment. However, the results of this current study indicated that all three styles could influence a firm's efficiency, and in this case, transportation efficiency. These results gave evidence to say that leadership styles do have relationships with transportation efficiency in a trucking company. Hence, hypotheses 1, 2, 3, and 4 were supported.

Table 4. Regression analysis of task-oriented leadership style with clear target setting as a predictor of transportation efficiency.

Variables	Transportation efficiency					
	Step 1			Step 2		
	B	SE	$\beta$	B	SE	$\beta$
Level of education	0.86	0.251	0.358***	0.771	0.243	0.321***
Task-oriented leadership with clear target setting				0.279	0.101	0.279***
R <sup>2</sup>	0.128			0.205		
Change in R <sup>2</sup>	0.128			0.077		
F change	11.762***			7.603**		
Adjusted R square	0.117			0.185		
ANOVA (F)	11.762***			10.168***		

Note: \* $P < 0.05$ ; \*\* $P < 0.01$ , \*\*\* $P < 0.001$

Table 5. Regression analysis of task-oriented leadership in terms of satisfying existing customers as a predictor of transportation efficiency.

Variables	Transportation efficiency					
	Step 1			Step 2		
	B	SE	$\beta$	B	SE	B
Level of education	0.86	0.251	0.358***	0.89	0.242	0.371***
Task-oriented leadership in term of satisfying existing customers				0.264	0.101	0.264**
R <sup>2</sup>	0.128			0.198		
Change in R <sup>2</sup>	0.128			0.069		
F change	11.762***			6.838**		
Adjusted R square	0.117			0.177		
ANOVA (F)	11.762***			9.729***		

Note: \* $P < 0.05$ ; \*\* $P < 0.01$ , \*\*\* $P < 0.001$

Table 6. Regression analysis of relation-oriented leadership style as a predictor of transportation efficiency.

	Transportation efficiency					
	Step 1			Step 2		
	B	SE	$\beta$	B	SE	$\beta$
Level of education	0.86	0.251	0.358***	0.802	0.23	0.334***
Relation-oriented leadership				0.384	0.096	0.384**
R2	0.128			0.275		
Change in R2	0.128			0.147		
F change	11.762***			15.990**		
Adjusted R square	0.117			0.257		
ANOVA (F)	11.762***			14.978***		

Note: \*P<0.05; \*\*P<0.01, \*\*\*P<0.001

Table 7. Regression analysis of change-oriented leadership style as a predictor of transportation efficiency.

Variables	Transportation efficiency					
	Step 1			Step 2		
	B	SE	$\beta$	B	SE	$\beta$
Level of education	0.86	0.251	0.358***	0.922	0.247	0.384***
Change-oriented leadership				0.306	0.103	0.306**
R2	0.128			0.221		
Change in R2	0.128			0.093		
F change	11.762***			8.817**		
Adjusted R square	0.117			0.200		
ANOVA (F)	11.762***			10.497***		

Note: \*P<0.05; \*\*P<0.01, \*\*\*P<0.001

Hypotheses 5, 6, 7, and 8 state that leadership styles, which include task-oriented with clear target setting leadership style, task-oriented in satisfying customer leadership style, relation-oriented leadership style, and change-oriented leadership style, have a direct and positive influence on a firm's profitability. As we showed previously in the data description and inter-correlation section, leadership styles and firm financial performance do not have a significant correlation. Therefore they do not have a relationship. This is also congruent with the literature. Hence, hypotheses 5, 6, 7, and 8 do not have enough evidence to be supported.

We used two-step regression to analyze hypothesis 9. The results showed that transportation efficiency significantly predicted profitability ( $\beta=0.469$ ,  $P<0.001$ ) and it also explained a significant proportion of variance for financial performance ( $R^2=0.327$ ,  $P<0.001$ ) ( $F(2, 79)=19.187$ ,  $P<0.001$ ) (Table 8). Therefore, hypothesis 9 was supported. The results were consistent with conclusions from the literature that reported that performance determinants, including efficiency, reflected the financial performance (Jane, 2011; Yukl, 2008). Figure 2 summarizes the results of the hypotheses.

The results were consistent with the literature. There were positive relationships between leadership style and firm determinants (Yukl, 2008). Some studies explained that leadership could directly impact both performance and performance determinants (Carmeli *et al.*, 2011; Jansen, 2011; Kissi *et al.*, 2013; Zhu *et al.*, 2013). The results of this current study confirmed there are direct relationships between leadership style and firm determinants, but not firm financial performance in the logistics sector.

Some reports in the literature showed that task-oriented leadership could directly enhance firm efficiency and thus indirectly impact financial performance. Relation-oriented and change-oriented leadership did not impact firm efficiency or indirectly impact financial performance (Yukl, 2008). However, our results showed that the relation-oriented and change-oriented styles directly and fully impacted a firm's efficiency.

We acknowledged that the R2 values were relatively low. However, the results showed support for findings from past studies that leadership styles affect a firm's performance (Carmeli *et al.*, 2011; Jansen, 2011; Kissi *et al.*, 2013; Yukl, 2008; Zhu *et al.*, 2013). Furthermore, small R2 values for statistically significant models showed that these factors relating to leadership styles had a significant effect, but were possibly not the sole factor affecting the firm's performance. In other words, when a model has a low, but significant R2 value, it still indicates there is a significant relationship between the independent and the dependent variables.

## 5. Discussion

In this research, we examined whether or not there were relationships between leadership styles and the performance of logistics firms. Our results indicated that in fact there are such relationships. Task-oriented, relation-oriented, and change-oriented leadership styles had direct relationships with transportation efficiency and indirect relationships with the profitability of a firm. This was consistent with the literature. Moreover, task-oriented leadership managers are able to help their company get more

Table 8. Regression analysis of transportation efficiency as a predictor of financial performance.

Variables	Financial performance					
	Step 1			Step 2		
	B	SE	$\beta$	B	SE	$\beta$
Level of education	0.591	0.167	0.368***	0.321	0.159	0.200***
Transportation efficiency				0.314	0.066	0.469***
R2	0.135			0.327		
Change in R2	0.135			0.192		
F change	12.507***			22.505***		
Adjusted R square	0.124			0.310		
ANOVA (F)	12.507***			19.187***		

Note: \*P<0.05; \*\*P<0.01, \*\*\*P<0.001

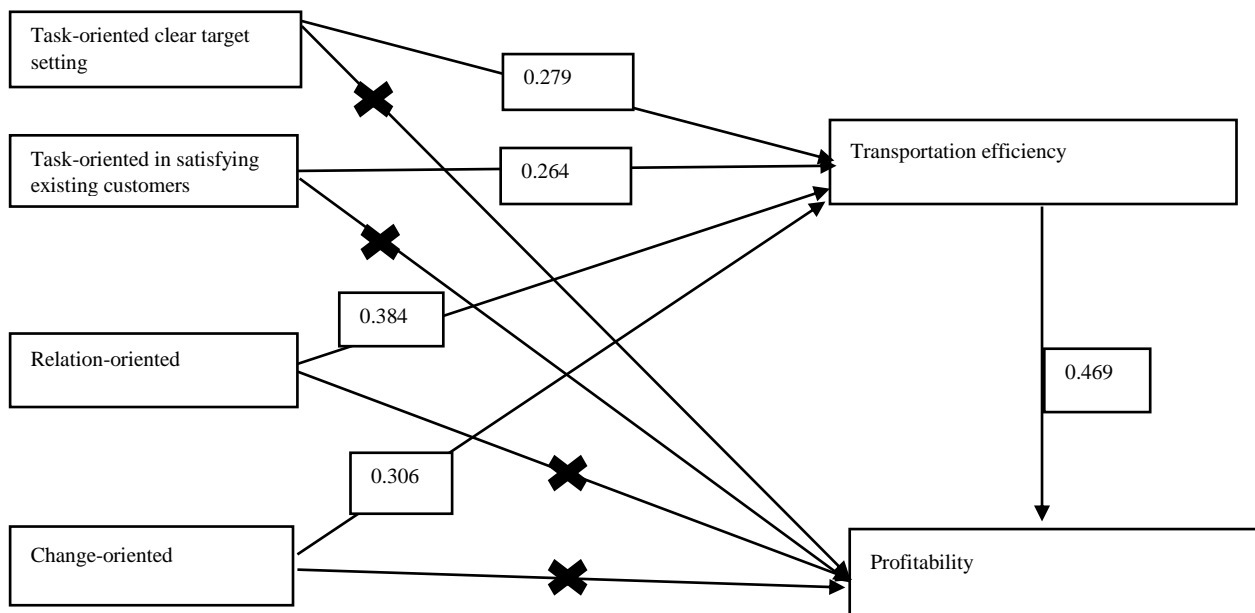


Figure 2. Summary of the model results.

improvement in transportation efficiency as indicated by the results of inter-correlation and regression tests in sections 4.3 and 4.4. In fact, focusing all resources on loyal customers will improve the quality of service and avoid risks of providing low quality service. This also helps improve the experience of transportation and leads to improved transportation efficiency.

Relation-oriented leadership managers are the ones who build a friendly environment in their company where employees feel free to share their feelings about their jobs, ideas, and complaints and they are relaxed when being heard by the managers. Change-oriented leadership style are the managers who always attempt to innovate service processes by adopting new technology or they attempt to develop new products and look for something new for the company. Changing seems to be a proactive way to take opportunities in a competitive environment and improve efficiency.

However, a manager can be “completely” task-oriented, or relation-oriented, or change-oriented. They can also have a blend of these styles. A manager may be flexible with each style to be compatible with their company characteristics, or their company’s situation, in order to get the largest improvement of efficiency.

## 6. Conclusions

We investigated the effects of leadership on firm performance in the logistics sector. The results showed that all three styles of leadership directly and positively influence transportation efficiency of trucking firms. The relation-oriented leadership style had the largest influence on transportation efficiency. Task-oriented and change-oriented leadership had a smaller impact on transportation efficiency compared with relation-oriented leadership. However, the results had some differences with other studies in the literature. This study indicated that transportation efficiency could be influenced not only by the task-oriented style, as shown in the literature (Yukl, 2008), but could be influenced also by relation-oriented and change-oriented styles. The positive impact of transportation efficiency on profitability is also consistent with the literature (Liu & Lyons, 2011).

This study provides insight on the influence of leadership style on the performance of a firm, especially for a logistics firm. This study was limited in using only transportation efficiency for a firm’s operational performance and only profitability for a firm’s financial performance. We



only tested the direct relationship between leadership style and a firm's performance without examining these relationships in other mediators that eliminate the impact of leadership. Future research may investigate these limits to get a better understanding of their interactions. Moreover, in this study, we used only the level of education as the control variable for all tests which may have limited the results. Future research may include other control variables such as number of years of experience.

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