

**تأثير استخدام منهجية (Six sigma) على كفاءة تطبيق
استراتيجية المحيط الأزرق في الشركات الصناعية المساهمة
العامة الأردنية**

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The Impact of Using Six Sigma Approach on
The Efficiency of Blue Ocean Strategy
Implementation in Jordanian Public
Shareholding Industrial Companies

تأثير استخدام منهجية (Six sigma) على كفاءة تطبيق استراتيجية
المحيط الأزرق في الشركات الصناعية المساهمة العامة الأردنية

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تاريخ النشر: 2026/09/01

Received: 14/07/2025

تاريخ القبول: 2025/07/27

Accepted: 27/07/2025

تاريخ الاستلام: 2025/07/14

Published: 01/09/2026

المستخلص:

هدفت هذه الدراسة إلى التعرف على أثر استخدام منهجية سيجما ستة (Six Sigma) على كفاءة تطبيق استراتيجية المحيط الأزرق في الشركات الصناعية المساهمة العامة الأردنية. ولتحقيق أهداف الدراسة، تم استخدام المنهج الوصفي التحليلي. تكون مجتمع الدراسة من 46 شركة صناعية مساهمة عامة أردنية حتى نهاية عام 2024، وذلك وفقاً للمواقع الرسمية لكل من بورصة عمان وهيئة الأوراق المالية الأردنية (www.ase.com.jo). وقد شملت عينة الدراسة جميع الشركات الممثلة لمجتمع الدراسة، واقتصرت وحدة التحليل على الموظفين في المستويات الإدارية العليا والمتوسطة في تلك الشركات، بما في ذلك المستويات الوظيفية مثل مدير التكاليف، مدير التصميم الهندسي، مدير الإنتاج، مدير المشتريات، ومدير التسويق، وذلك نظراً لمشاركتهم المباشرة في تطبيق منهجية سيجما ستة واستراتيجية المحيط الأزرق. لتحليل بيانات الدراسة واختبار فرضياتها، تم استخدام برنامج الحزم الإحصائية للعلوم الاجتماعية (SPSS). وبعد إجراء التحليل الإحصائي، كشفت الدراسة عن عدة نتائج، كان أبرزها وجود تأثير ذو دلالة إحصائية لأبعاد منهجية سيجما ستة (التعريف، القياس، التحليل، التحسين، والمراقبة) على كفاءة تطبيق استراتيجية المحيط الأزرق في الشركات الصناعية المساهمة العامة الأردنية. وقد أوصت الدراسة بعدة توصيات، أهمها ضرورة قيام إدارات الشركات الصناعية بعقد ورش عمل وبرامج تدريبية تهدف إلى تطوير مهارات الموظفين في ما يتعلق بمبادئ ومفاهيم منهجية سيجما ستة، لضمان استخدامها الفعّال وتطبيقها الصحيح، مما يؤدي في النهاية إلى تحقيق نتائج مثلى في تطبيق استراتيجية المحيط الأزرق.

الكلمات المفتاحية: منهجية سيجما ستة، استراتيجية المحيط الأزرق، الشركات الصناعية المساهمة العامة الأردنية.

ABSTRACT

This study aimed to identify the impact of using the Six Sigma approach on the efficiency of the Blue Ocean Strategy implementation in Jordanian public shareholding industrial companies. To achieve the study's objectives, a descriptive-analytical method was employed. The study population consisted of 46 Jordanian public shareholding industrial companies as of the end of 2024, according to the official websites of the Amman Stock Exchange and the Jordan Securities Commission (www.ase.com.jo). The study sample included all companies representing the study population. The analysis unit was limited to employees in senior and middle management levels within the companies, including job titles such as Cost Manager, Engineering Design Manager, Production Manager, Purchasing Manager, and Marketing Manager. This focus was due to their direct involvement with the Six Sigma approach and the Blue Ocean Strategy. To analyze the study data and test its hypotheses, the Statistical Package for the Social Sciences (SPSS) was used. After conducting statistical analysis, the study revealed several findings, most notably a statistically significant effect of the dimensions of the Six Sigma approach (definition, measurement, analysis, improvement, and control) on the efficiency of applying the Blue Ocean Strategy in Jordanian public shareholding industrial companies. The study recommended several actions, the most notable of which is the necessity for industrial companies' management to conduct workshops and training programs aimed at developing the skills of employees regarding the principles and concepts of the Six Sigma approach. This would ensure its effective use and proper application, ultimately leading to optimal results in implementing the Blue Ocean Strategy.

Keywords: Six Sigma Approach, Blue Ocean Strategy, Jordanian Public Shareholding Industrial Companies

INTRODUCTION

The rapid advancements in industrial sectors across various countries and the reliance of industrial companies on modern and innovative cost methods aimed at achieving quality and efficiency in production processes to attain industrial excellence at local and global levels have driven these companies to seek advanced cost methods. Among these methods is the Six Sigma approach, widely adopted by many global companies. The primary goal of this approach is to minimize defective production costs while achieving manufacturing excellence. Moreover, this approach contributes to the effective implementation of industrial companies' strategies, most notably the Blue Ocean Strategy, which focuses on increasing efficiency, reducing waste, and creating new value through innovation and exploring new manufacturing domains for implementing companies.

This study aims to examine the impact of using the Six Sigma approach on the efficiency of applying the Blue Ocean Strategy in Jordanian public shareholding industrial companies.

Study Objectives:

This study seeks to achieve a primary objective: clarifying the role of the Six Sigma approach in the efficient application of the Blue Ocean Strategy in Jordanian public shareholding industrial companies. This will lead to the exploration of several secondary objectives, including:

1. Understanding the importance, benefits, and culture of the Six Sigma approach.

2. Highlighting the intellectual significance and objectives of the Blue Ocean Strategy.
3. Examining the impact of the Six Sigma approach on the efficient application of the Blue Ocean Strategy in Jordanian public shareholding industrial companies.

Study Problem and Questions:

Despite the increasing global reliance on modern operational methodologies, many Jordanian public shareholding industrial companies still exhibit limited awareness and implementation of structured approaches like Six Sigma. This gap raises critical questions about how such methodologies might contribute to strategic innovation models—specifically, the Blue Ocean Strategy—which demands efficiency, creativity, and cost optimization. Therefore, this study seeks to examine how adopting Six Sigma might enable more effective execution of Blue Ocean Strategy principles in these organizations.

The study problem is encapsulated in the following research questions:

Main Problem:

Is there a statistically significant impact of using the Six Sigma method (define and measure, analyze, improve, and control) on the efficiency of the Blue Ocean Strategy implementation (elimination index, reduction index, raise index, and creative index) in Jordanian industrial public shareholding companies? The following sub-questions arise from this main problem:

1. Sub-question 1:

"To what extent do the 'Define' and 'Measure' dimensions influence the efficiency of implementing the Blue Ocean Strategy in Jordanian industrial companies?"

2. Sub-question 2:

"How does the 'Analysis' dimension affect the efficiency of Blue Ocean Strategy implementation in Jordanian industrial companies?"

3. Sub-question 3:

"What role does the 'Improve' dimension play in enhancing the efficiency of Blue Ocean Strategy implementation in Jordanian industrial companies?"

4. Sub-question 4:

"In what ways does the 'Control' dimension influence the efficiency of implementing the Blue Ocean Strategy in Jordanian industrial companies?"

Study Hypotheses:

Based on the study problem and its questions, the hypotheses are as follows:

1. Main Hypothesis H0:

There is no statistically significant impact of using the Six Sigma method (define and measure, analyze,

improve, and control) on the efficiency of the Blue Ocean Strategy implementation (elimination index, reduction index, raise index, and creative index) in Jordanian industrial public shareholding companies.

2. Sub-hypotheses:

○ Sub-hypothesis 1:

"There is no statistically significant impact of define and measuredimension on the efficiency of the Blue Ocean Strategy implementation in Jordanian industrial companies."

○ Sub-hypothesis 2:

"There is no statistically significant impact of analysis dimensionon the efficiency of the Blue Ocean Strategy implementation in Jordanian industrial companies."

○ Sub-hypothesis 3:

"There is no statistically significant impact of improvedimension on the efficiency of the Blue Ocean Strategy implementation in Jordanian industrial companies."

○ Sub-hypothesis 4:

"There is no statistically significant impact of controldimension on the efficiency of the Blue Ocean Strategy implementation in Jordanian industrial companies."

Theoretical Framework of the Study:

Six Sigma as a Cost-Effective and Strategic Approach

Conceptual Framework of Six Sigma

According to (Fauzi et al., 2016), Six Sigma is a pioneering strategy adopted by companies to enhance their operational processes, improve business profitability, eliminate waste, reduce costs associated with low quality, and increase the efficiency and effectiveness of all operations to meet or exceed customer needs and expectations. Meanwhile, (Abdul-Aziz et al., 2020) describes it as a comprehensive methodology applied to help innovative companies achieve and maintain continuous success. The term "Sigma" refers to the number of instabilities or defects that occur within a process. Statistically, Six Sigma equates to 3.4 defects per million opportunities (DPMO), which simply indicates the number of errors that would occur if an activity were repeated a million times.

Thus, researchers consider Six Sigma to be a pioneering strategy adopted by industrial companies seeking cost-effective competition on both local and global levels. It aims to achieve continuous improvement in core production processes by reducing costs through minimizing defective production to the lowest possible levels.

Significance and Benefits of the Six Sigma Approach

According to (Martin & Marta, 2020), Six Sigma is not merely a methodology; it is also a strategic and philosophical mindset used by companies to achieve several benefits, including:

- Enhancing processes to accelerate the manufacturing of components.

- Faster delivery of products to customers.
- Saving costs for production departments.
- Ensuring the retention of key customers.

Furthermore, Six Sigma is applicable across production, logistics, and administrative processes. It utilizes a wide array of tools, methods, and techniques.

From (Amit ,2015) perspective, the benefits of Six Sigma are evident in its role as one of the most efficient quality management techniques. It improves profitability and doubles productivity. Many innovative companies emphasize their pivotal role in achieving financial results, which are only possible by virtually eliminating defects in production processes.

In addition to operational excellence strategies like Six Sigma, adopting robust financial reporting standards such as IFRS 1 contributes significantly to enhancing the quality of accounting information. Reliable and transparent financial data is essential for measuring performance, evaluating cost-effectiveness, and supporting continuous improvement decisions within organizations. The adoption of IFRS 1 ensures that stakeholders receive consistent and comparable financial information(Khalil.O, Kattlo.H, 2024) which aligns with the strategic objectives of efficiency and innovation promoted by the Six Sigma methodology.

Six Sigma Culture

According to (Delleci ,2023) and (Abdul-Munim et al.,2015), the culture of Six Sigma consists of the following core elements:

1. Continuous Education and Training:

- All employees at various organizational levels should undergo continuous learning.
- Training programs should be established to equip employees with the necessary skills to perform their work with high efficiency.

2. Awareness of Employee Roles:

- Employees should be made aware of the importance of understanding their roles within the company to achieve the desired success.
- It is essential to make employees feel they are an integral part of the work and success of the company.

3. Respect for Knowledge and Skills:

- The knowledge and skills of all employees within the company must be respected.

- Emphasis should be placed on meeting customer needs, with a focus on committing to the company's success in alignment with the needs and expectations of customers.

Conceptual Framework of Blue Ocean Strategies

There are various perspectives on the concept of Blue Ocean Strategies:

According to (Shafiq et al.,2017), it is a specific model for the success of pioneering companies that creates demand and eliminates competition by following this approach.(Al-Ayoubi ,2020) defines it as the mission of successful and superior companies to create innovative value through strategic movements, far from competition.(Ibrahim , 2019) views it as a set of frameworks and tools for thinking about creating new market spaces, fostering innovations in these markets, and producing new products without competition. Whereas (Al-Ayoubi & Abdel-Halim ,2021) define it as providing distinctive, new, and cost-effective value, emphasizing innovations and creativity unknown to competitors, to save companies from fierce competition.

The Importance of the Conceptual Framework of the Blue Ocean Strategy:

The importance of the Blue Ocean Strategy lies in the following points (Al-Jarjari & Al-Jamil, 2018):

1. It acts as a bridge between leaders and subordinates, aiming to achieve a qualitative leap in institutional work rather than individual efforts. Moreover, it focuses directly on the effectiveness of leaders in light of the realities faced by companies.
2. It keeps pace with developments, updates, and changes, utilizing them to achieve the company's objectives. It serves as an umbrella for all strategies and policies, aiming to realize distributed leadership to foster highly valuable innovation.
3. The company invests its additional time in other administrative practices, procedures, and plans, thereby contributing to the achievement of its objectives.

The Entrepreneurial Objectives of the Blue Ocean Strategy:

The primary drivers for adopting Blue Ocean practices include a range of benefits and advantages that encourage companies to adopt this strategy (Al-Jaradat et al., 2017):

1. Entering new markets.
2. Expanding market share.
3. Avoiding intense competition.
4. Innovating unconventional products and services.
5. Ensuring stability and security.

6. Achieving distinction.

According to (Wanyama, 2024) the integration of lean six sigma helps streamline operations and minimize costs, which in turn facilitates the implementation of blue ocean strategy by enabling organizations to pursue innovative and uncontested market opportunities. Therefore, researchers believe that under the components of Six Sigma, which, if functioning in a cohesive and entrepreneurial manner, will achieve an entrepreneurial application efficiency for the Blue Ocean Strategy in industrial companies, where the problem is defined and measured accurately, then the collected data is analyzed, and the root causes of the problem are identified. After that, improvements are applied to the processes, and necessary experiments are conducted to ensure the effectiveness of these improvements. As for control, it aims to monitor and follow up on the processes to ensure the continuity of achieving the improved performance, which contributes to enhancing the efficiency of the Blue Ocean Strategy in the industrial companies applying it.

Practical Aspect of the Study:

Study Methodology: To describe the phenomena being studied, the study used a descriptive analytical technique. A questionnaire was created to measure the research variables, determine their linkages, and analyze them in order to develop explanations for the data and information, as well as to answer the study problem's questions.

Study Population and Sample: According to the website of the Amman Stock Exchange and the Securities Commission (www.ase.com.jo), the study population consisted of Jordanian public shareholding industrial companies totaling 46 at the end of 2024. The study sample included all companies representing the population being studied, and the unit of analysis and sampling was limited to individuals working in upper and middle management levels in Jordanian industrial companies, with job titles such as Cost Manager, Engineering Design Manager, Production Manager, Purchasing Manager, and Marketing Manager, due to their direct involvement with the Six Sigma methodology and the Blue Ocean Strategy.

A total of six questionnaires were distributed electronically to each company, bringing the total number of questionnaires distributed to 276. The number of questionnaires returned was 235, all of which were statistically acceptable.

Testing the Reliability of the Study Tool: Cronbach's Alpha coefficient was used to assess the tool's reliability in measuring the variables included in the study. The measurement results are regarded statistically acceptable if the Cronbach Alpha value is larger than 0.60 (Raharjanti et al., 2022), and the closer the number is to 100%, the more reliable the study tool. To analyze the consistency of the responses, the internal consistency coefficient (Cronbach's Alpha) was calculated for the study's variables, their dimensions, and the overall study tool. This is as follows:

Table (1): Internal Consistency Coefficients of the Study Tool Items

Number	Dimension	# of items	Alpha
1	Define and measure	4	0.824
2	Analyze	4	0.820
3	Improve	4	0.788
4	Control	4	0.812
5	Using 6 Sigma	16	0.924
6	Elimination index	5	0.841
7	Reduction index	4	0.779
8	Raise index	5	0.841
9	Creative index	5	0.718
10	Efficiency of the Blue Ocean Strategy implementation	19	0.928
11	All items	35	0.961

Table (1) shows that the Cronbach's Alpha internal consistency coefficient values for all of the study tool's items are (0.961), with a total of 35 items. The Cronbach's Alpha coefficient for items indicating the application of the Six Sigma approach is (0.924), whereas the Cronbach's Alpha coefficient for items measuring the effectiveness of implementing the Blue Ocean Strategy is (0.928). As a result, all values are larger than 0.60, indicating that the study tool's items are consistent, reliable, and suitable for statistical analysis.

Statistical Methods Used: The study's data was analyzed and hypotheses tested using the Statistical Package for the Social Sciences (SPSS) application. We employed the following statistical tools:

1. Descriptive statistics incorporate frequencies, percentages, mean values, and standard deviations to explain the study's sample's characteristics and level of agreement with study questions and variables.
2. Apply Cronbach's Alpha coefficient to assess the study's tool's reliability.
3. Use Pearson correlation coefficient to identify multicollinearity.
4. Conducted multiple and stepwise linear regression analyses to assess the hypotheses investigated.

Description of the Demographic Characteristics of the Study Sample:

Table (2): Description of the Demographic Characteristics of the Sample

Variable	Category	Repeats (N=235)	Percentage
Scientific Specialization	Accounting	92	39.2
	Financial and Banking Sciences	21	8.9
	Business Administration	98	41.7

	Economics	24	10.2
Academic Qualification	Diploma	9	3.8
	Bachelor's	157	66.8
	Master's	54	23.0
	PhD	15	6.4
Experience years	<5 years	21	8.9
	5 -<10 years	42	17.9
	10 -< 15 years	69	29.4
	15 -< 20 years	74	31.5
	20 =>	29	12.3
Job title	Cost Manager	52	22.1
	Engineering Design Manager	42	17.9
	Production Manager	49	20.9
	Purchasing Manager	51	21.7
	Marketing Manager	41	17.4

Table (2) indicates that the largest group of the study sample belonged to the "Business Administration" specialization, accounting for 41.7%. This was followed by the "Accounting" specialization, with a percentage of 39.2%. The table shows that most of the sample have a university degree (Bachelor's), accounting for 66.8%. This is a clear indication of the high level of knowledge among managers in Jordanian industrial companies and their reasonable academic qualifications. Additionally, the table indicates that most of the sample had experience ranging from 10 to less than 20 years, accounting for 60.9%. This suggests that the managers in these companies possess the necessary experience to assume administrative positions and perform the duties assigned to them. The table also shows that the study sample is distributed across various job titles with relatively equal percentages. This indicates that the sample is well-qualified to understand the study tool's questions and provide objective and transparent responses.

Description of the Sample's Responses

The study used arithmetic means, standard deviations, and relative significance ratings to describe the sample members' responses to the survey questions and sections. The findings were as follows:

First: Dimensions of Using the 6 Sigma Method

These dimensions included: definition and measurement, analysis, improvement, and control.

Table (3): Arithmetic Means, Standard Deviations, Ranks, and Relative Importance for Using the 6 Sigma Method

Dimension	Mean	S.D	Rank	Relative Importance
Define and measure	4.137	0.752	1	High
Analyze	3.830	0.802	4	High
Improve	3.968	0.742	2	High

Control	3.932	0.780	3	High
Using 6 Sigma	3.967	0.659		High

The sample members' attitudes on the high relative significance of using the Six Sigma approach were demonstrated in Table (3), where the arithmetic mean was 3.967 with a standard deviation of 0.659. With a high relative relevance, the "define and measure" dimension came in first place with an arithmetic mean of 4.137 and a standard deviation of 0.752. However, "analyze" came in last with a standard deviation of 0.802 and an arithmetic mean of 3.830, indicating significant relative importance as well. Each of the Six Sigma method's dimensions showed a high relative relevance.

Second: Dimensions of the Efficiency of Implementing the Blue Ocean Strategy

These dimensions included: the Elimination index, Reduction index, Raise index and creative index

Table (4): Arithmetic Means, Standard Deviations, Ranks, and Relative Importance of the Dimensions of the Efficiency of Implementing the Blue Ocean Strategy

Dimension	Mean	S.D	Rank	Relative Importance
Elimination index	3.914	0.762	3	High
Reduction index	4.221	0.682	1	High
Raise index	4.069	0.769	2	High
Creative index	3.737	0.717	4	High
Efficiency of the Blue Ocean Strategy implementation	3.985	0.652		High

With an arithmetic mean of 3.985 and a standard deviation of 0.652, Table (4) demonstrates that the sample members' attitudes were towards a high level of importance of the aspects of the Efficiency of the Blue Ocean Strategy implementation. With a high relative relevance and an arithmetic mean of 4.221 and a standard deviation of 0.682, the "Reduction Index" came in top. However, the "Creative Index" came in last, demonstrating great relative importance with an arithmetic mean of 3.737 and a standard deviation of 0.717. Every aspect of the Blue Ocean Strategy's implementation efficiency showed a high degree of relative importance.

Testing the Study Hypotheses

Multiple regression analysis and stepwise regression analysis were used in the study to evaluate the hypotheses and provide answers to the questions being investigated. The lack of multicollinearity, a phenomenon that indicates a nearly perfect linear connection between two or more variables and inflates the R^2 value to be bigger than its true value, was tested for in the data prior to the analysis. As a consequence, each variable under test had its correlation coefficient determined, and the following were the findings:

Table (5): Correlation Matrix for the Independent Variables

Variable	Define and measure	Analyze	Improve	Control
Define and measure	1.000			
Analyze	0.517**	1.000		
Improve	0.591**	0.749**	1.000	
Control	0.520**	0.723**	0.764**	1.000

**significant at the 0.01 significance level.

The correlation between the independent variables (Improvement) and (Control) was the greatest, at 0.764, as Table (5) demonstrates. The correlation between the remaining independent variables was lower. Given that correlation coefficients greater than 0.80 may be interpreted as a sign of multicollinearity, this suggests that there is no multicollinearity phenomena among the independent variables in the research (Vatcheva et al., 2016). Thus, it can be said that the problem of excessive multicollinearity does not exist in the study's sample.

Results of testing the main hypothesis of the study H0: There is no statistically significant impact of using the Six Sigma method (define and measure, analyze, improve, and control) on the efficiency of the Blue Ocean Strategy implementation (elimination index, reduction index, raise index, and creative index) in Jordanian industrial public shareholding companies.

Table (6): Summary of the model and Analysis of Variance (ANOVA)

Dependent Variable	Model Summary				ANOVA	
	R	R ²	Adjusted R ²	Standard Error	Calculated F	Sig (F)
Efficiency of the Blue Ocean Strategy implementation	0.907	0.822	0.819	0.273	265.362	0.000

The significance of the model is demonstrated in Table (6), where the value of F=265.362 and the significance level (SigF=0.000), both of which are less than 0.05, validate the model's significance. Furthermore, the link between the independent and dependent variables is shown by the correlation coefficient (R=0.907). With all other variables held constant, the determination coefficient (R²=0.822) shows that the variance in the independent variables accounts for 82.2% of the variation in the effectiveness of the Blue Ocean Strategy's implementation.

Therefore, we reject the main null hypothesis and accept the alternative hypothesis, which is: "There is a statistically significant impact of using the Six Sigma method (define and measure, analyze, improve, and control) on the efficiency of the Blue Ocean Strategy implementation (elimination index, reduction index, raise index, and creative index) in Jordanian industrial public shareholding companies."

Below are the results of testing the hypotheses derived from the main hypothesis, based on the regression coefficients table.

Table (7): Regression coefficients for the main hypothesis

Regression coefficients				
Independent Variables	B coefficient	Standard Error	Calculated T	Sig (T)
Define and measure	0.283	0.030	9.469	0.000
Analyze	0.193	0.036	5.336	0.000
Improve	0.144	0.043	3.319	0.001
Control	0.271	0.038	7.096	0.000
Regression coefficient	0.442	0.112	3.937	0.000

Results of Testing the First Sub-Hypothesis:

With a significance level (Sig.=0.000), the regression coefficient's value of 0.283 shows that the define and measure dimension had a substantial impact on the effectiveness of the Blue Ocean Strategy's implementation. The value of t was 9.469. Therefore, we reject the first sub-null hypothesis, which is: "There is no statistically significant impact of define and measuredimension on the efficiency of the Blue Ocean Strategy implementation in Jordanian industrial companies."

Results of Testing the Second Sub-Hypothesis:

While the value of t was (5.336) with a significance level (Sig.=0.000), the regression coefficient value (0.193) shows that the analyze dimension had a substantial impact on the effectiveness of the Blue Ocean Strategy's implementation. Therefore, we reject the second sub-null hypothesis, which is:

"There is no statistically significant impact of analysis dimension on the efficiency of the Blue Ocean Strategy implementation in Jordanian industrial companies."

Results of Testing the Third Sub-Hypothesis:

With a significance level (Sig.=0.001), the regression coefficient value of 0.144 shows that the improve dimension had a significant impact on the effectiveness of the Blue Ocean Strategy's implementation. The value of t was 3.319. Therefore, we reject the third sub-null hypothesis and accept the alternative hypothesis, which is: "There is no statistically significant impact of improve dimension on the efficiency of the Blue Ocean Strategy implementation in Jordanian industrial companies."

Results of Testing the Fourth Sub-Hypothesis:

At a significance level (Sig.=0.000), the regression coefficient value (0.271) shows that the control dimension had a substantial impact on the effectiveness of the Blue Ocean Strategy's implementation, with a t value of 7.096. Therefore, we reject the fourth sub-null hypothesis and accept the alternative hypothesis, which is: "There is no statistically significant impact of control dimension on the efficiency of the Blue Ocean Strategy implementation in Jordanian industrial companies."

To determine which of the Six Sigma methodology dimensions has the most significant impact on the efficiency of the Blue Ocean Strategy implementation, stepwise multiple regression analysis was used, and the results are shown in Table (8).

Table (8): Results of Stepwise Regression Analysis for the Main Hypothesis H0

Model	Efficiency of the Blue Ocean Strategy implementation	B	T calculated	Level of Sig*	R ²	F calculated	Level of Sig*
First	Control	0.661	20.500	0.000	0.643	420.244	0.000
Second	Control	0.480	15.906	0.000	0.773	394.995	0.000
	Define and measure	0.360	11.512	0.000			
Third	Control	0.326	9.322	0.000	0.813	335.592	0.000
	Define and measure	0.311	10.617	0.000			
	Analyze	0.240	7.070	0.000			
Fourth	Control	0.271	7.096	0.000	0.822	265.362	0.000
	Define and measure	0.283	9.469	0.000			
	Analyze	0.193	5.336	0.000			
	Improve	0.144	3.319	0.001			

*The effect is statistically significant at the level ($\alpha \leq 0.05$).

The stepwise regression analysis findings reveal the sequence in which the variables are included into the regression model, indicating the intellectual influence of utilising the Six Sigma approach on the efficiency of Blue Ocean Strategy implementation in Jordanian industrial businesses. It reveals that (control) came first, accounting for 64.3% of the variance in the dependent variable. When (define and measure) were introduced, the explanatory percentage rose to 77.3%. Adding (Analyze) raised the explanatory percentage to 81.3%. Adding (improve) increased the explanatory percentage to 82.2%. It should be highlighted that the influence of all independent variables was statistically significant at a level lower than 0.05.

RESULTS AND RECOMMENDATIONS

RESULTS

1. High relative importance of using Six Sigma in Jordanian industrial companies, with all dimensions showing high relative importance. This indicates that the management of industrial companies recognizes the importance of improving quality and innovation in their products and processes, achieving efficiency in performance, and focusing on continuous improvement, which helps achieve their goals, enhance competitiveness, meet customer needs, and increase market share. Which is also supported by (Alomari et al.,

2020) that states that the adoption of Lean Six Sigma significantly enhances continuous improvement and operational efficiency in Jordanian manufacturing companies, despite some internal limitations.

2. High relative importance of efficiently implementing the Blue Ocean Strategy in Jordanian industrial companies, with all dimensions showing high relative importance. This indicates that the management of industrial companies understands the importance of achieving competitive advantage, prioritizing sustainability and innovation in their strategy, exploring new markets, expanding their customer base through developing new products and services that meet customer needs in a different and innovative way, and creating new practices and processes that enhance effectiveness, reduce costs, and minimize environmental impacts, leading to success, growth, excellence, increased revenues, and a larger market share. This finding aligns with the findings of (Shehadeh, 2024) which concludes that applying blue ocean strategy is critical in enhancing the sustainable competitive advantage in Jordanian companies.
3. A statistically significant impact of using Six Sigma on the efficiency of the Blue Ocean Strategy implementation in Jordanian industrial companies. This indicates a positive relationship between the use of Six Sigma and the efficiency of applying the Blue Ocean Strategy. Six Sigma is a methodology used to improve process quality and increase efficiency through data analysis, problem identification, and continuous improvement, thereby enhancing the feasibility and success of achieving the goals and expected outcomes of the Blue Ocean Strategy
4. A statistically significant impact of the dimensions of using Six Sigma (Define and measure, analyze, improve, and control) on the efficiency of the Blue Ocean Strategy implementation in Jordanian industrial companies. This indicates the importance of the dimensions of Six Sigma in improving the efficiency of implementing the Blue Ocean Strategy. Definition, measurement, analysis, and improvement are the core of Six Sigma. The problem is defined and measured precisely, then data is analyzed, and the root causes of the problem are identified. After that, improvements are applied to the processes and experiments are conducted to verify the effectiveness of these improvements. Control aims to monitor and follow up on the processes to ensure the continuity of improved performance, which contributes to enhancing the efficiency of the Blue Ocean Strategy in industrial companies.
5. “Control” is considered one of the most influential dimensions of Six Sigma in the efficiency of the Blue Ocean Strategy implementation in Jordanian industrial companies. This may be because applying the control dimension helps ensure the continuity of improved performance and monitors processes to ensure the achievement of targeted results. It also involves determining key performance indicators and monitoring them regularly, which helps improve the efficiency of applying the Blue Ocean Strategy.

Second: Recommendations

Based on the results obtained, the study recommends the following:

1. **Establishing an organizational culture in industrial companies** that focuses on quality and continuous improvement, encourages innovation and flexible thinking, and promotes collaboration and teamwork among all individuals to achieve the defined objectives.
2. **Providing the necessary resources and capabilities** for industrial companies to effectively implement the Six Sigma approach.
3. **Organizing workshops and training programs** by the management of industrial companies aimed at developing and enhancing the skills of employees regarding the principles and concepts of the Six Sigma approach. This ensures the effective use of this approach and its correct implementation, thereby achieving the best results in applying the Blue Ocean Strategy.
4. **Providing effective monitoring and evaluation mechanisms** by the management of industrial companies, including adopting continuous internal audits, performance evaluations, and tracking the implementation of improvement actions.
5. **Adopting practices and procedures** by the management of industrial companies that contribute to fostering a quality culture and adhering to key performance indicators and standards.

Funding

None

Acknowledgement

None

Conflicts of Interest

The author declares no conflict of interest.

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