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# The Impact of ISO 56000 Standard on Managerial Practices towards Sustainable Development -A Prospective Study on an Algerian International Port Company -

***Rayane REZAK***
*RMTQ Laboratory, University of Bejaia, Algeria*
***Assia DJENOUHAT***
*University of Algiers, Algeria*
***Hamid KHERBACHI***
*University of Bejaia, Algeria*
*rayane.rezak@univ-bejaia.dz*

**Abstract**

*The ISO56000 innovation management standards were released in 2019 and 2020. These standards provide guidance to product and process organizations for the development, implementation, and utilization of innovation management systems. The businesses can advance the field of innovation management by putting this certification into practice. This study was conducted to examine the relationship between the leading innovative management companies and management-related businesses regarding the implementation of the ISO 56000 standard in the port company DJEN, Jijel, Algeria. Data was collected using questionnaires from a random sample of 26 respondents. A quantitative methodology has been chosen and treated by SPSS.v26. The effectiveness of the ISO 56000 standard's implementation is the main topic of this study. The findings imply that the port organization must adopt the ISO 56000 standard in order to consistently balance the economics with the environment and enhance skills and staffs involved in the company.*

**Keywords:** *innovation management, ISO56000, managerial practices, principals, company*

**JEL Classification:** O32, Q50

## Introduction

Innovation is now widely recognized as a key growth stimulator for the economy; that is why the top-ranking companies worldwide in terms of sustainable growth and profitability, are innovation leaders. Their major purpose is to boost economic growth in

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order to guarantee welfare and make the quality of life better. Sustainable development is closely connected to innovation management [Gueorguiev, 2021].

Thus, an Innovation Management System Framework that may establish an atmosphere in which innovation is a natural activity engaging all stakeholders can identify the amount of innovation in any area of a business at any moment [Idris & Durmuşoğlu, 2021].

The ISO 56000 was created with the goal of embracing a shared understanding of the notion of innovation and providing a foundation for a systematic and uniform worldwide definition. So the focus of this effort went beyond simply ensuring uniformity within the Technical Committee or the innovation management system, which was published as ISO 56002:2019 [Casanove et al., 2021].

It is not enough to have the desire and interest to put things into action .It also entails being able to put each management system in place by ISO standards. Additionally, this incorporation into a single system requires an associated structure and management systems in order to coordinate its organizational operations and, as a result, boost employee engagement and corporate sustainability [Lopes et al., 2022].

Likewise, sustainable development fits very well with innovation models in terms of renewing products and studying their impacts on the world because it plays a big role in creating business advantages for companies and improving how they act. [Nunhes et al., 2021].

Additionally, managerial practices are essential components or gears in the organizational cycle. As a result, through strategic planning, human resource development, and corporate innovation activities, best management practices based on internal controls favor organizational performance [Suárez, 2016].

Managerial practices are leader-supporting behaviors in which leaders strive to assist and enhance subordinates' service quality to attain competitiveness; hence, it is necessary to investigate how leadership support affects the broader performance environment [Bourini et al., 2019b]. Yang characterizes two management techniques as complimentary if the advantages of adopting one practice boost the benefits of adopting the other. As a result, management strategy must take into account a variety of complementarities inside the firm [Quinn & Scur, 2021]. Leader-supporting behavior is one of these management techniques, in which leaders strive to assist and enhance the service quality of their subordinates in order to attain competitiveness [Bourini et al., 2019].

The overall interest of our study is to assess the capacity for innovation within the port which is considered the leader in Algeria, in order to push it to adopt the new ISO 56000 certification by analyzing the impact of the standard on managerial practices in the port company.

In this perspective, this present work proposes to illustrate, by an approach empirically, the impact of ISO 56000 principals on managerial practices. In this context, we propose our problematic as follows: **"Can ISO 56000 certification contributes to increasing the performance of managerial practices in the frame of sustainable development within the port company? ».**

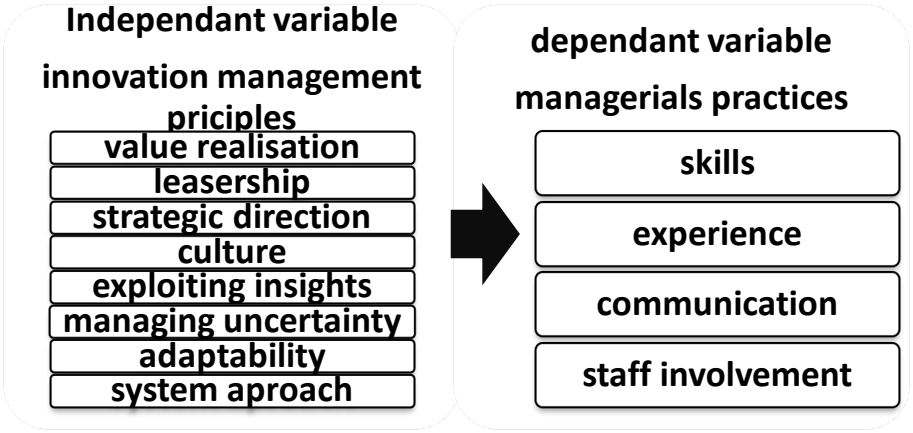
We propose the following hypothesis:

H1: Obtaining the ISO 56000 standard has a positive impact on managerial practices in Algerian Port Company

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Figure 1.

**Modeling variable**




**ISO 56000**

*(Source: Author treatment)*

This overview is followed by the other sections of the paper. The first part covers related literature; Part 2 entails the methodology. The results are then detailed in the next section; In addition, the fourth part entails a discussion of the main results; we provide theoretical and practical implications and conclude in Section.

**1. A brief literature review**

To advance the field of innovation management, the authors present background and reasons for creating a management system standard. Although the ISO 56002 Innovation management system - guide standard is not new, it does provide a common language and structure for developing an innovation capacity. The concepts of innovation management and the system parts are described in the letter. Even establishing a standard for innovation management has been seen as a paradox. The release of ISO 56002, a management system standard for innovation work, in 2019 sparked a larger discussion on the benefits and downsides of such a standard [Hyland & Karlsson, 2021].

Uzunidis et al. [2021] highlighted the background that occurred during the preparation of the drafting worldwide standard for innovation management and even the conditions for implementing an innovation dynamic in an organization. It demonstrates how the experts engaged in the drafting process made decisions that resulted in a recommendation standard that considers the organizational agility needed to deploy any innovation management system.

The ISO 56000:2020 standard was released in 2020 with the goal of providing internationally standardized terminology, a common vocabulary, and frameworks to assist businesses, organizations, and policymakers in organizing their innovation initiatives. The authors' goal is to emphasize the standardization approach to improve the relevance of the terminology standard by including all relevant parties early on. They also discuss how to disseminate the document and plan its amendment once it has been published [Casanove et al.2020].

Because the link between innovation management and managerial practices has not yet been treated and understood, it is unclear which is more important in the workplace. A theoretical framework for the ISO 56000 standard of innovation management has been demonstrated in previous studies. We examine the enterprise's innovation management skills to assist close these gaps empirically. This study provides significant contributions. First, though, prospective research on the impact of the adoption of the new ISO 56000 standards on managerial practices and tested this hypothesis on a certified company in order to encourage making their innovation process standardized.

## 2. Methodology

Following the presentation of several theoretical notions connected to the research variables in the previous two parts, we project these concepts to reality. The research uses an exploratory methodology in a natural environment to assess how ISO 56000 will be implemented in a port company that has previously achieved ISO 9001 certification. We will conduct a field quantitative study based on a survey form designed for this purpose and administered to the various human resources of the Algerian port company of Djen Djen, Jijel, Algeria, which is the largest of the Algerian ports in terms of storage area with 150 hectares and depth with a significant draught of up to 18 meters.

### 2.1 Research method

The goal of this study is to determine the causal relationships between factors such as innovation management principles of ISO 5600 and some managerial practices, including skills, intern communication, experience and staff involvement. As a result, this research is practical in terms of its objective, descriptive in terms of its data-gathering method, and correlational in nature. Finally, the cause-and-effect relationships between these two variables are determined. Based on the questionnaire, a survey was conducted to assess the efficiency of the company's innovation management capacity to adopt the standard among respondents.

### 2.2 Statistical Population and Sample

In this study, a quantitative method is used to assess the link between innovation management capabilities through ISO 56000 principles in the context of managerial practices. We will also conduct a field qualitative research based on a survey form designed for this purpose and sent to the various human resources of the Algerian port firm of Djen Djen, Jijel, Algeria. The emphasis was on persons in positions of authority. Questionnaires will be the main data collection tool. Participants will be provided a cover letter explaining the aim of the questionnaire and assuring them of their confidentiality prior to getting it.

### 2.3 Data Analysis

We will get a collection of data that will be statistically analyzed using various statistical methods to determine the truth of the study sample's opinions regarding the parts of the questionnaire and their value in testing study hypotheses. This sample's data will be analyzed using the Statistical Package for Social Science [SPSS]. Descriptive statistics such

as mean, standard deviation, and correlation coefficients will be examined using SPSS v.26 to determine the validity and reliability of items.

## 3. Results

### 3.1 Testing the reliability and validity test

Cronbach's alpha test was used to measure the extent of the stability of the study tool.

Table1.

**Measuring the stability and validity of the variables**

| Reliability Statistics | |
|---|---|
| **Cronbach's Alpha** | **N of Items** |
| **.911** | **15** |

*(Source: Author treatment)*

The Cronbach's alpha coefficient value is 0.911, which is very high because it is higher than the accepted value of 0.6. Referring to the validity coefficient of the study tool shows that the scale measures what it was designed to measure. It is calculated by calculating the stability coefficient's square root, known as the test validity. The test is accurate, and the credibility of the test is very high, which indicates a good measure to study.

### 3.2 Testing the hypotheses of the study

The respondents were asked to give their opinion on the relation between innovation management principles standards and managerial practices based on adopting ISO 56000.

Table 2.

**The relationship between ISO 56000 principles and managerial practices in the company**

| | Statement | SD | D | N | A | SA | mean | Std. Dev. |
|---|---|---|---|---|---|---|---|---|
| 1 | The organization aims to involve staff by communicating the added value of staff work | 0 | 2<br>7.7 | 4<br>15,4 | 19<br>73.1% | 1<br>3.8% | 3.73 | 0.667 |
| 2 | The quality approach of the company is to think as a team, to question and improve the existing organization | 0 | 1<br>3.8<br>% | 9<br>34.6<br>% | 12<br>46.2% | 4<br>15,4<br>% | 3.73 | 0.778 |
| 3 | The purpose of strategic planning is to set goals overall for your business and develop a plan for reach. | 0 | 1<br>3.8<br>% | 6<br>23.1<br>% | 19<br>73.1% | 2<br>7.7% | 3.77 | 0.778 |
| 4 | The company strengthens managerial skills by involving all stakeholders and improving working conditions | 0 | 6<br>23.1<br>% | 9<br>34.6<br>% | 9<br>34.6% | 2<br>7.7% | 3.27 | 0.919 |
| 5 | The teams in charge of innovation all have the experience necessary to understand the elements that must be eliminated or improved. | 0 | 7<br>26.9<br>% | 8<br>30.8<br>% | 9<br>34.6% | 2<br>7.7% | 3.23 | 0.951 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Statement** | **SD** | **D** | **N** | **A** | **SA** | **mean** | **Std. Dev.** |
| 7 | The performance of the company depends on the efficiency of the communication between employees | 0 | 1<br>3.8 % | 2<br>7.7% | 19<br>73.1% | 4<br>15,4 % | 4 | 0.632 |
| 8 | The company is able to reduce the uncertainty of its partners on their future behavior in obtaining sustainable competitive advantages | 0 | 2<br>7.7 % | 1<br>3.8% | 22<br>84.6% | 1<br>3.8% | 3.86 | 0.613 |
| 9 | The degree of people skills management is very meaningful and always in the first place | 1<br>3.8 % | 7<br>26.9 % | 12<br>46.2 % | 4<br>15,4% | 2<br>7.7% | 2.96 | 0.958 |
| 10 | The development process engages the leaders to clarify the managerial reference with regard to the environment strategic. | 0 | 1<br>3.8 % | 12<br>46.2 % | 12<br>46.2% | 1<br>3.8% | 3.5 | 0.648 |
| 11 | Planning is to the extent that it makes it possible to better schedule the work involved | 0 | 0 | 14<br>53.8 % | 10<br>38.5% | 2<br>7.7% | 3.54 | 0.648 |
| 12 | The company provides employees with the resources needed to carry out the delegated tasks | 0 | 1<br>3.8 % | 8<br>30.8 % | 16<br>61.5% | 1<br>3.8% | 3.65 | 0.629 |
| 13 | The company develops processes to enable everyone to exercise responsibilities | 0 | 7<br>26.9 % | 3<br>11.5 % | 13<br>50% | 3<br>11.5 % | 3.46 | 1.029 |
| 14 | employees possess appropriate skills in the nature of work | 0 | 3<br>11.5 % | 10<br>38.5 % | 13<br>50% | 0 | 3.38 | 0.697 |
| 15 | The company aims to gradually reduce the malfunctions of a company's processes | 0 | 1<br>3.8 % | 7<br>26.9 % | 16<br>61.5% | 2<br>7.7% | 3.73 | 0.667 |
| | Composite Mean Std. Dev. | | | | | | | 3.53<br>0.76 |

*(Source: Author treatment)*

Table 6 lists the information gathered from respondents about the statements evaluating the use of innovation management in managerial practices.

Statement 1: The findings showed that 73.1% of respondents agreed, 15.4% agreed, 3.8% strongly disagreed, and 7.7% neutrally agreed. Most respondents agreed with the statement, as evidenced by the mean score of 3.73 and the standard deviation of 0.667, even if the authoritative deviation figure was high. Therefore, an excellent employee fulfills the needs of the business. Examples of values are productivity, profitability, innovation, and effective leadership.

The second claim was that the company's quality strategy involves team thinking, challenging, and improving the current structure, and re-energizing individuals around a single goal. Accordingly, 15.4% of respondents agreed strongly, 46.2% agreed, 34.6% agreed but were unsure, and 3.8% disagreed. The average answer was 3.73, with a 0.778 standard deviation. This demonstrates that the respondents agreed with the stated opinion.

Therefore, it can be said that the organization places a high value on worker participation and skill management.

According to the data of statement 3, 7.7% of respondents strongly agreed with the statement, 73.1% agreed, 23.1% were unsure, and 3.8%) strongly disagreed. Respondents agreed with the statement, evidenced by the mean score of 3.77 and the standard deviation of 0.778. This might mean that the enterprise is interested in strategic planning to accomplish its goals.

Statement 4 mentioned employees' satisfaction and staff participation. Accordingly, 34.6% of respondents agreed, 34.6% were undecided, 7.7% strongly agreed, and 23.1% strongly disagreed. As seen by the item's mean of 3.27 and standard deviation of 0.919, respondents generally neither agree nor disagree with the assertion. To aid and unite its personnel behind these efforts outside of their professional obligations, the port business of Djen Djen uses all of its resources to advance acts of popular interest. Similarly, the mobilization and dedication of these partners and the whole port family support the port company's strategy.

The results of statement 5 showed that 7.7 % of respondents strongly agreed, 34.6% agreed, 30.8% were unsure, and 26.9 % strongly disagreed. The mean score was 3.23 and the standard deviation was 0.951. This shows that the respondents are neutral about the statement. Teamwork is essential to get things done and innovate by collaborating with all departments: sales, captaincy, operations, audit, and management control...

Statement 6 talks about the principle of exploiting insights of the ISO5600. Based on this, 42.3 % agreed, 30.8 % were neutrals and 26.9 %) strongly disagreed. The mean score was 3.15, and a standard deviation of 0.834, indicating that the respondents are neutrals. This means that the company devotes efforts that allow the orientation of decision-making to achieve objectives.

Concerning statement 7, the findings revealed that 15.4% strongly agreed, 73.1% agreed, 7.7% were unsure, and 3.8% disagreed. The average score was 4.00, with a standard deviation of 0.632, indicating that respondents agreed with the statement that the organization prioritizes the effectiveness of inter-employee communication.

The results in statement 8 indicated that 3.8 % strongly agreed, 84.6 % agreed, 3.8 % were unsure, and 3.8% disagreed with the statement. The mean score was 3.86, and standard deviation was 0.613, showing that respondents agreed with the statement. This can be explained by the adoption of a GRP [online customer relationship management system) which allows the port company to be reactive and simplify the management of customer complaints.

Statement 9 assess the degree of people skills management, the results showed that 7.7% respondents strongly agreed, 15.4% agreed, 46.2% were not sure, and 26.9% disagreed and 3.8% . The mean attained was 2.96 with a standard deviation of 0.958. This indicates that the respondents are neutrals with the statement. The port corporation should put greater emphasis on self-awareness, which is crucial for managers and what distinguishes high performers from their counterparts in the workplace.

The results of statement 10 show that 3.8% respondents strongly agreed, 46.2% agreed, 46.2% were not sure, 3.8% disagreed with the statement. The mean score was 3.5 with a standard deviation of 0.648, showing that the respondents agreed with the statement. Traditional and specific days are often organized in honor of our customers in order to be closer to the market and renew our commitment.

Statement 11 present that planning in business is to the extent that it makes it possible to better schedule the work involved by in order to increase the impact on the result of the business of the target company. Based on this, 7.7%% respondents strongly agreed, 38.5% agreed, 53.8% were unsure. The mean score was 3.54, and a standard deviation of 0.648. This indicates that the respondents agreed with the item. The port company should strive toward a specific aim or mission to be productive and grow its potential.

Based on Statement 12: 3.8 % strongly agreed, 61.5% agreed, 30.8 % were not sure, and 3.8% disagreed. The mean score was 3.65, and a standard deviation of 0.629. This, therefore, shows that the respondents agreed. The firm has a defined code of conduct that everyone follows. The port must ensure that the workers and partners have unfettered access to important information.

The results show on statement 13 that 11.5 % of respondents strongly agreed, 50% agreed, 11.5 % were not sure, and 26.9 % disagreed the statement. The mean score was 3.46 a standard deviation of 1.029, indicating that respondents agree with the statement. Employee training and development programs are critical to the global success of firms. These programs provide opportunities for personnel to develop their abilities.

Statement 14 assesses the degree of people skills; the results showed that 50 % agreed, 38.5% were unsure, and 11.5 % disagreed. The mean attained was 3.38 with a standard deviation of 0.697. This indicates that the respondents are neutral with the statement. This show that Employees benefit from collaboration because when they work together, communicate, and exchange ideas, they see and understand how others work, communicate, discuss, and function. In the previous statement, 7.7% strongly agreed, 61.5% agreed, 26.9% were unsure, and 3.8% disagreed. The mean score was 3.73, with a standard deviation of 0.66 7, suggesting that the respondents agreed.

The organization places a high priority on reducing process faults and increasing overall product or service quality. Finally, it was discovered that the composite mean for value variety was 3.53 with a standard deviation of 0.76. This demonstrates that the respondents agreed with the statements of ISO 56000 principals and their impacts on managerial practices, citing experience, personal skill development, and staff involvement. It is, therefore, reasonable to conclude that ISO 56000 principles have an impact on the managerial practices in the port company.

To identify the nature of the relationship between innovation management principles of ISO 56000 and managerial practices, this part is devoted to verifying the extent to which the hypothetical scheme of the study is in force as follows:

### 3.3 Correlation measurement between innovation management principles of ISO 56000 and managerial practices:

Hypothesis: 'There is a linear relationship between innovation management principles of ISO 56000 and managerial practices If this hypothesis is correct, we put the following hypotheses:

H0: There is no linear relationship between innovation management principles of ISO 56000 and managerial practices

H1: There is a linear relationship between innovation management principles of ISO 56000 and managerial practices.

To determine the degree and direction of the correlation between innovation management principles of ISO 56000 and managerial practices, correlational analysis using the Pearson method was conducted. The results are shown in Table 3.

Table 3.

**Correlational analysis using the Pearson method**

| Correlations | | | |
|---|---|---|---|
| | | innovation | practices |
| Application of ISO 56000 principals | Pearson Correlation | 1 | .849** |
| | Sig. [2-tailed) | | .000 |
| | N | 26 | 26 |
| Managerial practices | Pearson Correlation | .849** | 1 |
| | Sig. [2-tailed) | .000 | |
| | N | 26 | 26 |
| **. Correlation is significant at the 0.01 level [2-tailed). | | | |

*(Source: Author treatment)*

Table 7 gives a Pearson correlation coefficient of 0. 849, with a p-value of 0.000 < 0.05. This shows that the correlation coefficient is statistically significant. Thus, we reject the null hypothesis H0 and accept the existence hypothesis H1. The coefficient shows the existence of a positive association between innovation management principles of ISO56000 standards and the managerial practices in the company, which is statistically significant.

Therefore, there is a strong relation between innovation management principles according to ISO 56000 standards which has a positive influence on managerial practices such as skills, experience, communication, and staff involvement. This finding argued that adopting the new certification of innovation management ISO 56000 will increase managerial practices capabilities of the company and bring a huge benefit in terms of team management and potential employees.

*3.3.1 Regression Analysis of innovation management principles of ISO 56000 and managerial practices*

The research sought and generated regression equation on innovation management principles of ISO 56000 and managerial practices. This led to a regression model whose coefficients are discussed in the subsequent sub-themes.

*3.3.1.1 Model Summary of Regression of innovation management principles of ISO 56000 and managerial practices*

The model summary sought to determine how innovation management principles of the ISO 56000 standards as predictors significantly or insignificantly predicted managerial practices. The regression model summary is presented in Table 8.

Table 4 of the model summary shows a strong positive correlation [R=0.849) between innovation management principles and managerial practices with those predicted by the regression model. In addition, 72.1 % of the variation on managerial practices was explained by the application of innovation management principles if the company adopts the new certification while the remaining 27.9% is explained by other variables, not in the model.

Table 4.

**Model summary of innovation management principles of ISO 56000 and managerial practices**

| Model Summary | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .849[a] | .721 | .709 | .30355 | .721 | 61.935 | 1 | 24 | .000 |
| a. Predictors: [Constant), innovation | | | | | | | | | |

*(Source: Author treatment)*

*3.3.1.2 ANOVA of Regression of innovation management principles of ISO 56000 and managerial practices.*

The study aimed to establish if the regression model was the best match for predicting managerial practices in the company after adopting ISO 56000 certification by applying its principles. The results of the regression coefficient are presented in Table 5.

Table 5.

**ANOVA of regression of innovation management principles of ISO 56000 and managerial practices.**

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 5.707 | 1 | 5.707 | 61.935 | .000[b] |
| | Residual | 2.211 | 24 | .092 | | |
| | Total | 7.918 | 25 | | | |
| a. Dependent Variable: managerial practices | | | | | | |
| b. Predictors: (Constant), ISO 56000 principales | | | | | | |

*(Source: Author treatment)*

The ANOVA results on Table 5 point out that F-statistic 61.935 is significant at p – value 0.000 < 0.05 indicating that the predictor coefficient was at least not equal to zero. Hence, there is a significant relationship between innovation management principles of ISO 56000 and managerial practices.

*3.3.1.3 Regression Coefficient of innovation management principles of ISO 56000 and managerial practices.*

The study sought to establish whether there was an impact of innovation management principles of ISO 56000 and managerial practices. The regression coefficient results are presented in Table 6.

Table 6.

**Regression Coefficient of innovation management principles of ISO 56000 and managerial practices.**

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .016 | .438 | | .036 | .972 |
| | innovation | .943 | .120 | .849 | 7.870 | .000 |
| a. Dependent Variable: practices | | | | | | |

*(Source: Author treatment)*

The regression results in Table 6 give the terms ($\beta 0 = 0.016$, $p<0.05$) and ISO 56000 principles ($\beta 1 = 0.943$, $p<0.05$). So, they are all statistically significant. This leads to the establishment of a regression equation of managerial practices on the principles of ISO 56000 standards given by:

$$Y=0.016+0.943X$$

Showing that for each unit increase in the application of innovation management principles of ISO 56000, managerial practices are marginally transformed by 0.943 units. It was therefore, concluded that the adoption of ISO 56000 and the application of innovation management principles and the improvement of managerial practices skills are positively and linearly related.

**Conclusion**

The study's goal was to investigate the link between the use of ISO 56000 innovation management principles and the managerial practice's capability of the organization in terms of skill and communication improvements and staff participation.

The researchers came to the following conclusions:

- The new ISO56000 mandates that employees at all levels be somewhat involved in the quality administration framework. Upper management has a responsibility to improve communication and processes throughout the company.
- Innovation management concepts of ISO 56000, such as value realization, culture, and leadership, create strong linkages within the workplace. Thus, it was determined that managerial practices and the innovation management principles of ISO 56000 had a significant positive link.

Because the standards are meant to be easily incorporated into other well-known management system standards, particularly ISO 9001, ISO 56000 certification is also essential. In order to promote innovation within organizations, they employ a systems approach to managing innovation. They produce benefits both inside and outside the company to promote a long-lasting innovation culture. Therefore, this information must be confirmed to the port company. The Port of Djen Djen is already certified of ISO 45001 version 2018, ISO 14001 version 2015, and ISO 9001 version 2015 certifications for its integrated management system SMI, which makes integrating ISO 56000 simple.

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