

## Article

# Lean Management Practices as a Driving Force for Guiding Administrative Leadership in Entrepreneurial Organizations: an Applied Study in Private Universities in The Middle Euphrates Region

Dunya Khammat Nashmi Al-Khuzai<sup>\*1</sup>, Ameera Ghasi Ajel<sup>2</sup>, Estabraq Ali Kareem<sup>3</sup>

1. University of Al-Qadisiya, Department of Administrative and Financial Affairs
2. University of AL-Qadisiya, College of Administration and Economics
3. University of AL-Qadisiya, College of Physical Education and Sports Sciences

\* Correspondence: [dunya.alkhuzai@qu.edu.iq](mailto:dunya.alkhuzai@qu.edu.iq)

**Abstract:** The current study aims to identify the role of lean management practices across its dimensions (workplace organization, continuous improvement, multi-functional workers, and six-dimensional diffractometers) in enhancing entrepreneurial organizations in their dimensions (independence, creativity, proactivity, and risk tolerance). Accordingly, a sample of administrative leaders from private universities in the Middle Euphrates region was selected. (85) questionnaires were distributed to the study sample, and (81) valid questionnaires were retrieved for analysis. This necessitated clarifying the tools used to present the study's findings. The most important statistical tools used for this purpose were the structural modeling equation, Cronbach's alpha coefficient, arithmetic mean, standard deviation, Pearson's correlation coefficient, and regression coefficients, which were extracted using SPSS.V.29 and AMOS.V.29. Based on the results obtained by the study, it was found that there is a significant correlation and influence between the impact of lean management practices on organizations. Entrepreneurship. Perhaps the most important conclusion reached by the study was that applying lean management principles contributes significantly to enhancing the innovative capabilities of academic institutions, supporting a more flexible and innovative environment for knowledge production and teamwork.

**Citation:** Al-Khuzai, D. K. N., Ajel, A. G & Kareem, E. A. Lean Management Practices As A Driving Force For Guiding Administrative Leadership in Entrepreneurial Organizations: An Applied Study in Private Universities In The Middle Euphrates Region. International Journal on Economics, Finance and Sustainable Development (IJEFS) 2026, 8(1), 1-11.

Received: 30<sup>th</sup> Jun 2025

Revised: 07<sup>th</sup> Jul 2025

Accepted: 31<sup>st</sup> Jul 2025

Published: 28<sup>th</sup> Aug 2025



**Copyright:** © 2026 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license

(<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Lean Management Practices, Entrepreneurial Organizations, Lean

## 1. Introduction

In light of the rapid changes and increasing challenges facing modern organizations, the need to adopt flexible and effective management methods has become essential to ensure sustainability and competitive advantage. Lean management practices are among the most prominent approaches that focus on improving efficiency (Shaturaev & Bekimbetova, 2021), promoting innovation, and providing added value to customers. These are essential elements in building effective entrepreneurial systems. This study aims to analyze the role of these practices in enhancing entrepreneurial organizations by surveying the opinions of administrative leaders at private universities in the Middle Euphrates region. This survey reflects the extent to which lean concepts are applied in the academic environment and their impact on their ability to adapt and grow. Understanding the extent to which lean management contributes to enhancing entrepreneurial capabilities contributes to developing effective strategies for developing

educational institutions and achieving their development goals, especially in their local and internal contexts (Basiru et al., 2023).

The current study aims to understand how lean management practices can contribute to enhancing entrepreneurial capabilities within scientific and academic colleges by analyzing the opinions of administrative leaders at private universities in the Middle Euphrates region. Administrative leaders are a key element in providing and proposing the best practices to improve institutional performance, and they are often the most knowledgeable about the requirements of change and development. By understanding the extent to which these practices are implemented and their effectiveness, sustainable strategies can be developed that contribute to building highly competitive academic systems capable of continuous innovation and renewal. This study aims to provide practical insights that contribute to shaping the future of administrative development, in line with the requirements of the academic community and entrepreneurial development.

## **2. Research Methodology**

### **2.1 Research Problem**

Most business organizations have primarily focused on leveraging their capabilities to enhance their entrepreneurial role. This has motivated them to leverage lean management practices to develop their entrepreneurial capabilities. The research problem represents a fundamental focus for understanding the effectiveness of lean management practices in enhancing the academic environment and supporting the spirit of initiative and innovation within them. Despite the increasing reliance on lean management methods in various economic and industrial sectors, there is a clear lack of studies that evaluate the impact of applying these principles in educational institutions, particularly at the university and college levels. Hence, the problem of the weak compatibility between the applied theory of lean management principles and the practical reality facing administrative leaders in terms of challenges related to organization, management, and innovation, which impacts their ability to develop a pioneering and sustainable academic environment. The following questions can be raised:

- 1- What are the issues that can be followed to adopt lean management practices to develop entrepreneurial organizations?
- 2- To what extent do lean management practices contribute to maintaining the entrepreneurial nature of organizations?
- 3- What level of strategic leadership does the sample study adopt?

### **2.2 The Importance of the Research**

The current research derives its importance from the following:

- 1- Demonstrating the need to pay attention to lean management practices and increasingly focusing on the role of entrepreneurial organizations.
- 2- The study provides a clear and accurate understanding of the importance of lean management practices and entrepreneurial organizations.
- 3- Highlighting organizations' interest in the entrepreneurial aspect.
- 4- The importance of lean management practices in entrepreneurial organizations.

### **2.3 Research Objectives**

The objectives of this research can be defined as follows:

- 1- To determine the level of availability of lean management practices in the sample study.
- 2- To determine the level of interest of the sample study in entrepreneurial organizations.
- 3- To determine the nature and type of relationship between lean management practices and entrepreneurial organizations.

## 2.4 Hypothetical Diagram and Hypothesis Development

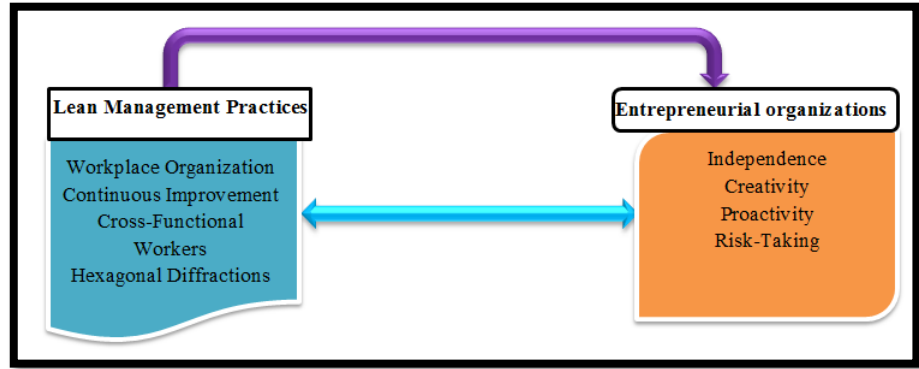


Figure 1. Hypothetical diagram.

In light of the hypothetical diagram, the following hypotheses can be formulated:

1. There is a significant correlation between lean management practices and entrepreneurial organizations.
2. There is a significant impact of lean management practices on entrepreneurial organizations.

### 2.5 Research Sample

The study sample community consists of (127) administrative leaders at private universities in the Middle Euphrates region (dean, assistant dean, head of department). (85) questionnaires were distributed, meaning that the studied sample covered (67%), as (81) questionnaires were returned.

### 2.6 Research Methodology

To cover the theoretical and field framework of the current research, the researchers relied on the descriptive analytical approach by collecting and analyzing data in a manner that contributes to achieving the theoretical and field objectives sought in the current research. Seventh: Research Limits

- 1- Temporal Limits: This research was conducted from May 2025 to August 2025.
- 2- Human Limits: A sample of administrative leaders at private universities in the Middle Euphrates region.
- 3- Spatial Limits: Private universities in the Middle Euphrates region.
- 4- Academic Limits: Lean management practices and entrepreneurial organizations.

## 3. The Theoretical Aspect

### 3.1 The Concept of Lean Management

Lean management is a multifaceted concept based on the organization's efforts at various levels simultaneously, whether in achieving the successful implementation of the key strategic elements of Lean Management, implementing Lean Management practices to support the organization's operational aspects, or through sustainable improvements over the long term (Martínez-Jurado, 2014: 136). The Lean Management philosophy aims for continuous improvement and the elimination of waste with the aim of retaining only value-added activities. It seeks to reduce production costs and delivery times, with the goal of achieving consistent performance excellence in terms of cost, quality, and time (Kadarova & Demecko, 2016: 13). The idea of Lean Management is based on the principle of refusing to accept waste from all organizational activities. Therefore, Lean Management is defined as a system that focuses on eliminating all forms of waste in all production processes by implementing a policy of continuous development within the organization (Charron et al., 2014: 3). These two previous definitions focus on two main points (Sinha & Matharu, 2019: 304):

- A. Eliminating all forms of waste within the organization.

## B. Continuous development and continuous improvement of all activities.

Woomak, in turn, defines lean management as a set of actions that must be performed correctly, in the correct sequence, and at the correct time to create value for a specific customer. Woomak's definition focuses on respecting procedures and timelines in order to deliver what is required, on time, and to achieve the desired outcome with the required quality (Shaturaev & Bekimbetova, 2021: 75). Lean management can be defined from the customer's perspective based on the value of the product or service. The value of the product or service must be known from the customer's perspective, who evaluates it based on the level of meeting their requirements or satisfying their desires. The value of the activities that enable the creation of added value, and linking these activities to customer demands, with continuous improvement to increase effectiveness (Lakshmanan et al., 2023: 3). (Basiru et al., 2023:1503) pointed out that lean management is a concept that aims to produce products and services at the lowest possible cost and in the fastest possible time, and focuses on efficiency, achieving minimal waste, and eliminating non-value-added activities to improve speed and increase productivity.

### 3.2 The Importance of Lean Management

The importance of Lean Management can be summarized in (Sharma et al., 2024:3; Klein et al., 2022:14):

- 1- Reducing customer wait times and inventory reduction.
- 2- Improving knowledge management, stronger processes, and fewer errors, thus eliminating repetitions.
- 3- Accelerating processes and achieving profits in a shorter period.
- 4- The ability to make timely decisions by rationalizing non-value-adding alternatives.
- 5- Achieving efficiency and effectiveness in the administrative process by eliminating waste and obstacles.
- 6- Improving profitability levels and reducing costs incurred by the organization.
- 7- Eliminating all steps that do not create value for administrative work.

### 3.3 Lean Management Practices

There are many practices that fall under the lean management methodology, which are used to achieve lean management goals and the desired results from its implementation. Among the most widely used practices by some researchers and writers in the service sector are (Klein et al., 2022: 14):

#### 1- Organization of the Workplace

Introducing organization to the workplace, known as the 5S method, is one of the ways to improve productivity and the key to successful change, which reflects the cleanliness of the workplace and the absence of clutter (Basiru et al., 2023: 1503). This method is extremely simple and allows for a clean, clutter-free, and well-organized environment. This allows for the organization and improvement of the workplace and the environment surrounding employees, which increases their productivity and, consequently, ensures the implementation of standard workflows that enable items to be found easily and accessed as quickly and without delay (Shaturaev & Bekimbetova, 2021: 75).

2- Continuous Improvement

Continuous improvement is a Japanese method for introducing small, simple, and continuous incremental improvements to products, services, and processes. This method seeks to reduce costs, minimize resource waste, and increase productivity. The common meaning of the concept is continuous gradual improvement across all aspects of the organization, not just at the core production processes (Klein et al., 2022: 14). All employees within the organization are involved in the improvement process at all administrative levels, regardless of their job positions, from senior management to lower-level employees (Shaturaev & Bekimbetova, 2021: 75).

### 3- Multi-functional Workers

The concept of multi-functional workers refers to those with multiple skills, who are educated, specialized, and trained, and who are able to study and understand the current reality of each activity and solve its problems, even developing it for the better. This contrasts with traditional management, which relies on experienced people (Shaturaev & Bekimbetova, 2021: 75). Contrary to the prevailing trend in work and employment research regarding the allocation, fragmentation, or division of work, the research and studies conducted after the emergence of the concept of lean management showed a different view of work from the perspective of workers as the main partner in continuous development and improvement work, in addition to the interest in improving their psychological climate (Klein et al., 2022: 14).

### 4- Six Sigma

There are several interpretations of the term Six Sigma, ranging from considering it a mere statistical measure of quality to considering it a new strategy, approach, or philosophy for continuous improvement, which leads to building a strong reputation for the organization's products and services, benefiting users, customers, and shareholders (Sinha & Matharu, 2019: 304). Six Sigma is based on several components, including training, continuous improvement, organizational culture, and senior management support. The term Six Sigma refers to the deviations or changes inherent in any process within the system that allow the organization to calculate the number of defects (on average) that occur in the process (Kadarova & Demecko, 2016: 13). These defects are considered a deviation from pre-defined binding limits. The organization sets binding upper and lower limits, and a product that falls outside these limits—i.e., above the upper limits or below the lower limits is considered defective (Klein et al., 2022: 14).

### 3.4 The Concept of Entrepreneurial Organizations

Defining a precise concept of entrepreneurial organizations is clearly difficult due to the multiple perspectives from which entrepreneurial organizations can be viewed. Teece (2016:203) noted that the term "entrepreneurship" was associated in the early twentieth century with the concept of innovation, which became widespread in the Japanese business world. More recently, entrepreneurship, particularly in business, has come to mean pioneering a field through courage, initiative, determination, success, risk-taking, and achieving excellence (Bird & Schjoedt, 2017:380). Foss et al. (2019:1198) defined entrepreneurship as a serious attempt at work or creating a new venture, such as employing oneself, establishing a new organization, expanding an existing organization, expanding existing fields of work by individuals or teams of individuals, or establishing businesses. Entrepreneurial organizations, from the perspective of Wales et al. (2020:671), are defined as those organizations that possess the strength and competence necessary to undertake the process of organizing and planning with minimal losses within the context of new risks. Entrepreneurial organizations differ from other business organizations, both at the outset and throughout their growth and development. They consist of activities and processes related to individuals, the implementation and control of various activities, and the nature of the procedures followed to complete the work (Salsabila & Sabandi, 2025: 2177). An entrepreneurial organization means the birth of a new business within existing organizations; it is internal innovation, the introduction of a new project, and the transformation of organizations through the renewal of basic ideas (Gupta & Singh, 2020: 2024). Wang et al. (2024: 3) indicated that an entrepreneurial organization is one that identifies opportunities, utilizes resources, and has the ability to implement creative ideas for new ventures. Bergman & McMullen (2022: 689) defined it as an organization that identifies opportunities, utilizes resources, and has the ability to implement creative ideas for new ventures. Entrepreneurial organizations, with a focus on increasing national income, are defined as those organizations that actively contribute to economic growth, create a relationship between innovation and the market, and increase national income by

creating job opportunities and introducing modern technology to market products and services (Somwethee et al., 2023:2). In the same vein, Lukács (2024:36) defined them as entities that contribute significantly to economic development and increasing national income by generating innovation, developing markets, creating job opportunities, and introducing advanced technology to improve goods and services, whether locally or internationally.

### **3.5 The Importance of Entrepreneurial Organizations**

- 1- Promoting entrepreneurship and entrepreneurial activities (Pardakhteh & Mohammadi, 2016: 939).
- 2- Playing a fundamental role in the organization's success and entry into attractive markets (Gupta & Singh, 2020: 2024).
- 3- Achieving the organization's objectives, whether financial or non-financial (Moghaddam et al., 2015: 76).
- 4- They also participate in innovating market products (Bergman & McMullen, 2022: 689).

#### **Sixth: Dimensions of Entrepreneurial Organizations**

Entrepreneurial organizations can be evaluated based on four important dimensions (Al-Shammari et al., 2016):

##### **1- Autonomy**

This is a process that operates from the bottom up to senior management, where product champions acquire new ideas through means that they develop until success is achieved. The product champion is a member of the organization with an entrepreneurial vision for the new product or service they are seeking (Wales et al., 2020: 671).

##### **2- Creativity**

This is achieved as a result of the organization's adoption of innovation, experimentation, technological excellence, research and development, and continuous support for the development of its products, services, and processes in order to develop creative solutions to customer needs and future problems (Bird & Schjoedt, 2017: 380).

##### **3- Proactivity**

Proactivity is achieved when business organizations actively seek out potential new products or services to gain the advantages of being the first mover in the market, such as achieving significant profits due to the absence of competitors who might force the organization to lower prices and achieving a well-known brand over time (Foss et al., 2019: 1198).

##### **4- Risk Tolerance**

Risk Tolerance is linked to the speed of strategic decision-making, and both contribute to improving organizational performance. Without risk tolerance, the organization will be unable to offer new innovations (Al-Shammari et al., 2016: 24).

## **4. The Practical Aspect**

### **4.1 Coding and Describing the Research Axes**

The current research aims to measure the validity and reliability of the measurement tool used in the study. To achieve this goal, the study relied on a set of well-known and widely used methods and techniques in statistical sciences. Perhaps the most famous of these programs used were SPSS.V.29 and the international quality program AMOS.V.29, which are capable of extracting the results the study seeks to reach and testing the validity of the study's hypotheses. Perhaps the most famous of these tests were the normal distribution test and the Cronbach's alpha coefficient test. Accordingly, in order to extract the results, the study resorted to expressing the variables included in the analysis using a set of symbols, as shown in Table 1.

**Table 1.** Coding description of research axes.

Variables	Dimensions	Paragraphs	The code
<b>Lean management practices</b>	Workplace Organization	4	WOO
	Continuous Improvement	4	COI
	Multifunctional Workers	4	SFW
	Six Dimensions	4	HED
<b>Entrepreneurial organizations</b>	Autonomy	4	EIND
	Creativity	4	ECRE
	Proactivity	4	EPRO
	Risk Tolerance	5	SCRI

#### 4.2 Testing the validity and reliability of the measurement tool

Reliability refers to measuring the questionnaire's reliability, validity, and suitability to the study sample. Accordingly, Table 2 shows Cronbach's alpha coefficients.

**Table 2.** Cronbach's alpha coefficient.

Variables	Dimensions	Paragraphs	Cronbach's alpha for dimensions	Cronbach's alpha for variables
<b>Lean management practices</b>	Workplace Organization	4	0.900	<b>0.900</b>
	Continuous Improvement	4	0.897	
	Multifunctional Workers	4	0.912	
	Six Dimensions	4	0.908	
<b>Entrepreneurial organizations</b>	Autonomy	4	0.899	<b>0.896</b>
	Creativity	4	0.897	
	Proactivity	4	0.901	
	Risk Tolerance	5	0.905	

The results of Table 2 indicate that the value of Cronbach's alpha coefficients is higher than the imposed rule, which indicates that the extracted value must be at or above (0.80). Accordingly, the results shown in the table above show that the value of Cronbach's alpha is accepted as being higher than the required level, and this is evidence of the stability of the measuring tool.

#### 4.3 Descriptive Statistics of the Data

##### 1- Lean Management Practices Variable

The results of Table 3 show that the overall mean of the arithmetic mean for the Lean Management Practices variable was (3.85) with a standard deviation of (0.876). Perhaps the dimension that contributed to this was the dimension of hexagonal deviations, with an arithmetic mean of (4) and a standard deviation of (0.903), while the dimension of multi-functional workers came in last place with an arithmetic mean of (3.72) and a standard deviation equal to (0.946).

**Table 3.** Descriptive statistical analysis of the dimensions of the Lean Management Practices variable.

Dimensions	Mean	S. D	Order of importance
WOO	3.77	0.917	3
COI	3.89	0.758	2
SFW	3.72	0.946	4
HED	4	0.903	1
AMP	3.85	0.876	-

## 2- The entrepreneurial organizations variable

The results of Table 4 show that the overall average of the arithmetic means for the entrepreneurial organizations variable reached (3.68) with a standard deviation of (0.961). Perhaps the dimension that contributed to this was the proactivity dimension, with an arithmetic mean of (3.85) and a standard deviation of (1.101), while the independence dimension came in last place with an arithmetic mean of (3.6) and a standard deviation equal to (0.900).

**Table 4.** Descriptive statistical analysis of the dimensions of the entrepreneurial organizations variable.

Dimensions	Mean	S. D	Order of importance
EIND	3.6	0.900	4
ECRE	3.62	0.967	3
EPRO	3.85	1.101	1
SCRI	3.66	1.202	2
ENO	3.68	0.961	-

## 4.4 Testing Research Hypotheses

### 1- Correlation Hypothesis

This hypothesis examines the correlation between lean management practices and entrepreneurial organizations, and the dimensions of each. This hypothesis is based on a correlation matrix for a sample of (81) administrative leaders in private universities in the Middle Euphrates region. The correlation matrix was calculated at a significance level (Sig.) of less than (0.01), indicating that the calculated (T) value is greater than the tabular value.

First Main Hypothesis: There is a significant correlation between lean management practices and entrepreneurial organizations.

The results in Table 5 revealed a statistically significant correlation between lean management practices and entrepreneurial organizations, with a value of (0.772) at a significance level of (0.01). This means that lean management practices are strongly related to entrepreneurial organizations. Table 5 illustrates the correlation matrix.

**Table 5.** Correlation Matrix.

	WOO	COI	SFW	HED	AMP	EIND	ECRE	EPRO	SCRI	ENO
WOO	1									
COI	.884**	1								
SFW	.680**	.602**	1							
HED	.807**	.622**	.627**	1						
AMP	.820**	.857**	.560**	.653**	1					
EIND	.815**	.774**	.685**	.776**	.842**	1				
ECRE	.755**	.808**	.736**	.804**	.798**	.751**	1			
EPRO	.705**	.786**	.679**	.858**	.780**	.780**	.794**	1		
SCRI	.689**	.828**	.724**	.708**	.843**	.845**	.855**	.772**	1	
ENO	.797**	.637**	.661	.634**	.772**	.815**	.788**	.572**	.619**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed). Sig. (2-tailed)=0.000

The results of Table 5 indicate a statistically significant correlation between the research variables and their sub-dimensions, as follows:

There is a statistically significant correlation between lean management practices and their dimensions (workplace organization, continuous improvement, multi-functional workers, and six-dimensional dimensions) and entrepreneurial organizations

and their dimensions (autonomy, creativity, proactivity, and risk tolerance). The correlation strength between lean management practices and entrepreneurial organizations reached 0.772, while the correlation strength between lean management practices and entrepreneurial organizations ranged between 0.815 for the proactivity dimension and 0.572 for the autonomy dimension.

Based on the above, the validity of the first main hypothesis can be accepted, which states: "There is a significant correlation between lean management practices and entrepreneurial organizations."

## 2- Impact Hypothesis

The second main hypothesis: There is a significant impact of lean management practices on entrepreneurial organizations. The results of Table 6 indicate a direct, statistically significant, positive effect of lean management practices in its dimensions (workplace organization, continuous improvement, multi-functional workers, six-dimensional variances) and entrepreneurial organizations in its dimensions (autonomy, creativity, proactivity, risk tolerance). Increasing the lean management practices variable by one standard weight increases entrepreneurial organizations by a weight of (0.520), with a standard error of (0.011), a critical value of (47.27), and an explanatory value of (0.595). Several sub-hypotheses branch out from this:

The first sub-hypothesis: There is a statistically significant influence relationship for the workplace organization dimension in entrepreneurial organizations. Increasing the workplace organization dimension by one standard weight increases entrepreneurial organizations by a weight of (0.730), with a standard error of (0.095), and a critical value of (7.684). Sub-hypothesis 2: There is a statistically significant influence on the continuous improvement dimension in entrepreneurial organizations. Increasing the continuous improvement dimension by one standard weight increases entrepreneurial organizations by a weight of 0.572, with a standard error of 0.083, and a critical value of 6.892.

Sub-hypothesis 3: There is a statistically significant influence on the multi-functional workers dimension in entrepreneurial organizations. Increasing the multi-functional workers dimension by one standard weight increases entrepreneurial organizations by a weight of 0.631, with a standard error of 0.078, and a critical value of 8.09.

Sub-hypothesis 4: There is a statistically significant influence on the six-dimensional skewness dimension in entrepreneurial organizations. Increasing the six-dimensional skewness dimension by one standard weight increases entrepreneurial organizations by a weight of 0.817, with a standard error of 0.162, and a critical value of 5.043.

**Table 6.** Standard weights for the impact of lean management practices in entrepreneurial organizations.

	Path		Estimate	S.E.	C.R.	R <sup>2</sup>	P
Workplace Organization	--->	entrepreneurial organizations	0.730	0.095	7.684	0.595	***
Continuous Improvement	--->	entrepreneurial organizations	0.572	0.083	6.892		***
Multifunctional Workers	--->	entrepreneurial organizations	0.631	0.078	8.09		***
Six Dimensions	--->	entrepreneurial organizations	0.817	0.162	5.043		***
Workplace Organization	--->	entrepreneurial organizations	0.520	0.011	47.27		***

## 5. Conclusions

- a. The study demonstrates that the application of lean management principles contributes significantly to enhancing the innovative capabilities of academic institutions, supporting a more flexible and innovative environment for knowledge production and teamwork.
- b. The results show that the application of lean management practices enhances the efficiency and effectiveness of academic and administrative processes in private universities in the Middle Euphrates region, leading to improved quality of education and student service.
- c. The findings indicate that adopting lean management practices encourages administrative leaders in private universities in the Middle Euphrates region to develop new initiatives and fosters a spirit of entrepreneurship within academic institutions.
- d. The study revealed the presence of some obstacles, such as resistance to change and traditional institutional culture, that impact the effective implementation of lean management practices in the private university environment in the Middle Euphrates region.
- e. The results confirm that the availability of training and development programs for administrative leaders in private universities helps in adopting lean management practices more effectively, which contributes to achieving the institution's entrepreneurial goals.

## Recommendations

- a. Develop intensive training programs in lean management practices. Universities should organize specialized workshops and training programs for administrative leaders and employees at private universities to enhance their understanding and application of lean management principles in academic and administrative operations.
- b. Integrate lean management principles into institutional strategies by developing a strategic framework that comprehensively adopts lean management concepts, ensuring the sustainability of its application and supporting innovation and entrepreneurship within private universities.
- c. Promote a culture of change and institutional development. It is important to encourage a flexible institutional culture that allows for creativity and innovation, while adopting policies that encourage acceptance of change and support agile practices on an ongoing basis.
- d. Conduct ongoing studies and research on the application of agile practices. It is recommended to conduct periodic field studies to measure the impact of the application of lean management principles and identify areas that need improvement, ensuring adaptation to new developments and modern requirements.
- e. Providing a supportive environment for digital transformation and innovation. University institutions must invest in information technology and digital platforms to support the implementation of lean management principles, facilitating the adoption of new tools and technologies that enhance entrepreneurship and efficiency.

## REFERENCES

- Al-Shammari, A., Al-Moussawi, L., & Al-Shammari, S. (2016). The impact of talent management processes in entrepreneurial organizations: A survey study of the opinions of a sample of managers of Korek Mobile Telecommunications Company. *Al-Ghari Journal of Economic and Administrative Sciences*, 13(1), 37.
- Basiru, J. O., Ejiofor, C. L., Onukwulu, E. C., & Attah, R. U. (2023). Adopting lean management principles in procurement: A conceptual model for improving cost-efficiency and process flow. *IRE Journals*, 6(12), 1503–1522.

- Bergman, B. J., & McMullen, J. S. (2022). Helping entrepreneurs help themselves: A review and relational research agenda on entrepreneurial support organizations. *Entrepreneurship Theory and Practice*, 46(3), 688–728.
- Bird, B., & Schjoedt, L. (2017). Entrepreneurial behavior: Its nature, scope, recent research, and agenda for future research. In *Revisiting the entrepreneurial mind: Inside the black box: An expanded edition* (pp. 379–409).
- Charron, R., Harrington, H. J., Voehl, F., & Wiggin, H. (2014). *The lean management systems handbook*. CRC Press.
- Foss, N. J., Klein, P. G., & Bjørnskov, C. (2019). The context of entrepreneurial judgment: Organizations, markets, and institutions. *Journal of Management Studies*, 56(6), 1197–1213.
- Gupta, M., & Singh, M. (2024, September). The impact of artificial intelligence for advancement in entrepreneurial education. In *European conference on innovation and entrepreneurship* (pp. 218–224). Academic Conferences International Limited.
- Kadarova, J., & Demecko, M. (2016). New approaches in lean management. *Procedia Economics and Finance*, 39, 11–16.
- Klein, L. L., Vieira, K. M., Feltrin, T. S., Pissutti, M., & Ercolani, L. D. (2022). The influence of lean management practices on process effectiveness: A quantitative study in a public institution. *Sage Open*, 12(1), 21582440221088837.
- Lakshmanan, R., Nyamekye, P., Virolainen, V. M., & Piili, H. (2023). The convergence of lean management and additive manufacturing: Case of manufacturing industries. *Cleaner Engineering and Technology*, 13, 100620.
- Lukács, H. Z. (2024). *Learning opportunities for municipalities to leverage the urban sustainability transitions: The contribution of social entrepreneurial organizations* (Master's thesis). University of Twente.
- Martínez-Jurado, P. J., & Moyano-Fuentes, J. (2014). Lean management, supply chain management and sustainability: A literature review. *Journal of Cleaner Production*, 85, 134–150.
- Moghaddam, J. Y., Khorakian, A., & Maharati, Y. (2015). Organizational entrepreneurship and its impact on the performance of governmental organizations in the city of Mashhad. *Procedia-Social and Behavioral Sciences*, 169, 75–87.
- Pardakhteh, F., & Mohammadi, F. (2016). Strategic management and development of university-based entrepreneurship models to promote the university of entrepreneurial organizations. *International Journal of Humanities and Cultural Studies (IJHCS)*, 933–951.
- Salsabila, N. M., & Sabandi, M. (2025). Achieving pro-environmental attitudes through integration of entrepreneurial values in professional teacher education students. *EKOMBIS REVIEW: Jurnal Ilmiah Ekonomi dan Bisnis*, 13(3), 2175–2188.
- Sharma, V., Kumar, S., Raut, R. D., Queiroz, M. M., Narkhede, B. E., & Gokhale, R. (2024). Barriers to integrated lean management-industry 4.0 technologies. *Production Planning & Control*, 1–12.
- Shaturaev, J., & Bekimbetova, G. (2021). Transformation of business efficiency with the lean management. *Deutsche Internationale Zeitschrift für zeitgenössische Wissenschaft*, 22, 71–73.
- Sinha, N., & Matharu, M. (2019). A comprehensive insight into lean management: Literature review and trends. *Journal of Industrial Engineering and Management (JIEM)*, 12(2), 302–317.
- Somwethee, P., Aujirapongpan, S., & Ru-Zhue, J. (2023). The influence of entrepreneurial capability and innovation capability on sustainable organization performance: Evidence of community enterprise in Thailand. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(2), 100082.
- Teece, D. J. (2016). Dynamic capabilities and entrepreneurial management in large organizations: Toward a theory of the (entrepreneurial) firm. *European Economic Review*, 86, 202–216.
- Wales, W. J., Covin, J. G., & Monsen, E. (2020). Entrepreneurial orientation: The necessity of a multilevel conceptualization. *Strategic Entrepreneurship Journal*, 14(4), 639–660.
- Wang, Y., Wang, Q., Pan, X., & Mata, M. N. (2024). Green entrepreneurial intention, knowledge management process, and green entrepreneurial behaviour through a lens of transformative innovation. *Journal of Innovation & Knowledge*, 9(4), 100567.