

# The Factors Impact on Lean Accounting and Performance of Thai's Small and Medium Enterprises

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The objectives of this research are to study the factors affecting lean accounting and performance of small and medium enterprises in Thailand and the development of lean accounting models for Thai's small and medium enterprises. The data was collected from the questionnaires on 260 samples to be used in developing the strategic plan of lean accounting for small and medium enterprises in Thailand. The structural equation model analysis techniques were used with the in-depth interviews. From employing the semi-structured interview with stakeholders regarding lean accounting, the accounting information system characteristics and the transparency of accounting information were found to have positive direct influence on lean accounting of small and medium enterprises in Thailand. In addition, the lean accounting had positive direct influence on the financial performance of Thai's small and medium enterprises.

**Key words:** *Accounting Information System, Transparency Feature, Lean Accounting, Small and Medium Enterprises.*

## Introduction

Accounting is essential for the success of business. The investment, management, and strategic determination all have the foundation and significance supported by accounting principles such as financial statements, ratio analysis using accounting data, financial investment planning, etc. For business sectors, it is found that investment decisions and the operational process improvement involves cost (Maskell & Kennedy, 2007, pp. 59-73). The operator or management will always use relevant cost information in making the decisions. This includes planning of revenues, profits, and future income-generating opportunities. Thus, accounting is a field of strategic approaches essential to business operations. That is the reason why the industries or businesses around the world focus on accounting and continually leverage

accounting strategies to create effective growth and sustainable effectiveness (Azevedoa & Sholihab, 2015, pp. 224-230). Maskell & Baggaley (2006, pp. 35-43) proposed that “Lean Accounting” is the operational model which the organization has changed the accounting, control, measurement and management processes to support the operation of the lean production process as the conventional accounting system cannot support lean operation properly and is unable to raise the level of lean operation to achieve good efficiency as well as being difficult for measuring the accounting competence. In addition, Maskell & Baggaley (2006, pp. 35-43) provided examples of lean improvement that demonstrate structural or cost increases in terms of labor costs and the overhead generated by the lean strategy revision showing which costs are due to improper tactics. This benefits in canceling that strategy or operation that creates costless costs. Lean Accounting promotes appropriate performance assessment such as labor efficiency, machine utilization, or financial results, etc.

Lean Accounting differs from cost accounting in terms of the accounting concept, and structure or method of Activity Base Costing (ABC). Lean accounting was developed from the concept of activity-based costing combined with the concept of Lean Manufacturing to apply lean concept in accounting to keep pace with responsiveness and control of operational efficiency in production with accounting (Zhu & Lin, 2017, pp. 275-295). As activity-based cost accounting is conducted monthly, the delay is caused when considering the current business competition and it cannot reflect the results leading to minor improvements in production to create value throughout the production phase. Meanwhile, Lean Accounting focuses on bookkeeping that reflects the sub-unit of production and is quick to make accounting that can lead to applications for business process improvement. In order to make lean accounting possible in an organization, a clear improvement of the functional structure in each production activity is required. It is different from the activity-based costing accounting which focuses on calculating the actual cost of each activity without having to improve the production process. Thus, the activity-based costs are less accurate. A large amount of costs cannot be classified because the work processes overlap with other activities (Giorgino et al., 2017, pp. 2182).

This study has applied concepts and theories about Lean Accounting to Small and Medium Enterprises (SMEs) which play an important role in the Thai economy. Currently, there are more than 2 million Small and Medium Enterprises (SMEs) and they play a role in manufacturing, service provision, and trade in the entire economy of Thailand. Most of them are raw material producers or raw material suppliers at the upstream level playing an important role in converting products and services into value for delivery to customers or downstream markets. Most of the Small and Medium Enterprises (SMEs) are owned by the single owner. With the unique capabilities, Small and Medium Enterprises (SMEs) contribute 42% of the economy to Thailand’s GDP. However, due to the lack of preparedness and adaptation ahead of the business or market situation to change, many Small and Medium Enterprises (SMEs) were found to shut down and disappear from the market. Many Small and Medium Enterprises

(SMEs) also emerge continuously but they may not be able to sustain a strong operation and develop themselves to the growth of business caused by, for example, the increasing labor wages or higher cost of raw materials. This directly affects the low-cost productivity of Small and Medium Enterprises (SMEs). Therefore, the improvement on the new business strategy in line with the reduction of waste or non-value costs is an important approach in developing Small and Medium Enterprises (SMEs) towards building sustainable competitiveness. The significance and background of the problem leads to the need to conduct a study on the factors affecting lean accounting and performance of SMEs in Thailand to develop the factors affecting lean accounting and the performance of SMEs in Thailand particularly. This will lead to the development of SMEs to have good competitive potential in applying accounting operating guidelines in accordance with the guidelines of the lean manufacturing strategy to support enterprise-wide operations allowing Thai SMEs to compete effectively and efficiently in the global market.

## **Literature Review**

### ***Accounting Information System Attributes***

The accounting information system attributes are related to the unique features and requirements of accounting information to support lean operations and services. As it can leverage the lean accounting appropriately (Medina-Quintero, Mora & Abrego, 2015, pp. 29-44), creating a lean organization can cause the changes in accounting information systems and the development of lean accounting systems (Skinner, 2019, pp. 9-12). Especially the changes in management accounting, it should be conformed in a consistent and systematic manner with the organization. However, if there is no data support to the management in the continuous improvement process, a successful lean concept will not be used (Brandasa, Megana & Didragaa, 2015, pp. 88-93). Thus, the organization has to use the Management Commitment and the top executive cooperation in the operation of accounting information systems (Edwards, 2019, pp. 46-52) together with the integration of information technology infrastructure to suit the users in order to keep the operation consistent with the efficient and effective lean accounting.

### ***Accounting Information Transparency***

The transparency is necessary for the good communication between organizations and stakeholders. The Accounting Information Transparency therefore becomes a key element for the most efficient operation. It is an important aspect of a solid mechanism for good corporate governance (Kohlbeck and Warfield, 2010, pp.59-70; Mariana & Maria, 2016, pp. 41-62). The Accounting Information Transparency affecting the Lean Accounting is, for example, the open, accurate and clear support on the information (Schnackenberg & Tomlinson, 2016, pp. 1784-1810). This allows the lean accounting to be executed more efficiently as it contains accurate

information and sufficient to be applied along with the decision making of the organizations and the management. It can also improve the operation to be more efficient and effective (Schulte et al., 2005, pp. 90-108).

### ***Lean Accounting***

The Lean Accounting is the integration of a Value Stream management system that focuses on the efficiency of the value stream to reduce the use of unnecessary resources (Maskell & Kennedy, 2007, pp. 59-73). The improvement is made on every accounting procedure in every part of the activity that occurs throughout the manufacturing process or operations in an organization. The organizations can create more value to their customers by, for example, maintaining optimal inventory levels which is considered a key issue of corporate operations in order to meet the needs of customers and production in each cycle efficiently. Lean accounting makes it possible to separate inventory management costs along different operational routes and in the sub-category descriptively. This makes the cost and value calculations (Boyd, 2017, pp. 26-28) efficient. It is different from the activity-based calculation separately for each activity. The Lean accounting then focuses on the accounting listing in the subunit levels or per-unit accounting for every cycle or production batch in order to be able to show actual operational figures that are useful for decision-making and process improvement. Thus, better inventory management or sub-level control of production costs affects the relationship with the organization's better financial performance (Sungard, website, 2007).

### **Research Hypotheses**

For the research on the study of factors affecting lean accounting and performance of Small and Medium Enterprises in Thailand, the researchers have set the research hypotheses as follows:

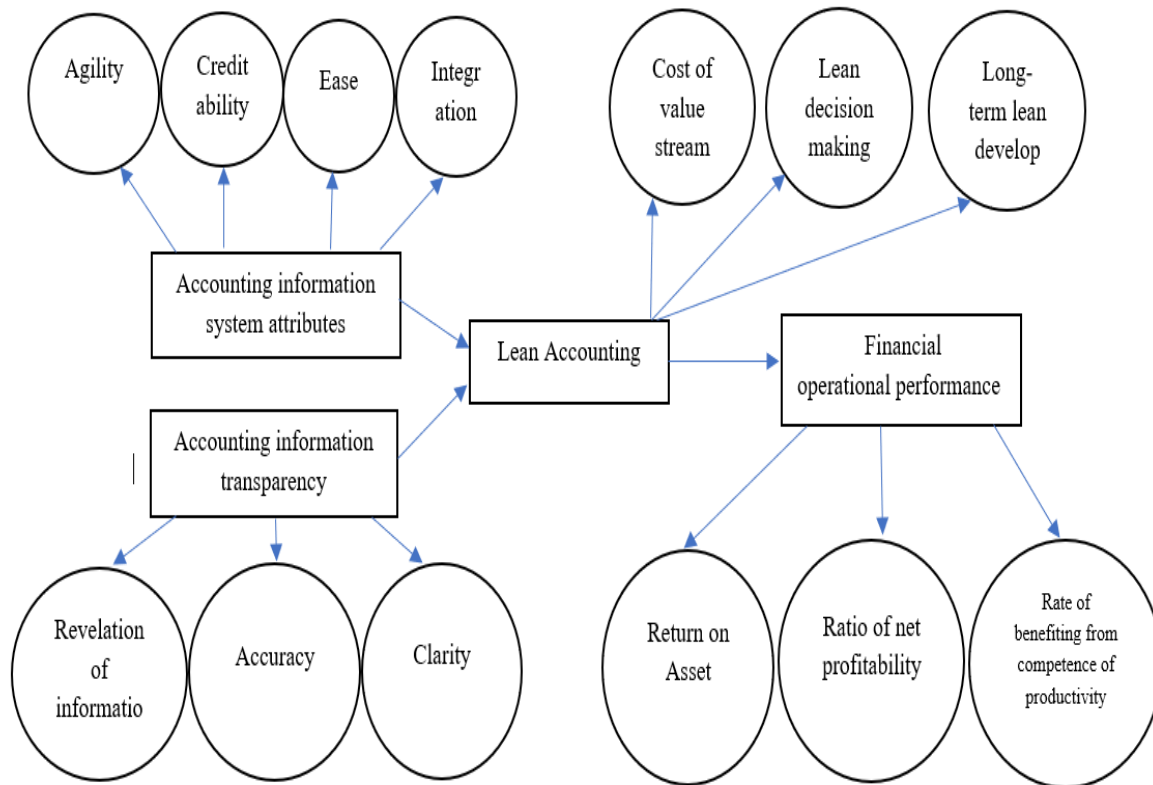
**Hypothesis 1:** The accounting information system attributes positively affect the lean accounting of Small and Medium Enterprises in Thailand.

**Hypothesis 2:** The transparency of accounting information positively affects the lean accounting of Small and Medium Enterprises in Thailand.

**Hypothesis 3:** Lean accounting positively affects the financial performance of Small and Medium Enterprises in Thailand.

## Research's Conceptual Framework

**Figure 1.** Research's conceptual framework



## Research Methodology

### *Population and Sample Group*

This study focuses on the population of Small and Medium Enterprises or SMEs in Thailand as a manufacturing business in the total number of 113,722 cases (Office of Small and Medium Enterprises Promotion, Website, 2017). In sampling, the conceptual framework design and statistical analysis process are designed using Structural Equation Model (SEM). The sample size was defined 20 times the element (Kanlaya Vanichbancha, 2014, page 98). As there are totally 13 elements, in this study, 260 samples were randomized. The random sampling method was used in 2 steps; random sampling to determine the companies or organizations attending the study. The sample group was randomized to select the appropriate respondents and able to provide quality data as the Systematic Sampling.

### ***Tools and Research Tool Construction***

In studying the factors affecting lean accounting and performance of Small and Medium Enterprises in Thailand, the researchers reviewed related literatures for application and reference in the construction of the research tool, namely, a questionnaire consisting of 3 parts. Part 1 is about the organizational characteristics. Part 2 is about the Accounting Information System. Part 3 is about the Accounting Information Transparency. Part 4 is the Lean Accounting. The 5-level rating scale questions (Likert's Scale) were designed. Part 5 is about Firm's Financial Performance. The data was collected from the actual financial performance of the organizations. The Ration Scale was measured to test the validity of the research tools including the questionnaires that were analyzed and synthesized by referring to related researches. In developing the tools using the method for testing the validity, the experts were requested to conduct a content validity quality check. 5 experts were determined. The questionnaire was found to be consistent because the consistency index was at 0.05 level for all items. In finding the Reliability or the internal consistency using the Cronbach's Alpha coefficient, it was found that the information system characteristics had the Cronbach's alpha of 0.969. The accounting information transparency had the Cronbach's alpha of 0.941 while the lean accounting had Cronbach's alpha of 0.927.

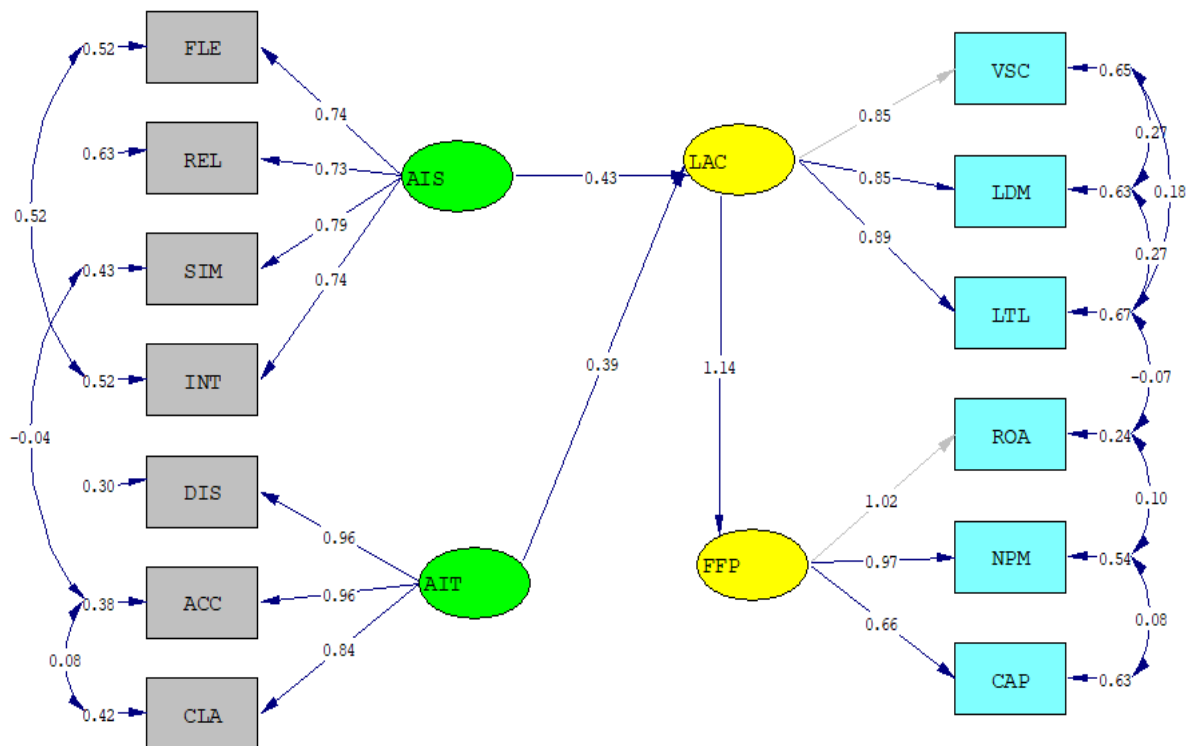
### ***Data Analysis***

The researchers analyzed the consistency of the causal relationship model using structural equation model analysis to verify consistency with empirical data. The details of the statistics used are as follows (Kalaya Vanich Bancha, 2014, page 74). The relative chi-square value ( $\chi^2/df$ ) was determined by considering the test of the relative chi-square value which must be below 2.00. It means that the model is consistent with the empirical data with the value between 2.00 and 5.00. This means the model is harmonious enough for the Comparative Fit Index (CFI). In considering the CFI relative conformity test, the value must be above 0.90 signifying that the model was relative to the Absolute Fit Index. The researchers performed the tests and considered the Goodness of Fit Index (GFI) value signifying the amount of variance and the covariance which could be explained by the model. In addition, considering the index value of Adjusted Goodness of Fit Index (AGFI) meant the amount of variance and covariance described by the model corrected with degrees of freedom. Both GFI and AGFI values must be higher than 0.90. For the Root Mean Square Error of Approximation (RMSEA), the value of the statistical test would be used in the hypothesis testing. RMSEA must be below 0.05. This meant the model was quite consistent with the empirical data.

## Data Analysis Results

When considering the model consistency index, it was found that the model was consistent with the empirical data. The acceptable index values (Hair et al., 1998, pp. 592) were as follows; Index  $\chi^2/df = 1.194$ , CFI = 1.000, GFI = 0.960, AGFI = 0.940, RMSEA = 0.027 and SRMR = 0.032. So it could be concluded that the structural equation model was suitable and consistent with the relative chi-square value ( $\chi^2/df$ ) equaling to 1.194. This indicated that the model was consistent with the empirical data. The Comparative Fit Index (CFI) was 1.000. The Absolute Fit Index considered by the researchers had 2 indices; Goodness of Fit Index (GFI) equaling to 0.960 and Adjusted Goodness of Fit Index (AGFI) equaling to 0.940. The Root Mean Square Error of Approximation (RMSEA) equaled to 0.027 with the conformance index in terms of error. The index used by the researcher was the Standardized Root Mean Square Residual (SRMR) equaling to 0.032. The analysis of fundamental data from the index above showed that the model was in harmony with the empirical data.

**Figure 2** shows an analysis on the overall model consistency index



Chi-Square=62.11, df=52, P-value=0.15908, RMSEA=0.027

(Accounting Information System = AIS, Flexibility = FLE, Reliability = REL, Simplicity = SIM, Integration = INT, Accounting Information Transparency = AIT, Disclosure of data = DIS, Accuracy = ACC, Clarity = CIA, Lean accounting = LEA, Value Stream Cost = VSC, Lean Decision Making = LDM, Long-term Lean Development = LTL, Financial Performance



= FFP, Return on Asset = ROA, Net Profit Margin = NPM, Capacity Use Rate = CAP)

### Path Analysis Results

The results of the causal analysis on the characteristics of Accounting Information System (AIS) and Accounting Information Transparency (AIT) affected the Financial Performance (FFP) of Small and Medium Enterprises in Thailand through Lean Accounting (LAE). In order to answer research questions and research hypotheses, the researchers presented the results of Direct Effects (DE), Indirect Effects (IE), and Total Effects (TE). The results of the analysis could be presented as in Table 1.

**Table 1:** Shows the influence analysis having the Accounting Information System (AIS) and the Accounting Information Transparency (AIT) affecting the Financial Performance (FFP) of Small and Medium Enterprises in Thailand through Lean Accounting (LAE).

Factors of effects	Factors of causes								
	AIS			AIT			LEA		
	TE	DE	IE	TE	DE	IE	TE	DE	IE
<b>LEA</b>	0.43	0.43		0.39	0.39				
<b>(SE)</b>	(0.11)	(0.11)		(0.11)	(0.11)				
<b>t-value</b>	3.98	3.98		3.72	3.72				
<b>FFP</b>	0.49	-	0.49	0.45	-	0.45	1.14	1.14	-
<b>(SE)</b>	(0.12)	-	(0.12)	(0.12)	-	(0.12)	(0.09)	(0.09)	-
<b>t-value</b>	4.14	-	4.14	3.85	-	3.85	12.45	12.45	-

$\chi^2/df = 1.194$ , CFI = 1.000, GFI = 0.960, AGFI = 0.940, RMSEA = 0.027, SRMR = 0.032

\* At the significance of .05 level, \*\* AT the significance of .01 level.

From Table 1, it could be found that the Financial Performance (FFP) from the study showed that Accounting Information System (AIS), Accounting Information Transparency (AIT), and Lean Accounting (LAE) could account for 98.0%. The Financial Performance (FFP) was positively influenced with the significance of .05 level from Lean Accounting (LAE) with an influence size of 1.14. It was indirectly influenced significantly by Accounting Information System (AIS), Accounting Information Transparency (AIT) through Lean Accounting (LAE) with an influence of 0.49 and 0.45, respectively.

### Conclusion and Discussion of Results

In presenting the result discussion based on research questions along with answering related objectives, variables, and hypotheses, the researcher has determined the discussion as detailed below.



**Hypothesis 1:** The Accounting Information System had positive direct factor on the lean accounting of Small and Medium Enterprises in Thailand. The test results were found to be consistent with the hypothesis. The Accounting Information System had positive direct influence on the lean accounting of Small and Medium Enterprises in Thailand as the Accounting Information System was related to the characteristics and demand of lean accounting information which was necessary to change the accounting information system, management accounting, and cost accounting. Therefore, the organization must take great determination to manage the lean concept together with the cooperation of the top management in the implementation of Accounting Information System. This includes the integration of Information Technology Infrastructure to suit the users in order to keep the operations consistent with lean accounting that is efficient and effective. It is also correspondence with the research of Jose Melchor, Alberto & Demian (2015, pp. 29-44). Thus, creating a lean organization causes some changes in the Accounting Information System and the development of lean accounting system (Skinner, 2019, pp. 9-12). Especially changes in management accounting, it should conform to the organization consistently and systematically. However, without the data support on the management in the continuous improvement process, a successful lean concept will not be used (Brandasa, Megana & Didragaa, 2015, pp. 88-93). From this reason, the organizations need the Management Commitment and the cooperation from the top management in the operation of Accounting Information System (Edwards, 2019, pp. 46-52) along with the integration of Information Technology Infrastructure to suit the users to keep the operations consistent with lean accounting that is efficient and effective.

**Hypothesis 2:** The Accounting Information Transparency had positive direct factors on the lean accounting of Small and Medium Enterprises in Thailand. The test results were found to be consistent with the hypothesis. The Accounting Information Transparency had positive direct influence on the lean accounting of Small and Medium Enterprises in Thailand. This was because the Accounting Information Transparency had positive direct influence on the lean accounting of Small and Medium Enterprises in Thailand. It showed that the Accounting Information Transparency was a key factor in the supply chain leading to the identification of performance improvement in the organization, disclosure of information, and dissemination of information that could be verified. It could identify the transparent operation and could help building the confidence among all groups of stakeholders in the business operation process. It was consistent with Mariana & Maria research (2016, pp. 41-62) finding that the transparent representation of information leads to investor trust. Such information could also be used to make decision in assessing the effectiveness and efficiency of resource management. Meanwhile, the accuracy of accounting information was one of the key factors for operational transparency that could be audited and displayed in the form of financial report that was accurate and complete (Kohlbeck & Warfield, 2010, pp.59-70).

**Hypothesis 3:** Lean accounting had positive direct influence on the financial performance of Small and Medium Enterprises in Thailand. The test results were found to be consistent with the hypothesis. The Lean Accounting had positive direct influence on the financial performance of Small and Medium Enterprises in Thailand. The Lean Accounting elements had positive direct influence on the financial performance of Small and Medium Enterprises in Thailand. It showed that Lean accounting could improve the operational efficiency of the organizations. That the organizations adopted the lean management approach in various areas such as financial accounting and management accounting processes, etc. would result in the integration of value stream management enabling the cost-effective use of resources. This was in accordance with the Carnes & Hedin study (2005, pp. 28-34) adding that the Lean concept was the continuous operation process for trying to reduce the losses or eliminate non-performing processes. Thus, applying the Lean concept to the organizations would provide the organizations with better and more profitable expense management system (Maskell & Kennedy, 2007, pp. 59-73). This was in line with Ali (2006), pp. 103-121) describing that the Lean accounting was a shift from conventional costing to strategic cost management in order to improve decision-making processes by identifying and eliminating non-performing activities (Kocami, 2015, pp. 6-13).

### **Recommendations on the Research**

1. Regarding the organization's accounting information system development by taking into account the users in designing the accounting information system, the organizations should study and assess the level of knowledge and skills of users as well as the consistency in the operation. This can make the design of accounting information system truly suitable for use. In addition, in designing the accounting information system, the organizations should have a trial use by allowing the system users to conduct experiments in the real situations in order to develop accounting information system to be suitable for operations and business models. Meanwhile, the corporate accounting information system should be prepared to teach new employees. The organizations should plan the teaching approaches to suit the levels, positions, and roles as well as preparing the information to be used in teaching work.
2. For the dissemination of information for the employees to use financial and accounting information in improving the operations, the organizations should educate and encourage employees to recognize the importance and benefits of financial and accounting information that will enable them to apply for cost effective resource management. This will affect the overall operational efficiency leading to the higher profits. When the organizations have good growth rate, they will be able to manage finance in return for the commitment of their employees to achieve their objectives.
3. The review and assessment should be conducted on the knowledge level of employees throughout the entire organization. If any employee or any group still lacks knowledge in such field, the organization should support and fill the knowledge with training and demonstration



to enable the employees to have correct knowledge and understanding in order to apply the knowledge and skills to the operation in the organization for improving the efficiency and effectiveness of operation.



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