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Influence of Learning Organization and Innovation on Organizational Performance in the Automotive Parts Industry of Thailand

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Abstract: The Thai automotive parts industry continuously builds economic value in the country due to the number of automobile exports in ASEAN. The objectives of this study were to study the influence that the variables have on organizational performance and to develop a model of the factors affecting the organizational performance of Thailand's automotive parts industry. This case study is quantitative research. The sample group consisted of 260 people. A questionnaire was administered to obtain data from various automotive parts manufacturers. The data analysis used SEM statistics. According to the study, the organization has developed into a learning organization which will affect its capacity to build the highest innovations in terms of process, products, organization and services. Therefore, the organizational performance in the Thai automotive parts industry should be further developed in terms of cost reduction, corporate growth, satisfaction-building for employees and customer retention.

INTRODUCTION

The world's automotive industry is accelerating: it expanded by 4.5% in 2016 (OICA., 2016). Sales amounted to approximately 88 million automobiles in 2016. In terms of high-efficiency performance (PWC., 2017), Thailand became a leader in the ASEAN region, ranking first in production capacity. It was also 12th among the world's automobile manufacturers in 2017 (OICA., 2016) Table 1.

Furthermore, Thailand is the manufacturing base for automobiles and automotive parts in the region. According to production data shown in Table 1 for 2016, it is evident that China was the leading manufacturer of the world's automobiles with a total of 28,118,794 vehicles. The second was the USA with 12,198,137 cars and Japan was third with 9,204,590 vehicles. During the same period, Thailand was 12th in the world with 1,944,417 vehicles manufactured at a rate of increase of 1.80%. Changes in the automotive industry are expected to increase and the industry itself is expanding.

The trend in the automotive industry will change in 2017 concerning investment in technology, connection with automatic driving systems and innovation application in the development of the sector. Currently, it has not changed very much. Innovation in the change of basic shapes and traditional qualifications of cars affects the production cost of electric vehicles, various digital services, transmission and the required connecting system of accessories and functions. For original equipment producers there is the impact of high taxes which reached 20% and is higher than for the cost of previous generations of automobiles (PWC., 2017). Thailand's automotive parts industry is composed of 2 main

Table 1: The world's production of automobiles in 2016

Items	Countries	Cars	Commercial vehicles	Total	Change (%)
1	China	24,420,744	3,698,050	28,118,794	14.50
2	USA	3,934,357	8,263,780	12,198,137	0.80
3	Japan	7,873,886	1,330,704	9,204,590	-0.80
4	Germany	5,746,808	315,754	6,062,562	0.50
5	India	3,677,605	811,360	4,488,965	7.90
6	South Korea	3,859,991	368,518	4,228,509	-7.20
7	Mexico	1,993,168	1,604,294	3,597,462	0.90
8	Spain	2,354,117	531,805	2,885,922	5.60
9	Canada	802,057	1,568,214	2,370,271	3.80
10	Brazil	1,778,464	377,892	2,156,356	-11.20
11	France	1,626,000	456,000	2,082,000	5.60
12	Thailand	805,033	1,139,384	1,944,417	1.80
13	UK	1,722,698	93,924	1,816,622	8.00
14	Turkey	950,888	535,039	1,485,927	9.40
15	Czech Rep.	1,344,182	5,714	1,349,896	8.30
	Total	72,105,435	22,871,134	94,976,569	4.50

Organisation Internationale des Constructeurs d'Automobiles (OICA., 2016)

automotive sectors: the OEM (Original Equipment Manufacturer) which depends on the domestic production of automotive cars and exports for the production process in foreign countries and REM (Replacement Equipment Manufacturer) which depends on the quantity of demand for domestic use and commodities in response to requests from foreign countries (TAI., 2012).

Presently, the automotive industry has applied Artificial Intelligence technology (AI) as a substitute for labor, resulting in high costs in the early stages. However, over time, it will help reduce the labor costs (Chamsuk *et al*., 2017) and retain the production quality to be standardized which will benefit the industry in the long term. Furthermore, collaboration between the state sector and the private sector occurs in many phases (Schott and Sedaghat, 2014) such as the standardization of skill certification to motivate laborers to develop their skills for higher wages by real proficiency (Hu, 2014). The certification affects the development of a learning organization for various innovations in the automotive industry (Rummasint *et al*., 2014). In addition, the executives support technology, technological skills and learning organization which in turn affects the organization's innovation and hasan impact on performance (Bolivar-Ramos *et al*., 2012; Jimenez-Jimenez and Sanz-Valle, 2011). This study examined the factors that help support and develop the Thailand automotive parts industry and how the industry can improve its organizational performance, gain advantages against its competitors and be an active manufacturing base in Asia. The objectives were to study the influence of the variables toward organizational performance and develop a model of the factors affecting corporate performance in the Thailand automotive parts industry.

Literature review

Learning organization: The world is changing rapidly. Thus, organizations must develop themselves to be face those changes. A learning organization is seen as the central organizational management and the major component of a team (Armstrong and Rasheed, 2013). A learning organization is a group focused on learning which is the main component in vision and goal-setting (Van Grinsven and Visser, 2011; Vikineswaran, 2013; El-Kassar and Messarra, 2013; Dahanayake and Gamlath, 2013). The learning team builds a channel to transfer knowledge among personnel and receive external instructions. Its critical objective is to offer personnel the opportunity to find the best practices leading to the development and building of core competence in the organization. According to Hussein *et al*. (2016), the learning team uses its growth and development to apply the learning organization's principles and impact organizational performance (Kanten *et al*., 2015). It connects the process of teamwork to build the learning process and understand how to handle the change and provides an opportunity for the team to be empowered and support initiatives and innovation, resulting in the strength of competition.

Senge (1990) viewed the learning organization as a group of people who unceasingly create and have competence in giving priority to fostering learning than their rivals. This ability is regarded as a sustainable competitive advantage. The five disciplines in a learning organization are; Personal mastery, mental models, shared vision, team learning and systems thinking. The previously mentioned ideas about pushing and supporting the learning organization to be the foundation for innovative creation are in line with those of Hu (2014), who studied the business pattern that affects the efficiency of creative technology via a learning organization. This study's results revealed that the team with fully loaded knowledge is the mediator in the relationship between the capability of being a central business and the efficiency of innovative technology operation. Rahab (2012) found that a tendency toward good performance when the organization aims to plan a flexible marketing strategy is a quick response. Learning and innovation creation planning creates an impact on business operation.

Table 2: Literature review summary of observed variables for a learning organization

Variables	Kuscu *et al*. (2015)	Bui and Baruch (2011)	Alipour and Karimi (2011)	Senge (1990)
Personal mastery	✓	✓	✓	✓
Mental models	✓	✓		✓
Shared vision	✓	✓		✓
Team learning	✓	✓	✓	✓
Systems thinking	✓	✓		✓

Similarly, Alegre and Chiva (2008) evaluated the capacity effect of a learning organization to affects the activity of an innovative product. Liao *et al*. (2008) studied the relationship between a learning team and an organization's innovation and found that excellent learning organization results in change. Jimenez-Jimenez and Sanz-Valle (2011) also confirmed the positive relationship between a learning organization and the organization's innovation and performance. Moreover, Bolivar-Ramos *et al*. (2012) studied top management support and found that technological support influences technological skills in technology and organizational learning which also impacts the capacity of the organization's technology and innovation. This support demonstrates the effects on organizational performance.

From the literature review, one can distinguish five observed variables in Table 2: personal mastery, mental models, shared vision, team learning and system thinking (Kuscu *et al*., 2015; Alipour and Karimi, 2011; Bui and Baruch, 2011; Senge, 1990).

Personal mastery means building knowledge for employees, so, they will want to learn and love to learn continuously. People in the organization must give priority to learning, practice and performance and must continue to perform throughout their lives to increase their capabilities which will lead to enhanced insights and knowledge. Mental models means the constraint of ideas originating from ordering a pattern of an idea, belief, attitude and maturity deriving from experiences; all of these create the scope of a person's or employee's concept to understand and make decisions appropriately.

Shared vision means building cooperative attitudes among people in the organization to be able to see images and have similar needs by cooperating in specifying the object to respond to the overall goals of the organization. Team learning means that members learn together as a group using teamwork. This teamwork is the primary goal that must exist for consistency of knowledge and experience transfer which are considered collaboration for the intent of the team and lead to knowledge transfer. System thinking means that people in the organization can connect things by systematically understanding the overall relationship. Moreover, they can see the minor systems that will be planned and operated from part to part until they know the relationship between tasks. When employees can see the larger picture of a system, they will also see how every piece connects. This knowledge will lead to collaborative goal-setting (Fig. 1).

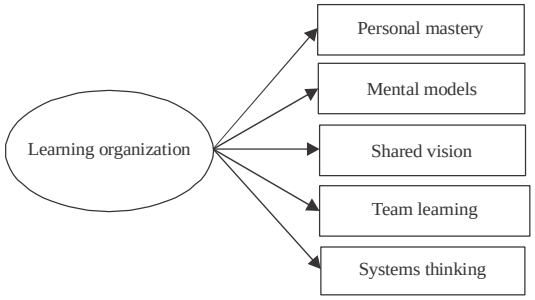

Fig. 1: Model of learning organization

Innovation: Innovation helps increase value and preserve the competitive advantage in an environment with high competition (Bilton and Cummings, 2010; Subramaniam and Youndt, 2005). It is essential for the performance achievement and to increase the service quality (Parasuraman, 2010) of an organization. Drucker (1985) suggested that innovation means new creation, capacity improvement, the building of a competitive advantage and business stabilization from the use of limited resources. Rogers (2003) indicated that the acceptance or use of new innovative ideas in the organization helps increase the operation results. At the same time, Porter (1990) stated that innovation is the means of creating news for commercial use to produce different or new technologiesthat are relevant to the market's demands. Success from the responses to customer's requirements and the capacity for development lead to better performance and higher profits from the building of innovation (Sadikoglu and Zehir, 2010). This change corresponds to the interests of academics who want to study the effects of innovation affecting organizational performance (Liao *et al*., 2010; Vaccaro *et al*., 2010). Several studies have focused on the importance of the beginning for strengthening innovation and creative capacity. The conservation of innovation and competition is necessary to play the role of a learning organization in creating innovation because the organization is capable of predicting environmental change and self-adjusting to it (Bates and Khasawneh, 2005). Jimenez-Jimenez and Sanz-Valle (2011) established that innovation and the highest beneficial use of existing knowledge require employees to transfer data and expertise. Therefore, the organization that owns its innovation and technology will create products and services with more value. The organization must be

Table 3: Literature review summary of observed variables for innovation

References	Product innovation	Process innovation	Service innovation	Organizational innovation
Chamsuk *et al*. (2017)	✓	✓	✓	✓
Kyei and Bayoh (2017)	✓	✓		
Kuçukoglu and Pinar (2015)	✓	✓		
Ford *et al*. (2014)	✓	✓	✓	
Garcia-Morales *et al*. (2012)				✓
Simon and Yaya (2012)		✓		✓
Chong *et al*. (2011)	✓	✓	✓	
Dobni (2010)	✓	✓	✓	
Koellinger (2008)	✓	✓	✓	

determined to develop techniques, technology and research that they can use to develop skills and enhance its strengths (Wang and Wang, 2012; Chumaidiyah, 2012). Krishnaswamy *et al*. (2014) studied the growth of SMEs in the automotive parts business and found that entrepreneurs are aware of the marketing opportunities that will enhance technological capacity and technological innovation in relation to customer's demands before delivering products to the market. Such a change leads them to attain product innovation. Growth will continue and respond to market demands as the organization gains a constant competitive advantage (Lee and Hsieh, 2010). According to, Kuçukoglu and Pinar (2015), product innovation and the innovation process affect a company's efficient performance and competitive advantage. Related studies (Chamsuk *et al*., 2017; Ruiz-Jimenez and Fuentes-Fuentes, 2016; Ford *et al*., 2014; Verma and Jayasimha, 2014) show that the variables of innovation are composed of 4 variables in Table 3: product innovation, process innovation, service innovation and organizational innovation which is the innovation indicator of this study.

Product innovation is when the organization initiates the creation of new innovation, research, a newly developed product or improves existing products to be new products. Process innovation is when the organization initiates the creation of new innovation, a new process, a new method, a new operation or improves an existing process to develop its efficiency and enhance satisfaction. Service innovation is the design of a service or development of a pattern of service that connects the strategy of service provided for customer's convenience and satisfaction.

Organizational innovation is when the organization supports its personnel at every level to be creative in invention, development and innovation for their own convenience (Fig. 2).

Organizational performance: Regarding the evaluation of performance or people management, personal development, satisfaction building, profit enhancement and expenditure efficiency of the organizational operation (Ibeogu and Ozturen, 2015), the current organization applies only the financial indicator which is not sufficient because it requires non-financial KPIs as well.

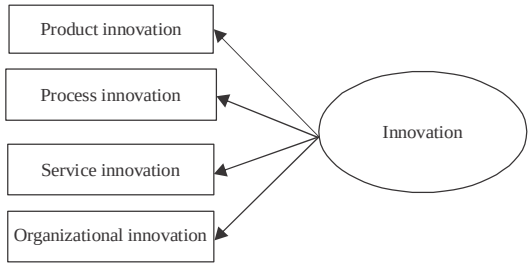

Fig. 2: Model of innovation

Non-financial KPIs include knowledge, reputation and image, brand, employee satisfaction and customer satisfaction. When employees and customers are satisfied, they will help increase the future profit while building technological and innovative capacity (Lahiri *et al*., 2012). Additionally, Kaplan and Norton (1996) noted that KPIs would cover the overall evaluation system and administration strategy. There are four perspectives: financial, customer, internal-business-process and learning and growth. Armstrong and Foley (2003) showed that a learning organization is a group that has a suitable cultural vision to support the learning environment. It demonstrates organizational performance improvement by self-adjustment to meet changes (Marquardt, 2002; Senge, 1990) and increase an employee's motivation and attachment to the organization (Atak and Erturgut, 2010). The data collection came from the customers because there had to be a response to their demands in the old and new markets (DiBella and Nevis, 1998). Professional growth and profit increase (Ellinger *et al*., 2002) with quality improvement at every level (Vargas-Hernández and Noruzi, 2010) and sustainable process improvement will reduce capital costs and increase sales (Grekova *et al*., 2016; Thoo *et al*., 2015). The literature (Grekova *et al*., 2016; King and Clarkson, 2015; Ibeogu and Ozturen, 2015; Raman *et al*., 2013; Ramayah *et al*., 2011; Zakuan *et al*., 2010; Lin *et al*., 2005) on manifest variables of organizational performance shows 4 variables, as seen in Table 4: customer retention, employee satisfaction, cost reduction and growth.

Customer retention is the ability to build relationships and satisfaction and to respond to the

Table 4: Literature review summary of observed variables for organizational performance

References	Customer retention	Employee satisfaction	Cost savings	Growth
Grekova *et al*. (2016)			✓	
Lo and Fu (2016)				✓
King and Clarkson (2015)	✓			✓
Raman *et al*. (2013)	✓			✓
Ramayah *et al*. (2011)	✓	✓		
O'Cass and Ngo (2012)	✓			
Zakuan *et al*. (2010)	✓	✓	✓	✓
Cheng *et al*. (2010)			✓	

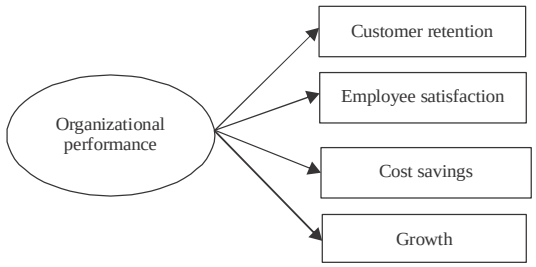

Fig. 3: Model of organizational performance

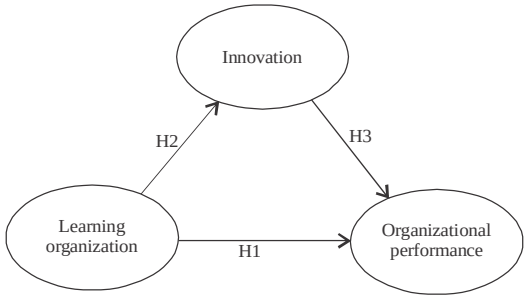

Fig. 4: Conceptual framework

expectations of customers, so, they will return to buy a product or use a service. It includes building a long-term customer base that is loyal to a product or service. Employee satisfaction is the feeling among employees toward the operation of the organization in terms of administration, giving returns and developing the ability and capacity of employees which enhance motivation, encouragement and bonding within the organization.

Cost savings is any operation or activity in the process that can be improved to increase the value of the organization such as cost savings, product increase and product response to the demands of customers. Growth is the result of the organization's operation that achieves the goals of finance, customer retention, internal processes, learning and development (Fig. 3).

From the above literature review, the author developed the scope of the research, as shown in Fig. 4 and specified these hypothesis:

- H_1: learning organization influences organizational performance directly and indirectly
- H_2: learning organization directly influences innovation
- H_3: innovation positively influences organizational performance

MATERIALS AND METHODS

This quantitative research studies the primary data, such as research, textbooks, books, related journals and data collection through a questionnaire to seek answers about ideas, including evidence stemming from the research and data analysis from statistics and Structural Equation Modeling (SEM) (Table 5).

Questionnaire design: The questionnaire was selected for this quantitative research as the research tool. When developing the survey an evaluation tool was proposed, under the scope of ideas and an operational definition, using a 7-point Likert scale questionnaire (Likert, 1972). Moreover, the index of Item-Objective Congruence (IOC) was applied for the tool and assessment of research tools by five experts and specialists who selected the questions with IOC from = 0.5 (Turner and Carlson, 2002). The researcher developed the questionnaire for this research from the literature review and from organizational performance. The manifest variables are as follows: customer retention, employee satisfaction, cost reduction and growth (Garcia-Morales *et al*., 2012; Lin *et al*., 2008; Keskin, 2006). Innovation includes manifest variables as follows: Product innovation, process innovation, service innovation and organizational innovation (Chamsuk *et al*., 2017; Hullova *et al*., 2016; Ford *et al*., 2014; Garcia-Morales *et al*., 2012). Learning organization includes manifest variables as follows: Personal mastery, mental models, shared vision, team learning and systems thinking (Kuscu *et al*., 2015; Bui and Baruch, 2011; Alipour and Karimi, 2011; Senge, 1990). After improvement and collecting data from 30 samples, the following processes were used to measure reliability using the Cronbach's alpha method with the observed variables for reliability of 0.70 and up which is regarded as high reliability (Hair *et al*., 2010). The result from the measure of internal consistency by Cronbach's alpha is 0.972, later used as the tool for data collection.

Table 5: Research question development

Exogenous latent variables	Manifest variables	Development
Learning organization	Personal mastery Mental models Shared vision Team learning Systems thinking	Kuscu *et al*. (2015); Hu (2014); Dobni (2010); Jimenez-Jimenez and Sanz-Valle (2011); Garcia-Morales *et al*. (2012); Bui and Baruch (2011); Alipour and Karimi (2011) and Senge (1990)
Intervening variable:		
Innovation	Product innovation Process innovation Service innovation Organization	Chamsuk *et al*. (2017); Kyei and Bayoh (2017); Dobni (2010); Jimenez-Jimenez and Sanz-Valle (2011); Garcia-Morales *et al*. (2012); Chiou *et al*. (2011); O'Cass and Ngo (2012); Chen *et al*. (2011) and Wang and Wang (2012)
Endogenous latent variables:		
Organizational performance	Customer retention Employee satisfaction Cost reduction Growth	García-Morales *et al*. (2012); Lin *et al*. (2008) and Keskin (2006)

Table 6: General information of the respondents

Variables	Frequency (n = 260)	Percentage
Gender		
Male	243	93.46
Female	17	6.54
Position		
Factory manager	141	54.23
Production manager	48	18.46
HR manager	20	7.69
Engineering management manager	32	12.31
QC manager	19	7.31
Age		
Under 30 years old	3	1.15
30-39 years old	54	20.77
40-49 years old	122	46.92
50-59 years old	75	28.85
Over 60 years old	6	2.31
Experience		
5-10 years	19	7.31
11-20 years	80	30.77
21-30 years	129	49.62
31-40 years	26	10.00
Over 40 years	6	2.31
Education		
Lower than undergraduate degree	6	2.31
Undergraduate degree	104	40.00
Master's degree	137	52.69
Higher than Master's degree	13	5.00

Data collection: From the analysis of variables, data analysis and the application of the structural equation model or use of the structural-causal relationship of variables, the researcher considered the size of the sample group in this research as having a ratio of 20 samples to 1 variable. Schumacker and Lomax (2012) stated that SEM analysis must design the sample group's size more significantly than other analytical means to assess accuracy and effectively represent the broader population. Hair *et al*. (2010) also found the size of the sample group. Its quantity is sufficient for SEM analysis and a normal curve.

As a result, the research collected data from entrepreneurs in the automotive parts business in Thailand from 260 factories that manufacture automotive parts, i.e., Tier 1 as selected by simple random sampling. The informants included managing directors, factory managers and related division managers. According to the data analysis as seen in Table 6, there were 260 respondents; 243 persons were male (93.46%) and 141 persons (54.23%) were factory managers. Most individuals were 40-49 years of age (122 individuals; 46.925). The majority of them had 21-30 years of experience (129 persons; 49.62%) and 137 persons (52.69%) had earned a master's degree.

RESULTS AND DISCUSSION

Descriptive statistical results: Construct validity is conducted by Corrected Item-Total Correlation (CITC) which requires a corrected item-total correlation >0.5 (Hair *et al*., 2010). As Corrected Item-Total Correlation ranges between 0.738 and 0.943, all results are >0.5.

The analysis of descriptive statistics consisted of mean and standard deviation for endogenous latent variables, including organizational performance and mediator/intervening variables which includes innovation and exogenous hidden variables which includes learning organization. The opinion-level criteria in the analysis of samples that relate to the indicators of variables are as follows:

- Highest = 6.11-7.00
- Very high = 5.26-6.10
- High = 4.45-5.25
- Average = 3.56-4.44
- Low = 2.71-3.55
- Very low = 1.86-2.70
- Lowest = 1.00-1.85

As shown in Table 7, respondents gave importance to learning organization which is at a high level with a mean of 5.19 (SD = 1.094). After considering the component of observed variables it was found that personal mastery had

the highest mean of 5.41 (SD = 1.131) which is at a very high level. For the next lower mean scores, team learning had a mean of 5.36 (SD = 1.235) which is at a very high level. System thinking had a mean of 5.12 (SD = 1.129) which is at a high level. Mental models had a mean of 5.12 (SD = 1.171) which is at a high level. Shared vision had a mean of 4.96 (SD = 1.277) which is at a high level. Innovation is at a high level with a mean of 5.27 (SD = 1.114). After considering the component of observed variables, it was found that process innovation had the highest mean of 5.59 (SD = 1.183) which is at a very high level. For the next lower means, organizational innovation had a mean of 5.27 (SD = 1.227) while service innovation had a mean of 5.13 (SD = 1.254) which is at a high level and product innovation had a mean of 5.08 (SD = 1.333) which is at a high level.

Organizational performance is at a high level with a mean of 5.41 (SD = 0.973). After considering the component of observed variables it was found that customer retention had the highest mean of 5.88 (SD = 1.183) which is at a very high level. For the next lower means, cost savings had a mean of 5.29 (SD = 1.140) which is at a very high level while employee satisfaction had a mean of 5.28 (SD = 1.060) which is at a high level. Finally, Growth had a mean of 5.18 (SD = 1.180).

Correlation results: Multicollinearity means that the variables have too many relations and cause problems in the data analysis, resulting in a significant number of errors. Therefore, the correlation of manifest variables would simplify the consideration of issues that might stem from multicollinearity. The researcher selected Pearson's product moment correlation and found that all observed variables are the identity matrix, including analyzing the level of factors as seen in Table 8, that the element with the highest result is retention (mean 5.88) and that the lowest result is shared vision (mean 4.96).

The correlation of every variable should have no relationship over 0.9 because it is regarded as being too high (Hair *et al*., 2010). According to, the analysis in Table 8, the relationship between perceiving variables has a range from 0.499-0.868 with statistical significance at 0.01 which is <0.9. Hence, the manifest variables have no multicollinearity. It is also revealed that the result is 4581.620 df = 120 (p = 0.000) taking into account Bartlett's test of sphericity Table 9 which demonstrates that the correlation matrix differs from the identity matrix with a statistical significance at 0.01. This conforms to the results of Kaiser-Meyer-Olkin for KMO = 0.953 and shows that the manifest variables are appropriate for use in assessing consistency for SEM.

Measurement model: The measurement model by Confirmatory Factor Analysis (CFA) using Maximum Likelihood (ML) is the reflective analysis and utilized statistics for goodness of fit measures applied with the acceptable standard method. Table 10, the structural equation model is called multivariate analysis. This technique benefits the research in single correlation

Table 7: Analysis of descriptive statistics and Cronbach's alpha

Variables	Mean	SD	Corrected item-total correlation
Personal mastery	5.41	1.131	0.838
Mental models	5.12	1.171	0.883
Shared vision	4.96	1.277	0.846
Team learning	5.36	1.235	0.868
Systems thinking	5.12	1.129	0.843
Learning organization	5.19	1.094	0.943
Product innovation	5.08	1.333	0.756
Process innovation	5.59	1.183	0.858
Service innovation	5.13	1.254	0.764
Organizational innovation	5.27	1.227	0.839
Innovation	5.27	1.113	0.921
Customer retention	5.88	0.994	0.738
Employee satisfaction	5.28	1.060	0.816
Cost savings	5.29	1.140	0.876
Growth	5.18	1.188	0.811
Organizational performance	5.41	0.973	0.932

Table 8: Mean, SD and Pearson's correlation

Variables	Pers	Mental	Shared	Team	Sys	Product	Process	Serv	ORG	RET	Emp	Cost	Growth
Pers	1												
Mental	0.835**	1											
Shared	0.737**	0.819**	1										
Team	0.781**	0.834**	0.818**	1									
Sys	0.723**	0.825**	0.868**	0.845**	1								
Product	0.624**	0.646**	0.639**	0.627**	0.570**	1							
Process	0.771**	0.768**	0.673**	0.723**	0.690**	0.696**	1						
Serv	0.606**	0.624**	0.668**	0.663**	0.619**	0.705**	0.671**	1					
ORG	0.724**	0.665**	0.655**	0.704**	0.649**	0.754**	0.775**	0.749**	1				
RET	0.599**	0.669**	0.590**	0.624**	0.649**	0.499**	0.691**	0.526**	0.598**	1			
Emp	0.703**	0.736**	0.682**	0.731**	0.686**	0.578**	0.707**	0.593**	0.727**	0.723**	1		
Cost	0.700**	0.793**	0.725**	0.764**	0.728**	0.670**	0.788**	0.652**	0.741**	0.727**	0.773**	1	
Growth	0.686**	0.722**	0.693**	0.674**	0.693**	0.613**	0.721**	0.621**	0.711**	0.637**	0.649**	0.795**	1
Mean	5.41	5.12	4.96	5.36	5.12	5.08	5.59	5.13	5.27	5.88	5.29	5.30	5.19
SD	1.13	1.17	1.28	1.24	1.13	1.33	1.18	1.25	1.23	0.99	1.06	1.14	1.19

**Correlation is significant at the 0.01 level

analysis (Hair *et al*., 2010). For the statistics used in the SEM assessment, every variable should have a factor loading >0.5 with R^2 no <0.20. The hypothesis testing of |C.R.| = 1.96 (t-test) represents a statistical significance at 0.05.

According to, the goodness of fit test of empirical data with variables by confirmatory factor analysis, the results showed that the original model perfectly fitted with the empirical data (model fit) Fig. 5. The results are as follows: Chi-square (χ^2) = 50.791, df = 45, p = 0.256, CMIN/DF (χ^2/df) = 1.129, GFI = 0.972, CFI = 0.998, AGFI = 0.943, NFI = 0.986 and RMSEA = 0.022 and the factor loading is >0.5 but R^2 is not <0.20 for every result. Furthermore, |C.R.| = 1.96 for every result, representing a statistical significance of p<0.01.

Result of structural equation model: The structural equation model is a multivariate analysis technique that includes both factor analysis and multiple regression. This technique is beneficial to the author for single latent variable model analysis (Hair *et al*., 2010). The statistical program used for SEM is AMOS. According to the structural equation model, the indicator of learning organization has a standard regression weight of 0.858-0.942 and an R^2 or squared multiple correlation of 0.736-0.887. The index of innovation has a standard regression weight of 0.757-0.903 and an R^2 or squared multiple correlation of 0.573-0.815. The indicator of organizational performance has a standard regression weight of 0.770-0.926 and an R^2 or squared multiple correlation of 0.593-0.857 in Table 11 and 12. Every result conforms to the criteria.

Table 9: KMO and Bartlett's test

KMO and Bartlett's test	Values
Kaiser-meyer-olkin measure of sampling adequacy	0.953
Approx. Chi-Square	4581.620
Bartlett's test of sphericity df	120
Sig.	0.000

Table 10: Standard consistency criteria

Statistics	Symbol	Criteria
Chi-square	χ^2	Ns. (p>0.05)
Relative Chi-square	χ^2/df	χ^2/df<2.00
Goodness of Fit Index	GFI	>0.90
Comparative Fit Index	CFI	>0.95
Normal Fit Index	NFI	>0.90
Adjusted Goodness of Fit Index	AGFI	>0.90
Root Mean Square Error of Approximation	RMSEA	<0.05
Kaiser-Meyer-Olkin (KMO) index	KMO	>0.50; close to 1 best

Hair *et al*. (2010); Schumacker and Lomax (2012); Hinton *et al*. (2014)

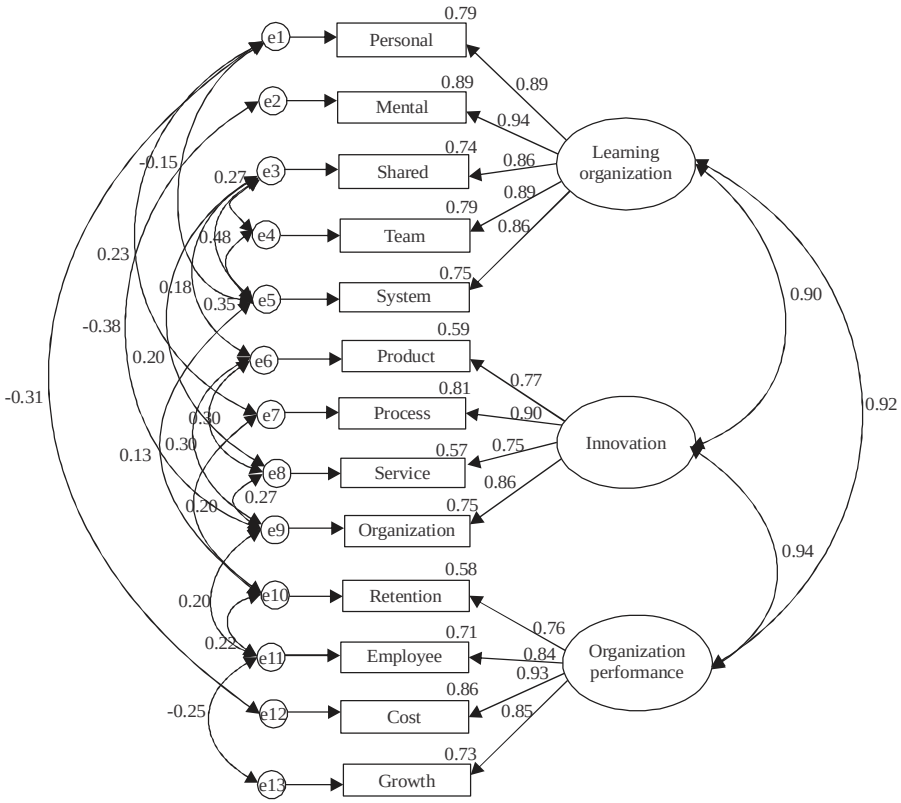

Fig. 5: Confirmatory factor analysis (Chi-square (χ^2) = 50.791, df = 45, p = 0.256, CMIN/DF (χ^2/df) = 1.129, GFI = 0.972, CFI = 0.998, AGFI = 0.943, NFI = 0.986 and RMSEA = 0.022)

Table 11: SEM analysis

Correlation	Standard regression weights	SE	Squared multiple correlations	C.R. (t-test)	p-values
Innovation←Learning organization	0.898	0.050	0.806	17.634	***
Organizational performance←Learning organization	0.418	0.087	0.903	4.601	***
Organizational performance←Innovation	0.557	0.093		5.933	***
Team learning←Learning organization	0.890		0.793		
Mental models←Learning organization	0.942	0.041	0.887	24.489	***
Share vision←Learning organization	0.858	0.044	0.736	22.573	***
Personal mastery←Learning organization	0.881	0.043	0.775	20.890	***
Systems thinking←Learning organization	0.868	0.036	0.754	24.726	***
Organization←Innovation	0.863	0.050	0.745	19.606	***
Service←Innovation	0.757	0.058	0.573	15.202	***
Process←Innovation	0.903		0.815		
Product←Innovation	0.771	0.061	0.594	15.805	***
Customer retention←Organizational performance	0.770	0.044	0.593	16.625	***
Employee satisfaction←Organizational performance	0.844	0.042	0.712	20.024	***
Cost reduction←Organizational performance	0.926		0.857		
Growth←Organizational performance	0.857	0.046	0.734	20.837	***

***significant at the 0.01 level

Table 12: Criteria and theory of the values of goodness-of-fit appraisal

Relevant statistics	Symbol	Criteria	Values	Results	Supporting theory/comment
CMIN-p	χ^2	Ns. (p>0.05)	0.076	Passed	Joreskog and Sorbom (1993) and Hair *et al*. (2010)
Relative Chi-square	χ^2/df	χ^2/df = 2.00	1.319	Passed	Hair *et al*. (2010) and Schumacker and Lomax (2012)
Goodness of Fit Index	GFI	≥0.90	0.968	Passed	Joreskog and Sorbom (1993), Hair *et al*. (2010) and Schumacker and Lomax (2012)
Comparative Fit Index	CFI	≥0.95	0.996	Passed	Hair *et al*. (2010) and Schumacker and Lomax (2012)
Normal Fit Index	NFI	≥0.90	0.985	Passed	Hair *et al*. (2010) and Schumacker and Lomax (2012)
Adjusted Goodness of Fit Index	AGFI	≥0.90	0.934	Passed	Hair *et al*. (2010) and Schumacker and Lomax (2012)
Root Mean Square Error of Approximation	RMSEA	≤0.05	0.035	Passed	Hair *et al*. (2010)
Pearson Product-Moment Correlation coefficient	PPCM	±1	+0.499 to +0.868	Passed	Cohen and Manion (1989)
Cronbach's Alpha	α	≥0.7	0.977	Passed	Cronbach (1951)
Kaiser-Meyer-Olkin (KMO) index	KMO	≥0.50; close to 1 best	0.953	Passed	Hair *et al*. (2010) and Hinton (2014)

According to the analysis for assessing model-data consistency from the scope of the idea and empirical data, SEM is compatible with the observed data (model fit) Fig. 6 using the following results: Chi-square (χ^2) = 58.058, df = 44, p = 0.076, CMIN/DF (χ^2/df) = 1.319, GFI = 0.968, CFI = 0.996, AGFI = 0.934, NFI = 0.985 and RMSEA = 0.035. SEM's equations:

$$\text{Innovation} = (0.90)\ \text{learning organization}, R^2 = 0.8 \quad (1)$$

$$\text{Performance} = (0.42)\ \text{learning organization} + (0.56)\ \text{innovation}, R^2 = 0.91 \quad (2)$$

Hypothesis testing result: The correlation in every relationship between a variable and hypothesis was tested by C.R. (t-test) and the influence of variables of the regression coefficient was evaluated, revealing that the regression coefficient (coef.) of each hypothesis path had C.R. (t-test) with statistical significance. In other words, C.R. was over 1.96 for all results, so, the results supported every hypothesis as seen in Table 13:

- H_1: learning organization positively influences organizational performance. According to, the hypothesis testing, its regression coefficient is 0.418 which means right with statistical significance at 0.01
- H_2: learning organization positively influences innovation. According to, the hypothesis testing, its regression coefficient is 0.898 which means right with statistical significance at 0.01
- H_3: learning organization positively influences organizational performance. According to, the hypothesis testing, its regression coefficient is 0.557 which means right with statistical significance at 0.01

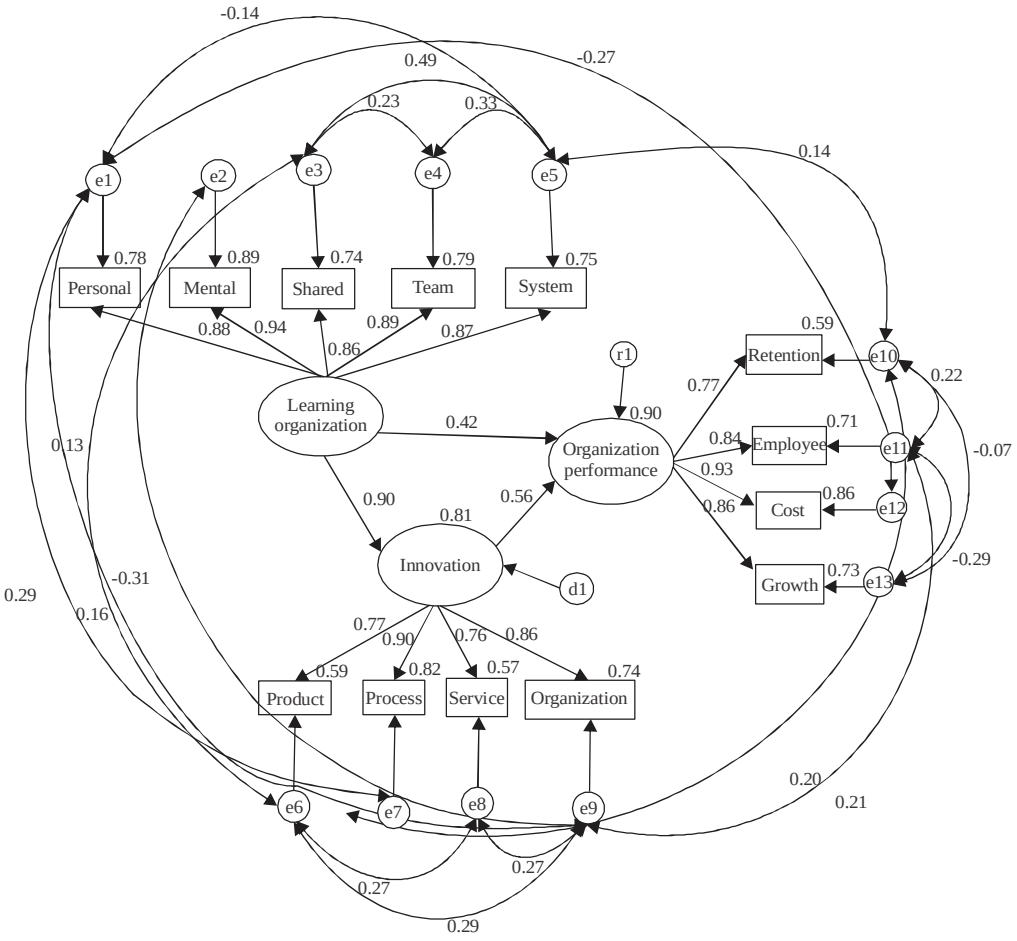

Fig. 6: Final model (Chi-square (χ^2) = 58.058, df = 44, p = 0.076, CMIN/DF(χ^2/df) = 1.319, GFI = 0.968, CFI = 0.996, AGFI = 0.934, NFI = 0.985 and RMSEA = 0.035)

Table 13: Hypothesis testing

Hypothesis	Coef.	t-test	TE	DE	IE	Results
H_1: Organizational performance←Learning organization	0.418***	4.601	0.918	0.418	0.500	Supported
H_2: Innovation←Learning organization	0.898***	17.634	0.898	0.898	-	Supported
H_3: Organizational performance ←Innovation	0.557***	5.933	0.557	0.557	-	Supported

***Significant at the 0.01 level; Coefficient refers to the Beta (β); TE: Total Effects; DE: Direct Effects; IE: Indirect Effects, Coefficient: Coef.

Research concerning the influence of a learning organization and innovation on organizational performance in the Thai automotive parts industry covers many aspects. According to research results, learning organization positively influences innovation at the highest level and positively affects organizational performance directly and indirectly. It conforms to the research of Bolivar-Ramos *et al*. (2012) who showed that the technological support of executives influences technical skill and organizational learning. It reveals that technological capacity and organizational learning impact corporate innovation which demonstrates the impact on organizational performance. The same results were obtained by Jimenez-Jimenez and Sanz-Valle (2011) who studied the relationship between innovation and working efficiency to confirm the positive relationship between organizational learning, operating effect and change (Wang and Wang, 2012; Keskin, 2006). Nonetheless, empirical studies of the relationship of the knowledge originating from technological innovation have not been carried out within organizations but have taken place beyond a team that has a necessary understanding of technological change.

Chesbrough (2006) demonstrated that the purchase of external knowledge and the use of existing benefits are essential in turning innovation into an outstanding process

of technological change. Chen *et al*. (2011) showed that open innovation depends on innovative external resources and external knowledge. It is also more efficient than close innovation. Organizational learning is a developed process for new knowledge. The mutual, in-depth experience of personnel is capable of influencing the company's behavior and capacity limit (Senge, 1990). To increase the organizational performance of an organization (Brockman and Morgan, 2003; Hu, 2014) studied the types of business that affect the efficiency of technological innovation through organizational learning which it represents thoroughly. Learning organization is the mediator in the relationship with the effectiveness of technological innovation. Compliance with practices by Rahab (2012) revealed a tendency to enhanced organizational performance caused by the determination to plan a flexible marketing strategy and quick response. It has been shown that the learning pathway and the building of innovation affects organizational performance in learning and change. The innovation factor positively influences the corporate performance of the Thai automotive parts industry. However, the role of collaboration in the development of new knowledge and innovation management represents a cooperation priority which relates to organizational performance in compliance with the corporation process (To and Ko, 2016; Ar and Baki, 2011). It benefits the policy setting and the impact on innovation creation for the company.

Krishnaswamy *et al*. (2014) showed that technological innovation influences the growth of SME automotive parts businesses whereas entrepreneurs are conscious of the marketing opportunities that will enhance their technical capacity and of the changing operations of technological innovation via customer's demands before delivering products to the market. The process will guide the company to sustainable growth and increased sales, including a competitive advantage for organizational stability (Verma and Jayasimha, 2014). On the other hand, good production currently involves the application of innovation with the purpose of developing the environment and responding to the market. Change in the environment affects the operating results of an efficient company (Kucukoglu and Pinar, 2015). As a consequence, the team must develop and build a learning organization and innovation to achieve performance in finance, customers, processing, learning and growth, including the growth of sales and ROI when compared with rivals in the same industry. Nevertheless, the transfer of internal knowledge to every person is necessary to enhance organizational improvement and to motivate creativity, innovation, good performance and sustainable growth.

CONCLUSION

The building of a competitive advantage for the automotive industry focuses on cost, quality and on-time delivery. For the Thai automotive parts industry, innovation services are not abundant. Customers depend mainly on services from brand owners, most of which produce incremental innovation. Therefore, this requires development and giving priority to building an industrial cluster. Regarding the study on the influence of learning organization and change on the organizational performance of the Thai automotive parts industry, building a corporation culture stems from proper planning which results in completely dimensional cultures and affects organizational performance's development to reduce operating costs at the highest level. This also raises the capacity of the supporting industry, so, it can produce low-cost automotive parts, retain its existing customers and build employee satisfaction for constant growth. In addition, the state sector should support the connection between automotive and industrial cooperation at the domestic and international levels for the transfer of knowledge and technology to develop personnel in the support field. The staff should be knowledgeable and gain systematic thinking skills. Moreover, staff members should learn to work as a team to increase the firm's ability to adjust to future competition and strategic planning in the Thai automotive parts industry.

REFERENCES

Alegre, J. and R. Chiva, 2008. Assessing the impact of organizational learning capability on product innovation performance: An empirical test. Technovation, 28: 315-326.

Alipour, F. and R. Karimi, 2011. Mediation role of innovation and knowledge transfer in the relationship between learning organization and organizational performance. Intl. J. Bus. Soc. Sci., 2: 144-147.

Ar, I.M. and B. Baki, 2011. Antecedents and performance impacts of product versus process innovation: Empirical evidence from SMEs located in Turkish science and technology parks. Eur. J. Innov. Manage., 14: 172-206.

Armstrong, A. and P. Foley, 2003. Foundations for a learning organization: Organization learning mechanisms. Learn. Organ., 10: 74-82.

Armstrong, O.E. and A. Rasheed, 2013. Structural dimensions and functions of structure influencing agribusiness enterprises: Mechanistic vs organic systems approach. J. Bus. Manage., Vol. 6, No. 6.

Atak, M. and R. Erturgut, 2010. An empirical analysis on the relation between learning organization and organizational commitment. Procedia Soc. Behav. Sci., 2: 3472-3476.

Bates, R. and S. Khasawneh, 2005. Organizational learning culture, learning transfer climate and perceived innovation in Jordanian organizations. Int. J. Training Dev., 9: 96-109.

Bilton, C. and S. Cummings, 2010. Creative Strategy: Reconnecting Business and Innovation. John Wiley & Sons, UK., ISBN:1405180196, pp: 25-33.

Bolivar-Ramos, M.T., V.J. Garcia-Morales and E. Garcia-Sanchez, 2012. Technological distinctive competencies and organizational learning: Effects on organizational innovation to improve firm performance. J. Eng. Technol. Manage., 29: 331-357.

Brockman, B.K. and R.M. Morgan, 2003. The role of existing knowledge in new product innovativeness and performance. Dec. Sci., 34: 385-419.

Bui, H.T. and Y. Baruch, 2012. Learning organizations in higher education: An empirical evaluation within an international context. Manage. Learn., 43: 515-554.

Chamsuk, W., W. Fongsuwan and J. Takala, 2017. The effects of R&D and innovation capabilities on the Thai automotive industry part's competitive advantage: A SEM approach. Manage. Prod. Eng. Rev., 8: 101-112.

Chen, J., Y. Chen and W. Vanhaverbeke, 2011. The influence of scope, depth and orientation of external technology sources on the innovative performance of Chinese firms. Technovation, 31: 362-373.

Cheng, C.F., M.K. Lai and W.Y. Wu, 2010. Exploring the impact of innovation strategy on R&D employees job satisfaction: A mathematical model and empirical research. Technovation, 30: 459-470.

Chesbrough, H., 2006. Open Business Models: How to Thrive in the New Innovation Landscape. Harvard Business School Press, Boston, MA., USA., ISBN-13: 9781422104279, Pages: 272.

Chiou, T.Y., H.K. Chan, F. Lettice and S.H. Chung, 2011. The influence of greening the suppliers and green innovation on environmental performance and competitive advantage in Taiwan. Transp. Res. E.: Logist. Transp. Rev., 47: 822-836.

Chong, A.Y.L., F.T.S. Chan, K.B. Ooi and J.J. Sim, 2011. Can Malaysian firms improve organizational/innovation performance via SCM. Ind. Manage. Data Syst., 111: 410-431.

Chumaidiyah, E., 2012. The technology, technical skill and R&D capability in increasing profitability on indonesia telecommunication services companies. Proc. Econ. Finance, 4: 110-119.

Cohen, L. and L. Manion, 1989. Research Method in Education. 3rd Edn., Routledge, London,.

Cronbach, L.J., 1951. Coefficient alpha and the internal structure of tests. Psychometrika, 16: 297-334.

Dahanayake, N.D. and S. Gamlath, 2013. Learning organization dimensions of the Sri Lanka army. Learn. Organ., 20: 195-215.

DiBella, A.J. and E.C. Nevis, 1998. How Organizations Learn: An Integrated Strategy for Building Learning Capability. Jossey Bass Publishers, San Francisco, California, USA.,.

Dobni, C.B., 2010. The relationship between an innovation orientation and competitive strategy. Int. J. Innovation Manage., 14: 331-357.

Drucker, P.F., 1985. The Practice of Innovation, Innovation and Entrepreneurship Practice and Principles. Harper and Row, New York, USA., Pages: 345.

El-Kassar, A.N. and L.C. Messarra, 2012. Identifying organizational climate affecting learning organization. Bus. Stud. Acad., Vol. 4, No. 1.

Ellinger, A.D., A.E. Ellinger, B. Yang and S.W. Howton, 2002. The relationship between the learning organization concept and firms' financial performance: An empirical assessment. Hum. Resour. Dev. Q., 13: 5-22.

Ford, J.A., J. Steen and M.L. Verreynne, 2014. How environmental regulations affect innovation in the Australian oil and gas industry: Going beyond the Porter hypothesis. J. Cleaner Prod., 84: 204-213.

Garcia-Morales, V.J., M.M. Jimenez-Barrionuevo and L. Gutierrez-Gutierrez, 2012. Transformational leadership influence on organizational performance through organizational learning and innovation. J. Bus. Res., 65: 1040-1050.

Grekova, K., R.J. Calantone, H.J. Bremmers, J.H. Trienekens and S.W.F. Omta, 2016. How environmental collaboration with suppliers and customers influences firm performance: Evidence from Dutch food and beverage processors. J. Cleaner Prod., 112: 1861-1871.

Hair, Jr. J.F., W.C. Black, B.J. Babin and R.E. Anderson, 2010. Multivariate Data Analysis. 7th Edn., Prentice-Hall, Upper Saddle River, NJ., USA., ISBN-13: 978-0138132637, Pages: 816.

Hinton, P.R., I. Mcmurray and C. Brownlow, 2014. SPSS Explained. 2nd Edn., Routledge, New York, USA., ISBN:978-0-415-61601-0, Pages: 372.

Hu, B., 2014. Linking business models with technological innovation performance through organizational learning. Eur. Manage. J., 32: 587-595.

Hullova, D., P. Trott and C.D. Simms, 2016. Uncovering the reciprocal complementarity between product and process innovation. Res. Policy, 45: 929-940.

Hussein, N., S. Omar, F. Noordin and N.A. Ishak, 2016. Learning organization culture, organizational performance and organizational innovativeness in a public institution of higher education in Malaysia: A preliminary study. Procedia Econ. Finance, 37: 512-519.

Ibeogu, P.H. and A. Ozturen, 2015. Perception of justice in performance appraisal and effect on satisfaction: Empirical findings from Northern Cyprus Banks. Procedia Econ. Finance, 23: 964-969.

Jimenez-Jimenez, D. and R. Sanz-Valle, 2011. Innovation, organizational learning and performance. J. Bus. Res., 64: 408-417.

Joreskog, K.G. and D. Sorbom, 2002. LISREL 8: Structural Equation Modeling with the SIMPLIS Command Language. Scientific Software International, Chicago, IL., USA., Pages: 226.

Kanten, P., S. Kanten and M. Gurlek, 2015. The effects of organizational structures and lerning organization on job embeddedness and individual adaptive performance. Procedia Econ. Finance, 23: 1358-1366.

Kaplan, R.S. and D.P. Norton, 1996. Using the balanced scorecard as a strategic management system. Harvard Bus. Rev., 74: 75-87.

Keskin, H., 2006. Market orientation, learning orientation and innovation capabilities in SMEs: An extended model. Eur. J. Innov. Manage., 9: 396-417.

King, R. and P. Clarkson, 2015. Management control system design, ownership and performance in professional service organisations. Accounting Organizations Soc., 45: 24-39.

Koellinger, P., 2008. The relationship between technology, innovation and firm performance-empirical evidence from e-business in Europe. Res. Policy, 37: 1317-1328.

Krishnaswamy, K.N., M. Mathirajan and M.B. Subrahmanya, 2014. Technological innovations and its influence on the growth of auto component SMEs of Bangalore: A case study approach. Technol. Soc., 38: 18-31.

Kucukoglu, M.T. and R.I. Pinar, 2015. Positive influences of green innovation on company performance. Procedia Social Behav. Sci., 195: 1232-1237.

Kuscu, Z.K., M. Yener and F.G. Gurbuz, 2015. Learning organization and its cultural manifestations: Evidence from a global white goods manufacturer. Procedia Social Behav. Sci., 210: 154-163.

Kyei, D.A. and A.T.M. Bayoh, 2017. Innovation and customer retention in the Ghanaian telecommunication industry. Int. J. Innovation, Vol. 5, No. 2.

Lahiri, S., B.L. Kedia and D. Mukherjee, 2012. The impact of management capability on the resource-performance linkage: Examining Indian outsourcing providers. J. World Bus., 47: 145-155.

Lee, J.S. and C.J. Hsieh, 2010. A research in relating entrepreneurship, marketing capability, innovation capability and sustained competitive advantage. J. Bus. Econ. Res., 8: 109-119.

Liao, C., H.Y. Wang, S.H. Chuang, M.L. Shih and C.C. Liu, 2010. Enhancing knowledge management for RD innovation and firm performance: An integrative view. Afr. J. Bus. Manage., 4: 3026-3038.

Liao, S.H., W.C. Fei and C.T. Liu, 2008. Relationships between knowledge inertia, organizational learning and organization innovation. Technovation, 28: 183-195.

Likert, R., 1972. Likert Technique for Attitude Measurement. In: Social Psychology: Experimentation, Theory, Research, Sahakian, W.S. (Ed.). Intext Educational Publishers, Scranton, USA., ISBN-13: 9780700223879, pp: 101-119.

Lin, C., W.S. Chow, C.N. Madu, C.H. Kuei and P.P. Yu, 2005. A structural equation model of supply chain quality management and organizational performance. Int. J. Prod. Econ., 96: 355-365.

Lin, C.H., C.H. Peng and D.T. Kao, 2008. The innovativeness effect of market orientation and learning orientation on business performance. Int. J. Manpower, 29: 752-772.

Lo, F.Y. and P.H. Fu, 2016. The interaction of chief executive officer and top management team on organization performance. J. Bus. Res., 69: 2182-2186.

Marquardt, M., 2002. Building the Learning Organization: Mastering the 5 Elements for Corporate Learning. Davis-Black Publisging, Mountain View, California, ISBN:9780891061656, Pages: 266.

O'Cass, A. and L.V. Ngo, 2012. Creating superior customer value for B2B firms through supplier firm capabilities. Ind. Market. Manage., 41: 125-135.

OICA., 2016. 2016 production statistics. Organisation Internationale des Constructeurs d'Automobiles. Paris, France.

PWC., 2017. 2017 automotive trends. Price Waterhouse Coopers, London, UK. https://www.strategyand.pwc.com/gx/en/insights/industry-trends/2017-automotive-industry-trends.html

Parasuraman, A., 2010. Service productivity, quality and innovation: Implications for service-design practice and research. Int. J. Qual. Service Sci., 2: 277-286.

Porter, M., 1990. Competitive Advantage of Nations: Creating and Sustaining Superior Performance. Simon & Schuster Publishing, New York, USA., ISBN: 9781451651492, Pages: 896.

Rahab, S., 2012. Innovativeness model of small and medium enterprises based on market orientation and learning orientation: Testing moderating effect of business operation mode. Procedia Econ. Finance, 4: 97-109.

Raman, R., D. Chadee, B. Roxas and S. Michailova, 2013. Effects of partnership quality, talent management and global mindset on performance of offshore IT service providers in India. J. Int. Manage., 19: 333-346.

Ramayah, T., N. Samat and M.C. Lo, 2011. Market orientation, service quality and organizational performance in service organizations in Malaysia. Asia-Pac. J. Bus. Admin., 3: 8-27.

Rogers, E.M., 2003. Diffusion of Innovations. 5th Edn., Simon and Schuster, New York, USA., ISBN-13: 9780743258234, Pages: 576.

Ruiz-Jimenez, J.M. and M.D.M. Fuentes-Fuentes, 2016. Management capabilities, innovation and gender diversity in the top management team: An empirical analysis in technology-based SMEs. BRQ. Bus. Res. Quart., 19: 107-121.

Rummasint, N., C. Srisuwannapa and N. Rojniruttikul, 2014. Learning organization factors affecting innovation management in Thai Summit Automotive Co., Ltd. Proceedings of Annual Tokyo Conference on Business Research, December 15-16, 2014, Waseda University, Tokyo, Japan, pp: 1-11.

Sadikoglu, E. and C. Zehir, 2010. Investigating the effects of innovation and employee performance on the relationship between total quality management practices and firm performance: An empirical study of Turkish firms. Int. J. Prod. Econ., 127: 13-26.

Schott, T. and M. Sedaghat, 2014. Innovation embedded in entrepreneur's networks and national educational systems. Small Bus. Econ., 43: 463-476.

Schumacker, R.E. and R.G. Lomax, 2012. A Beginner's Guide to Structural Equation Modeling. 3rd Edn., Routledge, New York, London, ISBN: 978-1-84169-890-8, Pages: 510.

Senge, P.M., 1990. The Fifth Discipline. Currency Doubleday, New York, USA., Pages: 196.

Simon, A. and L.H.P. Yaya, 2012. Improving innovation and customer satisfaction through systems integration. Ind. Manage. Data Syst., 112: 1026-1043.

Subramaniam, M. and M.A. Youndt, 2005. The influence of intellectual capital on the types of innovative capabilities. Acad. Manage. J., 48: 450-463.

TAI, 2012. Master plan for automotive industry 2012-2016. Thailand Automotive Institute and Ministry of Industry, Thailand, December 2012. http://www.thaiauto.or.th/2012/backoffice/file_upload/research/11125561430391.pdf.

Thoo, A.C., H.T. Huam and S. Zuraidah, 2015. Green supply chain management, environmental collaboration and sustainability performance. Procedia CIRP., 26: 695-699.

To, C.K. and K.K. Ko, 2016. Problematizing the collaboration process in a knowledge-development context. J. Bus. Res., 69: 1604-1609.

Turner, R.C. and L. Carlson, 2002. Index of item objective congruence for multiple objective measures. Master Thesis, University of Arkansas, Fayetteville, Arkansas.

Vaccaro, A., R. Parente and F.M. Veloso, 2010. Knowledge management tools, inter-organizational relationships, innovation and firm performance. Technol. Forecasting Social Change, 77: 1076-1089.

Van Grinsven, M. and M. Visser, 2011. Empowerment, knowledge conversion and dimensions of organizational learning. Learn. Organ., 18: 378-391.

Vargas-Hernandez, J.G. and M.R. Noruzi, 2010. How intellectual capital and learning organization can foster organizational competitiveness?. Int. J. Bus. Manage., 5: 183-193.

Verma, R. and K.R. Jayasimha, 2014. Service delivery innovation architecture: An empirical study of antecedents and outcomes. IIMB Manage. Rev., 26: 105-121.

Vikineswaran, A.M., 2013. The link between managers career success perceptions and the learning organization. XIMB. J. Manage, 10: 67-78.

Wang, Z. and N. Wang, 2012. Knowledge sharing, innovation and firm performance. Expert Syst. Applic., 39: 8899-8908.

Zakuan, N.M., S.M. Yusof, A.M. Shaharoun and T. Laosirihongthong, 2010. Proposed relationship of TQM and organizational performance using structured equation modeling. Qual. Contr. Applied Stat., 55: 283-285.