

## The impact of Lean Thinking on Organizational Learning Case Study: SAIPA Automobile Manufacturing Group

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### **Abstract**

*Lean thinking is an approach to increase continuous value creating and productivity as well as minimizing the costs and losses. Further, organizational learning is defined as a set of measures such as knowledge acquisition, information distribution, information and memory interpretation, which consciously or unconsciously affect the positive organizational development. This research aimed at studying the impact of lean thinking on the organizational learning. The study has used a questionnaire to measure variables. Lean thinking is tested through twenty-eight items; and organizational learning is tested by five items of shared vision, organizational learning culture, teamwork and group learning, knowledge sharing and participative leadership. The questionnaires were distributed among one-hundred and thirty-two managers and staffs of the center for strategic planning and studies and department of planning and excellence development management in SAIPA automobile manufacturing group<sup>1</sup>. The education level of the participants was higher than a bachelor degree. SPSS software was used to analyze the data. Results showed that lean thinking has a positive impact on organizational learning. Also, lean thinking has a positive and significant impact on all aspects of organizational learning.*

**Keywords:** Lean Thinking, Organizational Learning, Organizational Knowledge

### **1. Introduction**

One of the important features of humanity is the ability to learn and think and individuals learn it before entering to the organization. But, there is a debate on those knowledge and skills that individuals learn after entering the organization, which they are referred as the organizational learning. Organizational learning is generally concerned with processes in which practical knowledge and information are arisen; shared; interpreted and institutionalized in the organization (Qurbani Zade and Asad Pour, 2010). An organization, whose managers and staffs can learn and think well, is able to achieve organizational goals. Lean thinking is the most powerful tool and the only tool available for creating value as well as loss avoidance in any organization. Lean thinking is provided a manner by which can determine the value. Then, it could be possible to put value-creating activities in the best sequence and these activities should be implemented immediately whenever they are required so that they would have the greatest impact (Taqi Zade and Shateri, 2009). The fundamental concept of lean thinking has lied in eradicating loss and creating value in the organization. Lean thinking is an approach to increase continuous value creating and productivity as well as minimizing the costs and losses. This thinking provides a manner through which it could be possible to get the highest by using fewer resources, less

<sup>1</sup> SAIPA group

equipment, time and space and get close to customers with respect to the customers' needs while meeting their needs. Also, executing the lean manufacturing system in the organization would be possible through this kind of approach. Substantial reduction of costs, enhancement of product's quality, timely delivery of products and services to the customers, enhancement of staff safety and improvement of labor condition are examples of productive processes. An organization is able to achieve the regarded objectives that its ongoing processes are produced at an admissible level. Organizations can make their processes productive by putting forward the lean thinking model. Lean thinking should become a culture in the organization and it should be noted that whatever the commitment and engagement with the basic values and the core members of the organization be more as well as more members believed in the values, the culture and values will be stronger and they will have a greater impact on the behavior of the organization members. Besides, organization members need to recognize the cultural values for accepting them. Therefore, the first practical measure for grounding the institutionalization of lean thinking in an organization is teaching these concepts to its staff and believing that change in the results means that individuals must change their behavior and to do that they must change their thinking. Since, everything comes from human thought, not the technology or knowledge, humanity fits into the center of the system based on the modern manufacturing practices and gives sense and meaning to it. Of course, it is better to use the term "learning" instead of teaching. Teaching refers to guiding something; it means controlling; but learning means strengthening ability through an experience that is obtained by following affairs. Learning always is obtained over time and in the path of real life. This kind of learning is very difficult to control, but it produces a sustainable knowledge and enables learner has an effective behavior when dealing with various situations. A learning organization is the one that has captured all intellectual power, knowledge and experience of organization for continuous improvement, change and development. Organizational learning is all the procedures, mechanisms and processes that are used within the organization in order to realize the learning. Organizational learning is obtained through sharing insight, knowledge, experience and mental models of its members. In general, the ability of an organization is detecting errors and correcting them as well as changing its knowledge and values so that it develops new problem-solving skills and new capacity for working. While we must be able to direct the individuals' attitudes toward lean thinking in order to reach out to the less loss; motivate for learning more in the organization; keep pace with changes and achieve success; find ways to achieve the goal and finally find a shortcut to get the highest in the competitive market.

The question is that how is the relationship between organizational learning in its classic sense and lean thinking in its modern improved form.

It should be realized that lean thinking is followed by organizational learning and in order to achieve its objective better and given the history of its using, there are some drawbacks; although it was successful in this field. Lean thinking is focused more on productivity and prevented risk-taking and innovation. But according to the recent developments in the kind of lean thinking, this study examines whether these drawbacks exist or not? This research has sought to claim that lean thinking, however, is more based on the productivity approach at the operational level; but it is on the basis of heuristic approach at the strategic level. Thus, their influence on each other will provide more backgrounds for learning through productivity. This study argues that organizations need to balance between the use of lean and learning concepts through exploration to become lean without endangering the innovation ability. Therefore, it aimed at investigating and evaluating the implementation of lean concepts from the organizational learning perspective.

## **2. Theoretical Framework and Review of Literature**

### *2.1 Organizational Learning*

With the development of science and technology and the expansion of business areas including virtual organizations, enterprises are expanded and business environment has become into a challenging and competitive environment and new paradigms have emerged that makes surviving difficult for many firms. Transformation of competitive advantages is normal in such an environment. Learning is considered as the greatest competitive advantage in new paradigms of business. Hence, learning is located at the center of the new paradigm (Salajeq and Nazeri, 2010). Organizational learning is studied by approaches of psychology, sociology, organizational theory and strategic management due to its importance for the survival, growth, success and excellence (Xorshid and Pasha Zade, 2014). Today's organizations are in a complex and changing environment. So that, they are no longer able to predict the future condition. Learner organizations are so courageous and empowered that their foundation is based on learning; and they consider long-term learning as the best way to improve the performance (Sharifi and Islamie, 2008).

### 2.1.1 Organizational Learning Process

According to Figueiredo learning in organizations involves four secondary processes, which are acquiring the knowledge from outside of the organization, acquiring the knowledge within the organization, generalizing the knowledge, and encrypting and developing the knowledge. According to many authors, such as Huber, Slater and Narver, organizational learning is a process which is composed of three different stages as follows: 1. The acquisition (production) of information, 2. The publication and distribution of information, and 3. A common interpretation. Organizational learning is defined as way during which organizations produce, complete and organize the knowledge, and normalize their activities based on it and enter it into their culture (Qorbani Zade and Asadpour, 2010). According to scholars and theorists, it can be outlined four basic steps in the process of organizational learning, which are as follows:

1. The Acquisition of Knowledge: Management controls the key indicator for organizational performance, constantly. Management learns new items through direct observation of phenomena and events. Management enjoys the experience of partners, suppliers and customers in order to learn more. Management uses the feedbacks that are obtained from the previous experiences of the company. The company employs expert and intelligent people.
2. The Distribution of Information: when an individual needs some information, does he know exactly by whom and which way he could access to the information? Staffs are well aware that their knowledge serves in what areas of the company. Staffs make extensive use of information systems in their works. Staffs provide their information and documentations (such as useful statistics, new ideas and plans) for others. Management has paid adequate attention to the main strategies of competitors.
3. The Interpretation of Information: staffs have a wide range of communication means (such as phone, e-mail, Internet and Intranet) at their disposal. Staffs are encouraged to communicate clearly with each other. Company staffs do not resist against the new working methods. Management makes the outdated information out of access from staffs. The company acts quickly to respond to the technological changes.
4. Organizational Memory: Staffs use electronic equipment for communication. Staffs refer to data archive for their decisions. The company provides the required information and documentation with all the details for use in the current affairs. There are certain procedures in the company to manage and access the information (A'raabi and Faxearian, 2008).

## 2.2 Lean Thinking

The era in which we live now is customer-oriented and audience-centered. It means that the success of any organization is directly related to the level of its attention to the customer and its needs. In this regard, it is essential to improve comprehensibility at the organization level to be able to meet customer needs. Researches have shown that it should just enterprise a small fraction of the spent time and efforts in the organization. According to the previous researches, just a small part of the consumed time and effort in the organization create value for customers. Therefore, identification of loss sources and search for solutions to eliminate and modify the constraints and convert it to value adding subjects have been focused by managers (Taqizade et al, 2010).

Lean is a systematic approach to identify and eliminate loss through continuous improvement and flowing out the product by customers in order to achieve perfection. This philosophy seeks to perfection and making flawless manufacturing systems. Principles of lean manufacturing, consider unlimited objectives for the system such as continuous descent final price, zero losses, endless variety of products, reducing preparation time and ultimately, increasing customer satisfaction (Modi and Thakkar, 2014). This manufacturing method using a philosophy of continuous improvement and teamwork culture has tried to analyze the losses in the process of manufacturing and eliminate them (Moradian Brojeni et al., 2014). Lean reduces the time, which is spent since the customer order till transportation and it eliminates anything caused increasing at the time and cost (Modi and Thakkar, 2014). Lean thinking is an inference governance method to improve efficiency, effectiveness and quality of products and services. In recent years, the U.S. and Japanese management experts have developed the ideas and methods of lean thinking. This management technique is employed in the aerospace industry and in the automobile sector. In the industrial sector, these concepts are classified as making the highest performance and global industries (Taqizade et al., 2010).

### 2.2.1 The Principles of Lean Thinking

Non-visibility is the most essential problem of the lean thinking and it is a bit difficult to understand it at the first exposure; but its concepts will be revealed by conducting a little research on the subject. There are five fundamental principles of

lean thinking, which should be followed step by step to get the maximum profit. These principles are as follows:

1. Accurate Determination of the Value of any Certain Product: Identifying the value of activities that create value for the final product.
2. Identifying the Value Stream for Product: Identifying all actions required to design, order and make a certain product.
3. Moving without Interrupting in the Value: Ensure that there is a continuous stream in the process.
4. Establishing a Tensile Structure System: Allowing the customer to extract the value from the manufacturer.
5. Pursuing Perfection: Offering a product according to the customer needs and expectations in the agreed timetable under ideal conditions without error and shortcoming (Aziz and Hafiz, 2013).

In this regard, there are various studies, which are discussed in the following:

Moraadian Brojeni et al (2014) in a research entitled "Manufacturing and Distributing in the Three-level Supply Chain based on the Lean Thinking by GA Approach", reported that today, organizations should provide various products according to the customers' demands in order to remain in the competition arena; therefore, they require themselves to manage the external resources in addition to the internal resources of their organization and enters into categories such as supply chain management. On the other hand, a complete success and excellence of these chains requires a focus on value creation and customer orientation; thus, it is so essential to lean the chain, organizations and their processes. Amirxani et al (2012) has conducted a study titled "Evaluation of Leanness in Iran Khodro based on the Jackson and Jones Model". This research has investigated Iran Khodro's condition in terms of Leanness level and they have reminded the necessity of implementing the process of revitalization and cycle of strategic improvement to take steps towards modifying consumption patterns, especially in the country's energy consumption, and for country's strategies, in addition to increasing the product quality, which is toward competitiveness. The results of data analysis using the structural equation model indicated that three vertices of development have a strong relation with each other; and in turn, these vertices could have a significant impact on the development of Iran Khodro. Finally, the Friedman test was used to determine the priority and importance of development nine keys in Iran Khodro. Lee et al (2015) has conducted a study entitled "An Empirical Research in the Relation between Corporate Organizational Learning and Organizational Culture: A Case Study of Insurance Industry in Taiwan Region". Their results showed that organizational culture significantly associated with the organizational learning and organizational culture and organizational learning views explains the prediction and influences on each other. Farrox et al (2015) in a study titled "Learning Organization and Competitive Advantage as an Integrated Approach", have stated that learning is done through its members; and totally, it is making a competitive advantage by developing a facilitating system and through its development process and sharing information to empower staff. Nenni et al (2014) has conducted a research entitled "Improving Operations through a Lean Management Approach: A Case Study of Pharmaceutical Industry". This paper aims to show the positive effect of a lean management approach to increase productivity, even in a company that is in crisis.

### **3. Objectives of the Study**

The intended objectives of this study are as follows:

- The Main Objective
  - Studying the effect of lean thinking on the organizational learning
- The Secondary Objectives
  - Studying the effect of lean thinking on the shared vision
  - Studying the effect of lean thinking on the organizational learning culture
  - Studying the effect of lean thinking on the teamwork and group learning
  - Studying the effect of lean thinking on the knowledge sharing
  - Studying the effect of lean thinking on the participative leadership

### **4. Methodology**

This is a cross-sectional and practical study. Questionnaires are used to measure the variables. Lean thinking with twenty-eight items and organizational learning also with five dimensions of shared vision, learning culture, teamwork and group learning, knowledge sharing and participative leadership were measured. The questionnaires were distributed among one-hundred and thirty-two managers and staffs of the center for strategic planning and studies and department of planning and excellence development management in SAIPA group. The education level of the participants was higher than a bachelor degree. SPSS 20 software was used to analyze the data.

## 5. Findings

### 5.1 Descriptive Statistics

The descriptive statistics are as follows:

In terms of sex, 58.59% of respondents were men and 41.41% were women. In terms of education level, 37.5% had bachelor degree, 56.3% had master degree and 6.3% had a Ph.D. degree. In terms of job experience, 10.4% had less than five years job experience, 27.1 had a job experience between five to ten years, 33.3% had between ten to fifteen years job experience, 20.8% had between fifteen to twenty years job experience and 8.3% had more than twenty years job experience.

### 5.2 Inferential Findings

## 6. Evaluating the Research Hypotheses

### 6.1 The Main Hypothesis: Lean thinking has a significant impact on the organizational learning.

**Table 1.** Summary of the Model in the Main Hypothesis

Correlation Coefficient	The Coefficient of Determination	Durbin-Watson	F Statistic	Beta Coefficient	Sig.
0.455	0.207	1.970	12.518	0.455	0.001 <sup>b</sup>

According to table 1, determination coefficient of 0.207 was calculated by examining the relationship between lean thinking and organizational learning. This means that the independent variable determines the 20.7% of changes in the dependent variable. Also, the value of Durbin-Watson represents the independence in variables' errors to each other. According to the obtained F value of 12.518 and the significance level of 0.001, it can be concluded that H1 is accepted and lean thinking has a significant impact on the organizational learning. The beta coefficient of 0.455 between two variables indicates that the lean thinking effect on the organizational learning is at the average level.

### 6.2 First Sub-hypothesis: Shared vision has a significant impact on the organizational learning.

**Table 2.** Summary of the Model in the First Sub-Hypotheses

Correlation Coefficient	The Coefficient of Determination	Durbin-Watson	F Statistic	Beta Coefficient	Sig.
0.675	0.456	1.970	40.273	0.675	0.001 <sup>b</sup>

According to table 2, determination coefficient of 0.457 was calculated by examining the relationship between lean thinking and shared vision. This means that the independent variable determines the 45.6% of changes in the dependent variable. Also, the value of Durbin-Watson represents the independence in variables' errors to each other. According to the obtained F value of 40.273 and the significance level of 0.000, it can be concluded that H1 is accepted and lean thinking is influential. The beta coefficient of 0.675 between two variables indicates that the lean thinking effect on the organizational learning is at the fair level.

### 6.3 Second Sub-hypothesis: Organizational learning culture has a significant impact on the organizational learning.

**Table 3.** Summary of the Model in the Second Sub-Hypotheses

Correlation Coefficient	The Coefficient of Determination	Durbin-Watson	F Statistic	Beta Coefficient	Sig.
0.800	0.639	1.970	85.148	0.800	0.001 <sup>b</sup>

According to table 3, determination coefficient of 0.639 was calculated by examining the relationship between lean thinking and organizational learning culture. This means that the independent variable determines the 63.9% of changes in the dependent variable. Also, the value of Durbin-Watson represents the independence in variables' errors to each

other. According to the obtained F value of 85.148 and the significance level of 0.000, it can be concluded that H1 is accepted and lean thinking has a significant impact on the organizational learning culture. The beta coefficient of 0.800 between two variables indicates that the lean thinking effect on the organizational learning is at the excellent level.

6.4 *Third Sub-hypothesis: Lean thinking has a significant impact on the teamwork and group learning.*

**Table 4.** Summary of the Model in the Third Sub-Hypotheses

Correlation Coefficient	The Coefficient of Determination	Durbin-Watson	F Statistic	Beta Coefficient	Sig.
0.616	0.379	1.970	29.341	0.616	0.001 <sup>b</sup>

According to table 4, determination coefficient of 0.639 was calculated by examining the relationship between lean thinking and teamwork and group learning. This means that the independent variable determines the 63.9% of changes in the dependent variable. Also, the value of Durbin-Watson represents the independence in variables' errors to each other. According to the obtained F value of 29.341 and the significance level of 0.000, it can be concluded that H1 is accepted and lean thinking is influential on teamwork and group learning. The beta coefficient of 0.616 between two variables indicates that the lean thinking effect on the organizational learning is at the fair level.

6.5 *Fourth Sub-hypothesis: Lean thinking has a significant impact on the knowledge sharing.*

**Table 5.** Summary of the Model in the Fourth Sub-Hypotheses

Correlation Coefficient	The Coefficient of Determination	Durbin-Watson	F Statistic	Beta Coefficient	Sig.
0.748	0.560	1.970	61.035	0.748	0.001 <sup>b</sup>

According to table 5, determination coefficient of 0.560 was calculated by examining the relationship between knowledge sharing. This means that the independent variable determines the 56% of changes in the dependent variable. Also, the value of Durbin-Watson represents the independence in variables' errors to each other. According to the obtained F value of 61.035 and the significance level of 0.000, it can be concluded that H1 is accepted and lean thinking is influential on knowledge sharing. The beta coefficient of 0.748 between two variables indicates that the lean thinking effect on the knowledge sharing is at the fair level.

6.6 *Fifth Sub-hypothesis: Lean thinking has a significant impact on the participative leadership.*

**Table 6.** Summary of the Model in the Fifth Sub-Hypotheses

Correlation Coefficient	The Coefficient of Determination	Durbin-Watson	F Statistic	Beta Coefficient	Sig.
0.799	0.638	1.970	84.614	0.799	0.000 <sup>b</sup>

According to the table 6, determination coefficient of 0.638 was calculated by examining the relationship between lean thinking and participative leadership. This means that the independent variable determines the 63.8% of changes in the dependent variable. Also, the value of Durbin-Watson represents the independence in variables' errors to each other. According to the obtained F value of 84.614 and the significance level of 0.000, it can be concluded that H1 is accepted and lean thinking is influential on participative leadership. The beta coefficient of 0.799 between two variables indicates that the lean thinking effect on the participative leadership is at the fair level.

## 7. Conclusion and Suggestions

The results of evaluating the main hypothesis indicated that lean thinking is influential in the organizational learning. So, it can be concluded that the organizational learning can be promoted by improving the environment of lean thinking in the organization. In this regard, the following suggestions are offered:

1. It is recommended to create a space in the organization that staffs and organization find their profit in customer satisfaction.

2. Provide the process mapping to clarify the company's current situation.
3. Processes should be improved and staffs be trained to minimize the losses in the manufacturing processes.
4. Participation of customers and consultation with them in designing and development of the organization products caused that goods be produced according to their taste.

The fundamental concept of lean thinking has lied in eradicating loss and creating value in the organization. Lean thinking is an approach to increase continuous value creating and productivity as well as minimizing the costs and losses. This thinking provides a manner through which it could be possible to get the highest by using fewer resources, less equipment, time and space and get close to customers with respect to the customers' needs while meeting their needs. Through this kind of approach can execute the lean manufacturing system in the organization.

After evaluating the first sub-hypothesis, it was found that lean thinking has a significant impact on the shared vision of staffs. So, it is recommended to SAIPA to take steps toward creating a shared vision by considering the lean thinking.

After evaluating the second sub-hypothesis, it became clear that lean thinking has a significant impact on organizational learning culture. Lean thinking is a systematic approach to identify and eliminate loss through continuous improvement and flowing out the product by customers in order to achieve perfection. This philosophy seeks to perfection and making flawless manufacturing systems. Principles of lean manufacturing, consider unlimited objectives for the system such as continuous descent final price, zero losses, endless variety of products, reducing preparation time and ultimately, increasing customer satisfaction. This manufacturing method using a philosophy of continuous improvement and teamwork culture has tried to analyze the losses in the process of manufacturing and eliminate them. So, it is recommended to strengthen the learning culture by improving the level of customer satisfaction in SAIPA group and meeting their expectations as well as by continuous improvement and emphasizing on the teamwork.

After evaluating the third sub-hypothesis, it was found that lean thinking has a significant impact on the teamwork and group learning. Therefore, it can be said that workspace and group learning can be strengthened and improved by implementing and strengthening the principles of lean thinking in the organization. Lean thinking is a way to understand the problems; it is a way to identify the causes of difficulties; it is an attitude for using scientific methods to define a system of values and focusing on the improvement and innovation of value creation streams in the direction of excellence and perfection. Lean thinking is an intelligent review on the value and its stream with minimal changes in the organizational foundations with the lowest cost.

The result of evaluating the fourth sub-hypothesis showed that lean thinking has a significant impact on the knowledge sharing in the organization. Many factors influence the process of knowledge sharing in the organization. These factors can be classified into four general categories of human factors, cultural factors, structural factors and technological factors. Given the extent of the factors affecting the knowledge sharing process, this study has tried to examine the subject from the human factor perspective. The voluntary dissemination of skills and experiences in other parts of the organization is considered as one of the human factors, which affects the knowledge sharing. Although, knowledge is available at three levels of individual, group and organizational, knowledge sharing at the individual level is more important for the organization since the organizational knowledge is formed on the basis of individuals' knowledge. If individual knowledge is not available for others, then it will not affect the organization (Lu and Naji, 2008). At the individual level, knowledge sharing barriers are of two types: barriers that affect the ability to share knowledge and those that affect the enthusiasm for working. The ability to share knowledge largely depends on the individual's talent in his/her communication and social behavior. On the other hand, for example, enthusiasm is affected by many factors. Personal characteristics of individuals are the individual factors affecting the knowledge sharing. Implementation of lean thinking can influence the knowledge sharing.

After evaluating the fifth sub-hypothesis, it became clear that lean thinking has a significant impact on the participative leadership. Change is inevitable and it should be designed and managed to establish a constructive and effective development in organizations. There is a growing need for that kind of leadership in the today's world. This leadership prides to establish organizations that activated their potentials; while, think about solving crises and emergency situations in the work environment. In such conditions, organizations should know that they have to prefer objectives of "become" to "remain" for achieving the future authority. In other words, development, reconstruction and modernization are as one of the important aspects of organizational health in the present era. Therefore, the management of change in organizations is one of the hardest tasks of leading managers. Participative leading transmits the burden of governance from the shoulders of a body or a limited group to the shoulders of a larger society by mobilizing the thoughts and empowering the staffs and nurtures the collective wisdom of the group and increases their commitment and attachment to the work. Participative leadership paves the way for cooperation, sympathy and empathy among employees and makes the link between them and the organization stronger. This method through participating the

staffs in governing the organization's affairs provides a context in which they could increase the quality and quantity of their assistances by acquiring more and better behavioral and performance capabilities and abilities and know the organization's success as their own. Participative leadership as an approach to human resources, is considered the slogan of "proper people, at the proper time and for the proper work" as the frontispiece of its activities. This slogan, which is discussed in the participative leadership, is one of the principles of lean thinking. Thus, it would be possible to take positive and useful steps toward improving participative leadership.

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