



The Impact of Using the Continuous Improvement Technique (KAIZEN) on the Human Resources Performance in Five-Star Hotels in Greater Cairo

تأثير استخدام أسلوب التحسين المستمر (الكايزن) على أداء الموارد البشرية في الفنادق الخمس نجوم بالقاهرة الكبرى

By

**Shaimaa Ali
Fawzy**

lecturer, Department
of Hotel Studies

**Prof. Sherif
Gamal Saad**

Professor,
Department of Hotel
Studies

**Mohamed Abdel
Fattah Zohry**

Professor, Department of
Hotel Studies

Faculty of Tourism and Hotels, Mansoura University

Doi: 10.21608/kjao.2025.416063

٢٠٢٥ / ٢ / ١٢

استلام البحث

٢٠٢٥ / ٢ / ٢٨

قبول البحث

Fawzy, Shaimaa Ali & Saad, Sherif Gamal & Zohry, Mohamed Abdel Fattah (2025). The Impact of Using the Continuous Improvement Technique (KAIZEN) on the Human Resources Performance in Five-Star Hotels in Greater Cairo, *Arab Journal of Tourism, Hospitality and Archaeology Sciences*, Arab Institute for Education, Science and Arts, Egypt, 6(10), 213-248.

<http://kjao.journals.ekb.eg>

The Impact of Using the Continuous Improvement Technique (KAIZEN) on the Human Resources Performance in Five-Star Hotels in Greater Cairo

Abstract:

This research aims to measure The Impact of using the continuous improvement technique (KAIZEN) on the human resources performance in five-star hotels in Greater Cairo. To achieve this objective, questionnaire was developed and distributed on a random sample of employees in five-star hotels in all departments. The number of valid form questionnaires for statistical analysis was 396 (81.6%) valid, before the start of the training program, and after the end of the training, it was a period of six months for the possibility of using kaizen by the study sample hotels, then 396 questionnaires were distributed again, and the number of questionnaires was valid 396 to see the difference in results before and after kaizen training. The general result Kaizen staff experiences and practices before the kaizen training, , the average value was 1.8 and after the training it became a greater value, which is 3.42. the general recommendation Kaizen Technique, big achievements come from small and incremental changes. Eliminate obstacles in operation that slow down order completion or cash collection. Find ways to provide customers with more value and a better accommodation experience with greater profit, because quality plus speed equals lower cost.

Key words: KAIZEN, Continuous Improvement Technique, HR performance indicators, practical skills.

المستخلص:

هذا البحث يهدف الى دراسة تأثير استخدام أسلوب التحسين المستمر (الكايزن) على أداء الموارد البشرية في الفنادق الخمس نجوم بالقاهرة الكبرى. وقد قامت الباحثة بتوزيع عدد (٤٨٥) استبانة قياس الأداء الفندقي على فنادق عينة الدراسة. بواقع ٦٠ استبانة من كل فندق من فنادق العينة. بلغ عدد الاستبيانات الصالحة للتحليل الإحصائي ٣٩٦ (٨١.٦٪) صالحة ، قبل بدء البرنامج التدريبي ،

وبعد انتهاء التدريب كانت فترة ستة أشهر لإمكانية استخدام كايزن ومعرفة مدى أثره على الأداء الفندقى ، ثم تم توزيع ٣٩٦ استبانة مرة أخرى ، لمعرفة الفرق في النتائج قبل وبعد التدريب وأثره على الأداء. والنتيجة العامة هي تجارب وممارسات موظفي كايزن قبل تدريب كايزن كان متوسط القيمة ١.٨ وبعد التدريب أصبحت قيمة أكبر وهي ٣.٤٢. وأهم توصية عقد دورات تدريبية لموظفي الفنادق تهدف إلى تحسين مستوى أدائهم وتنمية مهاراتهم السلوكية والعملية باستخدام كايزن.

الكلمات المفتاحية: كايزن – تكنيك التحسين المستمر – مؤشرات أداء الموارد البشرية – المهارات العملية.

Introduction

Kaizen is a Japanese word meaning a process of continuous improvement of a standard way of working (Chhikara, 2017). It swept the whole world after its introduction (Imai, 2021), which noted the real-life advantages of this approach. It advocated endless efforts to improve with the participation of everyone in the hotel (Mosadeghrad, 2014). Hence, this idea and technology had not only been fanatically introduced into the business but had also become the focus of academia.

Some of the factors included a lack of diversity and quality in products and services, lack of access to finance for new investments and renewals, working capital requirements, lack of formal training and educational opportunities for employees, and obstacles in the institutional environment to their acquisition. Operating licenses and approvals (Phan *et al.*, 2017). In other words, the internal and external factors affecting financial performance were varied, and range from micro-level factors in operational inefficiencies - due to staff training, equipment investment, and funding availability - to macro-level problems, such as the institutional environment and product/service standardization systems. Hotel performance can

also be measured by various strategic variables (such as size, type of hotel management, competitive advantage) and business strategies (such as resource commitments and scope of activities) (Claver Cortés *et al.*, 2015).

Research's Problem

The research problem lies in asking the following question:

- What is the impact of implementing the Kaizen continuous improvement strategy on achieving success and excellence on the human resources performance in in five-star hotel?

Research's Aim

Accordingly, the research aims to measure the impact of using the continuous improvement technique (Kaizen) on the Human Resources Performance in Five-Star Hotels in the Greater Cairo.

Research's Importance

The importance of the research lies in the use of the Kaizen technique and its application in five-star hotels to improve Human Resources performance.

Research Hypothesis

Based on the reading about the subject of kaizen, the research hypothesis suggested as follows:

- H1- There are statistically significant differences between the average skills of using kaizen among employees in five-star hotels before and after the training program.

1.7 Researcher Study Gap Analysis

Table (1): Researcher Study Gap Analysis

Study Gap	Study's Aim	Study's Sample / Population	Study's Results/ Recommendations
Performance measurement dimensions for Sri Lankan hotel industry an expert review By: (P. C. A. Osmadi,202)	The objective was to review expert opinion on dimensions of organizational performance of the hotel industry. The expert panel consists of academics, senior and middle management of the hotel groups, a representative of the Tourism Development Authority and travel advisory organization and opinion leaders in the hotel industry.	Prioritizing dimensions of hotel industry performance based on expert review.	The result is 10 key indicators of enterprise performance dimensions which are market share, sales growth, star rating, net profit, individual employee performance, ability to adjust guest needs, guest evaluation of staff, room turnover, number of environmental projects implemented, and competitors' performance.
Kaizen, a continuous improvement practice in organizations A comparative study in companies from Mexico and Ecuador By: (Karla María Alvarado-Ramírez and Víctor Hipólito	The objective was to compare continuous improvement practices applied in medium and large manufacturing and service companies. At the same time, the benefits and barriers faced by these companies in relation to the sustainability of continuous improvement are explored.	A comparative study of interviews country managers and a comparative study associated with continuous improvement. Data were collected through document analysis, semi-structured interviews, and direct observation.	The study was of great interest to researchers, managers, consultants, and professionals associated with continuous improvement projects who wish to incorporate continuous improvement practices that are sustainable over time. New management behavior is the basis for continuous improvement, as training and development of human resources increases commitment to

Pumisacho-Álvaro, 2018)			achieving organizational changes.
Understanding Satisfied and Dissatisfied Hotel Customers: Text Mining of Online Hotel Reviews By: (Berezina, K., Bilgihan, A., Cobanoglu, C., and Okumus, F., 2016).	The aim examined the foundations of satisfied and dissatisfied hotel customers. A text-mining approach was taken and online reviews by satisfied and unsatisfied customers were compared.	Online reviews of 2,510 hotel guests were collected from TripAdvisor.com for Sarasota, Florida.	The results of the study indicate that satisfied customers who are willing to recommend a hotel to others refer to intangible aspects of their hotel stay, such as staff, dissatisfied customers frequently mention tangible aspects of a hotel stay, such as furniture and finances. The study offers clear theoretical and management implications related to understanding satisfied and dissatisfied customers through the use of text mining and hotel ratings via review websites, social media, blogs, and other online platforms.
The implementation of Total Quality Management (TQM) in the hotel industry By: (Mukhles, M. Al-Ababneh	The purpose was classifying the sampled hotels based on their TQM score which representing the level of TQM implementation into different groups The overall score of TQM was measured by accounting the scores of 12 Critical	Quantitative scanning method was applied. Data was collected from a sample of managers from four and five star hotels.	Results indicated that there were differences between hotels in terms of the overall TQM score which are 12 critical success factors for successful implementation of TQM across more than 35 empirical studies conducted in both manufacturing and

2021)	Success Factors.		service organizations, namely: Senior Management Commitment (F1) Leadership Support (F2), Role of the Quality Department (F3), Supplier Quality Management (F4), Quality Data and Reporting (F5), Product/Service Design (F6), Personnel Management (F7), Operations Management (F8) and Education and Training (F9) Continuous Improvement (F10) Customer Focus (F11) Quality Planning (F12)
-------	------------------	--	---

Previous studies dealt with different ideas about the impact of kaizen based on hotel performance, as well as about employees' perceptions of kaizen using and its impact on performance, then steps that affect the operation performance employees and improve their organizational performance to implement well, while the Current search are based on studying the relationship between kaizen and hotel performance.

Review of Literature

Kaizen Concept

Kaizen was a Japanese word meaning a process of continuous improvement of a standard way of working (Chhikara, 2017). It swept the whole world after its introduction (Imai, 2021), Kaizen had also been defined by the Western interpretation of Kaizen as "continuous improvement (CI)".

Imai's definition of Kaizen also consists of "CI". Kaizen was defined as “continuous improvement that involves everyone – top management, managers, and employees

Kaizen Philosophy Principles

World-class manufacturing strategies such as the Kaizen philosophy carry principles. However, kaizen philosophy included the concept of kaizen (CI) and kaerio (process improvement) (Imai, 2022). According to Kaizen, the philosophy comprised four main principles:

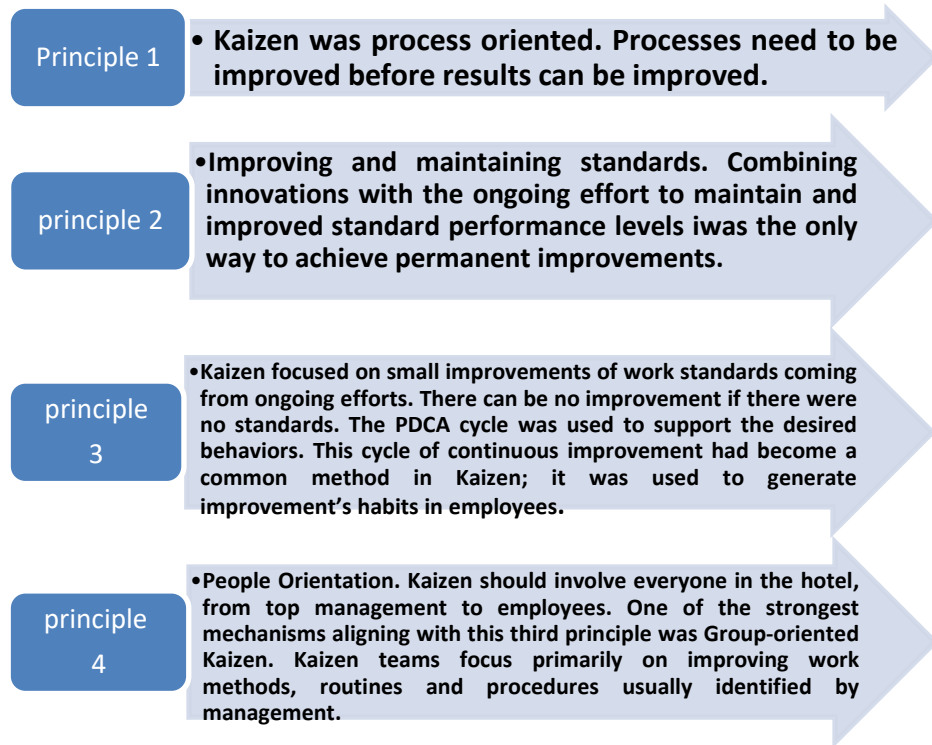


Figure (1) Kaizen Philosophy Principles adapted by the researcher based on (Imai, 2022)

In the Kaizen philosophy, employees from different levels of the hotel worked together to solve problems or improve

operations that focused on solutions that did not require large capital investments. The team identified ways to eliminate waste quickly, and improvements, or kaizen events, were typically implemented within 72 hours of the start of the event (Delic *et al.*, 2014). Kaizen hotels typically had flatter hotels and lower hierarchies to involve all employees in change. Management should feel comfortable working in the hotel with the staff and not leave too much distance between them and the staff (Demirbas *et al.*, 2022).

Self-organizing work teams: A group of employees was responsible for a specific part of a product or service. Members made decisions regarding assignment of tasks, working methods, etc. It was usually formed by multifaceted people who perform many interrelated tasks with skilled and varied work (Alvarado-Ramirez *et al.*, 2018). The team may be responsible for support services (maintenance, quality control or material supply). Teamwork sometimes played employee management roles (recruiting, firing, paying, and training). There was less autonomy in teams and there was a manager personality. With more independent groups, the manager figure disappears and shifts to the role of facilitator, and the majority of decisions were made by the employee group (Oropesa *et al.*, 2015).

In general, the topic of teamwork had been discussed in the available literature alone and in relation to factors of continuous improvement and kaizen activities. For example, (Phan *et al.*, 2017) linked the factor that effective teamwork plays with the factor of employee training by suggesting that initial training efforts for continuous implementation should include education aimed at increasing teamwork. When teamwork was lacking, it would limit continuous improvement. Fryer *et al.*, (2013) pointed out the important role managers can play in developing teamwork and addressing barriers to teamwork, such as interpersonal conflicts. Similarly, McDermott

et al., (2022) identified the importance of training supervisors in methods of effective communication with employees. Dudin *et al.*, (2017) recommended that supervisors train employees on Kaizen teams by questioning them “in order to think of a Kaizen [event] enough to implement it successfully.” This way, team members can learn firsthand how to implement kaizen so that they can train themselves (Oropesa *et al.*, 2015).

The concept of Hotel Performance

It was assumed that “the performance of the hotel was the combined efforts of the various departments, including the front and back of the house” (Lavigne, 2018). Hansen, (2021) with DeNisi *et al.*, (2017) agreed with the need to clarify and codify hotel performance measurement indicators. However, none of the current study attempts included all indications recorded. In addition, the current attempts had in detail the two sets of financial/economic and non-financial/economic indicators. Anderson *et al.*, (2014) showed that the present manuscript aims to partially base on fairly existing classifications (on the one hand, financial statement analysis, financial indicators, and on the other hand, hotel performance, which focuses on sets of financial or non-financial indicators), made the necessary adjustments by proposing A new group that took into account all the indicators.

DeNisi *et al.*, (2017) showed that after implementing a management strategy, managers must measure its organizational effectiveness by measuring hotel performance data. Performance may vary depending on whether it had been evaluated from a customer or stakeholder perspective or according to the time period used for that evaluation. Business performance can be measured using financial indicators, operational (non-financial) indicators, or both (Lavigne, 2018).

Taylor *et al.*, (2019) summarized the performance indicators used in the hotel sector and put them into three

categories: operational (occupancy, customer satisfaction and service quality orientation), operational, financial (profit, volume, profit, service quality, profit, volume, customer satisfaction), and financial performance (financial ratios, stock prices, margins, finance). Many emphasized measuring operational performance, particularly in terms of occupancy, price and revenue per available room (Sharma *et al.*, 2017).

Non-financial Performance Indicators

Although measuring financial performance was important, the use of a more comprehensive set of indicators may provide greater opportunities for measuring organizational strategy and long-term effectiveness. Therefore, in order for organizations to remain competitive, they now need to consider non-financial or operational results. Blomberg *et al.*, (2016) was finding in performance management call for a focus on financial and non-financial dimensions such as competitiveness, service quality, customer satisfaction, organizational flexibility, use of resources and technology. It was important for performance measures to draw attention to non-financial factors such as service quality and customer satisfaction (Speer *et al.*, 2020). Furthermore, there had been a growing recognition within the hotel industry of the importance and value of people; employees as well as guests in the service delivery process, leading to suggestions that hotels need to develop better performance information related to key areas such as employee morale and employee satisfaction. Tortorella *et al.*, (2019) reported the use of non-financial measures in the Balanced Scorecard as a performance management system to support reporting on various management activities.

Sharma *et al.*, (2017) identified non-financial and financial key performance indicators for hotels such as total revenue generated, food and beverage sales, total operating costs, total sales, customer satisfaction surveys, market share,

room occupancy, and delivery speed resilience. Tortorella *et al.*, (2020) revealed that measures of non-financial performance (growth perspective, internal process perspective, and customer perspective) not only directly influence measures of financial performance but also indirectly affect performance through cause-and-effect relationships between various stakeholders consideration. The study concluded that many hoteliers use both financial and non-financial measures to measure the performance of the hotels (Lawrence *et al.*, 2015). While investigating the application of the balanced scorecard in White Lodging Services, Mwaniki *et al.*, (2019) justify the importance of both financial and non-financial measures of the balanced performance of hotels.

Employees' Performance in Hotel Sector

Junget *al.*, (2016) showed that without the support of human resources, another distinct resource cannot be well planned to achieve the desired objective. Without human effort, factories, work cases, computers, types of automated devices, etc., would be unable. Human resources were the main variable in the development of any management body. Hence, management was conceived as a procedure for achieving the objectives of the enterprise by using different people and assets. Training personnel can help hotels overcome increasing difficulties and high intensity to achieve profitability (Choi *et al.*, 2015). Based on the idea of Jung *et al.*, (2016) it was appropriate to undergo training in every organization in order to reconcile increasing methods in maximizing performance. Since training and development includes all endeavors to build profitability by expanding an employee's ability to perform better, its importance should not be underestimated because the expenditure of training employees was clearly an enterprise project (Narban *et al.*, 2016). According to the words of Jung *et al.* (2016), it

highlighted that all aspects of training should be taken into account, because it was clearly a boon to the hotel.

The work of hotels in the face of inflated competition attributable to adjustments at the outset, policy making, and financial environment (Choi *et al.*, 2015) prompted these establishments to train their employees apparently to prepare them to adapt to the above increases and thus improve their performance. It constitutes an inescapable omission in the following compelling evidence of the evolution of learning in the business enterprise, and hotel world in the past decade. These advances had not only been achieved by first-emergence improvements or integrating upstream factors, but also amplification of attempts towards reliable human resource optimization. Hence, within all affiliations, it constitutes the duty to improve the job performance of the employees as well, and certainly to carry out training. In this way, managers must ensure adequate supply of things that were actually socially capable and ready for functional improvement in head offices or managerial positions (Murphy, 2020).

Research Methodology

The study originated from a need to measure The Impact of using the continuous improvement technique (KAIZEN) on the human resources performance in five-star hotels in Greater Cairo. Eight out of twenty-nine five-star hotels in Greater Cairo were selected to conduct the study. The study was conducted on a random sample of hotels and staff to investigate their perceptions towards using kaizen. The investigated hotels were shown in table (2).

Table (2): The Investigated Hotels

No.	Hotels	Address	Distributed number	Retrieved number
1-	Ramses Hilton	Nile Corniche, Maspiro Cairo	61	50
2-	Le Passage Cairo	Airport Rd, Sheraton Al	60	49

	Hotel & Casino	Matar, El Nozha, Cairo		
3-	Sonesta Hotel Tower & Casino Cairo	Nasr City , Cairo	60	49
4-	The Nile Ritz-Carlton, Cairo	Corniche El Nil, Cairo	61	50
5-	Pyramisa Hotel	Dokki, Giza	60	49
6-	Safir Cairo Hotel	Al Misaha, Sq ,Dokki, Giza	62	49
7-	Mövenpick 6th of October, City	First 6th of October, Giza	61	50
8-	Sofitel El Gezirah Hotel	El Orman, Giza,	60	50

Source: Egyptian Hotel Guide (2016)

To achieve the research aim, employees in hotels were surveyed. Due to the difficulty of surveying employees in hotels, this study chosen in Greater Cairo as a representative sample of the five star hotel's society. The sample equation was applied to unlimited society as follows:

N:Sample size, **P:** Percentage of the purpose of this study 0.50, **d:** Percentage of the error limit allowed 0.05, **Z:**The standard degree used for giving general results is 95%. Thus, the standard degree = 1.96.

$$n = \frac{N \times p(1-p)}{[N - 1 \times (d^2 \div z^2)] + p(1-p)}$$

$$N: \frac{250000 \times 0.50(1-0.50)}{[(250000-1 \times (0.05^2 \div 1.96^2) + 0.50(1-0.50))]} = 383.58 \sim 384$$

The study population is not limited because of the difficulty in determining the number of employees in five-star hotels in Greater Cairo, so the random sample size is an ideal method for application in this study. According to Thompson, (2012) the minimum respondent, fit in this study is 384. 396

electronic questionnaires were designed and distributed from November 2021 to May 2022. The questionnaire consisted of two parts. The first section aims to disclose employee demographic data. The second section aims to reveal employees' perception of kaizen. The respondents were asked to answer these statements by using a five-point Likert-type scale (Strongly agree = 5, agree = 4, don't know = 3, disagree = 2 and strongly disagree = 1) to determine the levels of agreement with the statements investigated. The Statistical Package for the Social Sciences (SPSS) version 25.0 was used to analyze and compute the collected data. The range of each level of agreement was calculated as follow:

Table (3): Questions Answered Scale

Category	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Code	1	2	3	4	5
Range	1 – 1.80	1.81–2.60	2.61-3.40	3.41–4.20	4.21 - 5

Results and Discussion

Respondents' Profile

These questions were concerned with recognizing the personal data of respondents as for; gender, age, marital status and level of education.

Table (4): Demographic data

Attribute		F	%
Gender	Male	306	77.3%
	Female	90	22.7%
	Total	396	100.0%
Age	From 18 to less than 35 years	122	30.8%
	From 35 to less than 45 years	168	42.4%
	From 45 to less than 60 years	106	26.8%
	Total	396	100.0%
Marital status	Single	74	18.7%
	Married	96	24.2%
	Married with children	163	41.2%

	Others	63	15.9%
	Total	396	100%
Department	Room Division	83	21.0%
	Food and Beverages Department	111	28.0%
	Human Resources Management Department	73	18.4%
	Accounting Department	32	8.1%
	Sales and Marketing Department	70	17.7%
	Engineering and Maintenance Department	18	4.5%
	Security Department	9	2.3%
	Total	396	100%
Level of education	Secondary school	143	36.1%
	University degree	205	51.8%
	Post-graduate	48	12.1%
	Total	396	100%
Years of experience	Less than 5 years	160	40.4%
	From 5 to 10 years	92	23.2%
	More than 10 years	144	36.4%
	Total	396	100%

From the statistical data shown in Table (4), it is clear that more than half of the respondents are male, with a percentage of (77.3%). While the percentage of females was (22.7%).

By observing the age group of the respondents, it becomes clear to us that From 35 to less than 45 years, with a percentage of (42.4%), while are of the age group of from 18 to less than 35 years, while (30.8%) of the age group From 45 to less than 60 years, their percentages were (26.8%).

Concerning the marital status of the respondents, it was clear that the most of the respondents are those with married with children at a rate of (41.2%), while married persons represented with (24.2%), while (18.7%) of the marital status single. The lowest group (15.9%) was between widows and

divorced. The most committed in training was the single marital status.

Concerning the hotel departments of the respondents, it was clear that the most of the respondents are those with food and beverages department at a rate of (28%), while room division represented with (21%), while (18.4%) of the human resources management department, The sales and marketing department group represented with (17.7%), The lowest groups are accounting department, engineering and maintenance department and security department their percentages were (8.1%), (4.5%) and (2.3%), respectively.

From the data shown in the table above, , it became clear that there were more than half, with (51.8%), with a university education level, and then in the order of those secondary school level at a rate of (36.1%), while the group of Post-graduate was represented by (12.1%).

By observing the age group of the respondents, it becomes clear to us that less than 5 years, with a percentage of (40.4%), while are of more than 10 years group, represented with (36.4%). of the From 5 to 10 years group, their percentages were (23.2%).

Agree with Glover *et al.*, (2014) developed various models to understand the complex nature of team experience, to measure and map important aspects, and to create concrete action steps for their development. Building a successful team was not easy because the teams themselves may not have the skills or knowledge to create an environment in which they can develop. Critical input and process factor for maintaining outcomes in Kaizen events identified by Van Assen *et al.*, (2016) and factors associated with CI sustainability.

Table (5): In your opinion, what was kaizen?

What was kaizen	F	%
Quality system	152	38.4%
Production system	244	61.6%
Total	396	100%

As shown in table, with regard to respondents' about kaizen definition, the results showed that the majority of respondents said production system (61.6%). Meanwhile, (38.4%) said quality system.

Agree with Imai, 2021 showed that kaizen meant changing things and making them better, or just improving them. The Japanese word Kaizen was derived from two Japanese words, "Kai" (改) meaning change and "Zen" (善) meaning for the better.

Statistical tests for the study

Pearson Correlations

Table (6): Pearson Correlation "kaizen activities"

<i>Aims of applying kaizen activities</i>	<i>Pearson Correlation</i>
The hotel had kaizen knowledge strategies	0.716**
Improving job satisfaction and efficiency	0.709**
Improving service and product quality and reducing wastes	0.765**
Improved quality outcomes and reducing inventory	0.802**
Increasing customer satisfaction	0.730**
Improving hotel's competitiveness and sales growth	0.806**

****.** *Correlation is significant at the 0.01 level*

It is clear from the previous table that the values of the Pearson correlation coefficient between the scores of the sample members on the items with Aims of applying kaizen activities and the total degree of the dimension ranged between (0.709) and (0.806), all of which came as a function at the significance level (0.01), which confirms the validity of Paragraphs used to measure this dimension.

Table (7): Pearson Correlation "personal skills"

<i>personal skills</i>	<i>Pearson Correlation</i>
the staff was responsible and respectful	0.919**
The staff belonged to the hotel and cooperation	0.906**
the staff was Humble	0.863**
Smart and effective staff	0.918**

****.** *Correlation is significant at the 0.01 level*

It is clear from the previous table that the values of the Pearson correlation coefficient between the scores of the sample members on the items with personal skills items and the total score for the dimension ranged between (0.863) and (0.919), all of which were indicative at the level of significance (0.01), which confirms the validity of the items used in Measure this dimension.

Agree with Amin *et al.*, (2017) a Kaizen champion with a good personal understanding of Kaizen procedure, high personal desired and commitment to lead continuous improvement activities can become a critical change agent in a hotel.

Table (8): Pearson Correlation "Leadership skills"

<i>Leadership skills</i>	<i>Pearson Correlation</i>
Staff suggestions were taken into account	0.948**
staff was trained to be leaders	0.961**
Staff opinion was taken when making hotel plans	0.968**

****.** *Correlation is significant at the 0.01 level*

It is clear from the previous table that the values of the Pearson correlation coefficient between the scores of the sample members on the Items with Leadership skills items and the total score for the dimension ranged between (0.948) and (0.968), all of which were indicative at the level of significance (0.01), which confirms the validity of the items used in the measurement this dimension.

Table (9): Pearson Correlation "Communication skills"

<i>Communication skills</i>	<i>Pearson Correlation</i>
The staff was efficient and reliable	0.873**
The performance of staff was characterized by	0.896**

speed and accuracy	
The staff was flexible and adaptable	0.901**

***.* Correlation is significant at the 0.01 level

It is clear from the previous table that the values of the Pearson correlation coefficient between the scores of the sample members on the Items with Communication skills items and the total score for the dimension ranged between (0.873) and (0.901), all of which were indicative at the level of significance (0.01), which confirms the validity of the items used in the measurement this dimension.

Table (10): Pearson Correlation "Kaizen staff experiences and practices"

<i>Kaizen staff experiences and practices</i>	<i>Pearson Correlation</i>
staff searched for information, new ideas and technologies	0.965**
staff took reasonable with the new ways of doing work	0.913**
the staff had a clear statement of its goals	0.834**
The hotel frequently communicated its business goals and strategies with employees	0.940**
staff let participating the evaluation	0.923**
staff received regular training	0.941**
Training sessions had improved staffs' skills	0.956**

***.* Correlation is significant at the 0.01 level

It is clear from the previous table that the values of the Pearson correlation coefficient between the scores of the sample members on the items with Kaizen staff experiences and practices, and the total score for the dimension ranged between (0.834) and (0.965), all of which came as a function at the significance level of (0.01), which confirms the validity of the items used to measure this dimension.

Table (11): Pearson Correlation "Teamwork"

<i>Teamwork</i>	<i>Pearson Correlation</i>
staff was knowledgeable of other teammates' job duties and functions	0.803**
Managers communicated each team member's job duties and functions	0.882**
Duties and functions were effectively delegated among team members	0.806**
the staff actively identified barriers to teamwork	0.847**
the staff had difficulties in establishing effective teamwork	0.894**
Lack of understanding of other teammates' roles and responsibilities was a challenge to teamwork in the hotel	0.903**
creating small teams with employees with different job functions	0.921**
using job rotations to have multifunctional staff	0.937**

***.* Correlation is significant at the 0.01 level

It is clear from the previous table that the values of the Pearson correlation coefficient between the scores of the sample members on the Items with Teamwork items and the total score for the dimension ranged between (0.803) and (0.937), and all of them came at a significance level of (0.01), which confirms the validity of the items used in measuring this The dimension.

Table (12): Pearson Correlation "Technique of using kaizen"

<i>Technique of using kaizen</i>	<i>Pearson Correlation</i>
Using cause and effect diagrams for quality planning and control	0.831**
Using the 5S model to arrange, organize and coordinate the work	0.702**
Using "quality circles" for quality planning and control	0.754**
Using PDAC to improve the quality	0.863**
Planning and Quality Control Supervisor	0.822**
Improving decisions can be made about Jemba Kaizen	0.794**
Using the 5 Whys to analyze performance and solve problems	0.890**
Using Three M to reduce waste	0.795**
Allowing changes and modifications to be made to reduce defects	0.793**

***.* Correlation is significant at the 0.01 level

It is clear from the previous table that the values of the Pearson correlation coefficient between the scores of the sample members on the Items with Technique of using kaizen items and the total score for the dimension ranged between (0.702) and (0.890), all of which came as a function at the significance level (0.01), which confirms the validity of the items used in measuring this dimension.

Table (13): Pearson Correlation "HR performance indicators"

<i>HR performance indicators</i>	<i>Pearson Correlation</i>
Hotel employees were, evaluating and rewarding managers were going to the production places	0.868**
management supported the hotel's Kaizen initiative and activities	0.845**
Quality Control Circles were used to make improvements and develop plans	0.892**
staff accepted changes made as a result of Kaizen events	0.874**
Employees' suggestions were taken in the hotel	0.826**
The staff's used ' problem solving' teams before	0.785**
After started practicing Kaizen we had improved customer satisfaction	0.661**
staff participated input on hotel strategies	0.729**
Shared values like trust, commitment and honesty of staff	0.785**
Employees were knowledgeable of other teammates' job responsibility	0.854**
Monitoring of performance of individual employee innovators	0.854**
Employee performance appraisal	0.897**
The staff participated in their departments plans	0.848**
Employees participated with senior management in setting goals for each department	0.421**
	0.706**

**, *Correlation is significant at the 0.01 level*

It is clear from the previous table that the values of the Pearson correlation coefficient between the scores of the sample members on the items with HR performance indicators and the total score for the dimension ranged between (0.421) and

(0.897), all of which came as a function at the significance level (0.01), which confirms the validity of the items used in Measure this dimension.

Testing Hypotheses

H-1 There are statistically significant differences between the average skills of using kaizen among employees in five-star hotels before and after the training program.

Table (14): Measuring mean and standard deviation before and after training for skills

Attribute	Before		After	
	Mean	Std. Dev.	Mean	Std. Dev.
Skills to be available in kaizen staff				
Personal skills				
The staff was responsible and respectful	1.78	1.38	3.35	1.47
The staff belonged to the hotel and cooperation	1.95	1.28	3.24	1.18
The staff was Humble	2.15	1.08	3.51	1.01
Smart and effective staff	1.67	0.88	3.50	1.42
Total personal skills	1.89	0.91	3.40	1.18
Leadership skills				
Staff suggestions were taken into account	1.71	0.93	3.50	1.42
Staff was trained to be leaders	1.62	0.94	3.36	1.32
Staff opinion was taken when making hotel plans	1.48	0.86	3.34	1.45
Total leadership skills	1.61	0.79	3.40	1.34
Communication skills				
The staff was efficient and reliable	1.86	0.88	3.24	1.05
The performance of staff was characterized by speed and accuracy	2.21	1.20	3.54	1.04
The staff was flexible and adaptable	1.83	1.11	3.52	1.39
Total communication skills	1.97	0.82	3.43	1.05
Skills to be available in kaizen staff	1.83	0.78	3.41	1.17

From the previous table, it is clear that the values of personal skills by comparing it with the averages, all the results came in favor of using kaizen. The staff was responsible and respectful; the staff belonged to the hotel and cooperation, the staff was Humble and Smart and effective staff. Averages after training were (3.35, 3.24, 3.51, 3.50) respectively.

From the previous table, it is clear that the values of leadership skills by comparing it with the averages, all the results came in favor of using kaizen. Staff suggestions were taken into account, Staff was trained to be leaders and Staff opinion was taken when making hotel plans. Averages after training were (3.50, 3.36, 3.34) respectively.

From the previous table, it is clear that the values of Communication skills by comparing it with the averages, all the results came in favor of using kaizen. Staff suggestions were taken into account, the staff was efficient and reliable, the performance of staff was characterized by speed and accuracy and the staff was flexible and adaptable. Averages after training were (3.24, 3.54, 3.52) respectively.

Agree with Hashemi, (2020) showed that the other side of TQM apart from its other pillars, included building on employee orientation towards quality management through capacity development, skill development training, coordination and teamwork, and scope for knowledge sharing that gave establishments a holistic approach to continuous improvement and sustainability.

Table (15): Measuring mean and standard deviation before and after training for teamwork

Attribute	Before		After	
	Mean	Std. Dev.	Mean	Std. Dev.
Teamwork				
Staff was knowledgeable of other teammates' job duties and functions	2.13	0.97	3.43	1.25

Managers communicated each team member's job duties and functions	2.03	1.16	3.58	1.35
Duties and functions were effectively delegated among team members	1.94	1.18	3.34	1.27
The staff actively identified barriers to teamwork	2.24	1.03	3.56	1.11
The staff had difficulties in establishing effective teamwork	1.98	0.97	3.32	1.26
Lack of understanding of other teammates' roles and responsibilities was a challenge to teamwork in the hotel	1.88	0.90	3.39	1.33
Creating small teams with employees with different job functions	1.88	0.95	3.50	1.39
Using job rotations to have multifunctional staff	1.71	0.92	3.37	1.45
Total teamwork	1.98	0.68	3.44	1.16

From the previous table, it is clear that the values of teamwork by comparing it with the averages, all the results came in favor of using kaizen. Staff was knowledgeable of other teammates' job duties and functions, Managers communicated each team member's job duties and functions, Duties and functions were effectively delegated among team members, The staff actively identified barriers to teamwork, The staff had difficulties in establishing effective teamwork, Lack of understanding of other teammates' roles and responsibilities was a challenge to teamwork in the hotel, Creating small teams with employees with different job functions and Using job rotations to have multifunctional staff. Averages after training were (3.43, 3.58, 3.34, 3.56, 3.32, 3.39, 3.50, 3.37, 3.44) respectively.

Agree with Demirbas *et al.*, (2022) explained that the main benefits of the kaizen process were employee satisfaction influencing how things get done, improved commitment from greater hotel involvement and engagement which also increases employee retention, improved teamwork and problem-solving

skills and as a bottom line all of the above, increased customer satisfaction.

Table (16): Measuring mean and standard deviation before and after training for staff experiences and practices

Attribute	Before		After	
	Mean	Std. Dev.	Mean	Std. Dev.
Kaizen staff experiences and practices				
Staff searched for information, new ideas, and technologies	1.56	1.16	3.44	1.54
Staff took reasonable with the new ways of doing work	2.03	1.28	3.49	1.30
The staff had a clear statement of its goals	2.28	1.07	3.61	1.11
The hotel frequently communicated its business goals and strategies with employees	1.81	1.05	3.18	1.14
Staff let participating the evaluation	1.77	1.05	3.32	1.29
Staff received regular training	1.74	1.04	3.47	1.39
Training sessions had improved staffs' skills	1.52	0.95	3.43	1.49
Total kaizen staff experiences and practices	1.81	0.92	3.42	1.23

From the previous table, it is clear that the values of staff experiences and practices by comparing it with the averages, all the results came in favor of using kaizen. Staff searched for information, new ideas, and technologies, Staff took reasonable with the new ways of doing work, The staff had a clear statement of its goals, The hotel frequently communicated its business goals and strategies with employees, Staff let participating the evaluation, Staff received regular training, Training sessions had improved staffs' skills. Averages after training were (3.44, 3.49, 3.61, 3.18, 3.32, 3.47, 3.43) respectively.

Agree with Hailu *et al.*, (2020) explained that having a good improvement suggestion system that encourages effective

communication between top management and establishment staff was very important. This was because an improvement suggestion system will encourage employees to contribute their own improvement ideas based on the experience they had gained throughout their daily working life. Therefore, as employees continued to go about their daily routine and get used to the process, they were likely to develop a better way to make the process go easier or faster.

Table (17): The difference between the pre and post measurements (skills /teamwork/ experience)

Attribute	Groups	Mean	Std. Dev.	T	Sig.	Eta Squared
personal skills	Group Before	1.95	0.980	36.805	0.001	83.3%
	Group After	4.11	0.196			
Leadership skills	Group Before	1.69	0.880	46.687	0.001	88.9%
	Group After	4.247	0.243			
Communication skills	Group Before	2.03	0.899	37.382	0.001	83.7%
	Group After	4.063	0.188			
Total skills to be available in kaizen staff	Group Before	1.90	0.866	43.221	0.001	87.3%
	Group After	4.137	0.120			
Kaizen staff experiences and practices	Group Before	1.889	1.015	37.133	0.001	83.5%
	Group After	4.1875	0.174			
Teamwork	Group Before	2.06	0.695	36.661	0.001	83.17%
	Group After	4.170	0.148			

-There are statistically significant differences between the mean scores in the pre and post-measurement in all dimensions, where the values of T all came in the level of significance.

- By calculating the Eta squared to find out the impact, after using Kaizen, the impact was found to be high, and by comparing it with the averages, all the results came in favor of after group (kaizen staff experiences and practices, teamwork, personal skills, Leadership skills, Communication skills, total

Skills to be available in kaizen staff) with averages in a row (4.187, 4.170, 4.11, 4.247, 4.063, 4.137) and eta squared rates (83.5%, 83.17%, 83.3%, 88.9%, 83.7%, 87.3%).

Agree with Narban *et al.*, (2016) said that since training and development includes all endeavors to build profitability by expanding an employee's ability to perform better, its importance should not be underestimated because the expenditure of training employees was clearly an enterprise project Narban *et al.*, 2016).

Table (18): The extent of the impact after using Kaizen on the HR performance

HR performance indicators	Before		After		Eta
	Mean	Std. Dev.	Mean	Std. Dev.	
Hotel employees were, evaluating and rewarding	2.32	0.555	4.08	0.585	70.57%
Managers were going to the production places	2.18	0.894	4.12	0.359	67.16%
Management supported the hotel's Kaizen initiative and activities	2.12	0.528	4.37	0.533	81.75%
Quality Control Circles were used to make improvements and develop plans	1.64	0.590	4.46	0.612	84.64%
Staff accepted changes made as a result of Kaizen events	1.96	1.053	3.93	0.495	58.83%
Employees' suggestions were taken in the hotel	1.88	0.683	4.03	0.558	74.94%
The staff's used ' problem solving' teams before	2.64	1.204	4.16	0.525	40.07%
After started practicing Kaizen we had improved customer satisfaction	2.48	0.823	3.80	0.691	43.05%
Staff participated input on hotel strategies	2.06	1.240	4.03	0.531	51.54%
Shared values like trust, commitment and honesty of staff	2.03	0.158	4.22	0.743	80.66%
Employees were knowledgeable	1.52	0.576	4.14	0.702	80.60%

of other teammates' job responsibility					
Monitoring of performance of individual employee innovators	1.56	0.640	3.93	0.711	75.54%
Employee performance appraisal	1.67	0.471	4.08	0.430	87.76%
The staff participated in their departments plans	1.97	0.870	3.14	0.396	42.86%
Employees participated with senior management in setting goals for each department	2.28	0.533	4.21	0.757	68.59%

- By calculating the eta-square to know the effect, it was found that the impact is high, and by comparing it with the averages, all the results came in favor of using kaizen. (Quality Control Circles were used to make improvements and develop plans, management supported the hotel's Kaizen initiative and activities, Shared values like trust, commitment and honesty of staff, Employees participated with senior management in setting goals for each department, The staff's used 'problem solving' teams before, Employees were knowledgeable of other teammates' job responsibility, managers were going to the production places, Hotel employees were, evaluating and rewarding, Employee performance appraisal, Employees' suggestions were taken in the hotel, staff participated input on hotel strategies, staff accepted changes made as a result of Kaizen events, Monitoring of performance of individual employee innovators, After started practicing Kaizen we had improved customer satisfaction, The staff participated in their departments plans) with averages in a row (4.46, 4.37, 4.22, 4.21, 4.16, 4.14, 4.12, 4.08, 4.08, 4.03, 4.03, 3.93, 3.93, 3.80, 3.14) and eta squared rates (84.64%, 81.75%, 80.66%, 68.59%, 40.7%, 80.6%, 67.16%, 70.57%, 87.76%, 74.94%, 51.54%, 58.83%, 75.74%, 43.05%, 42.86%).

Agree with Barreda *et al.*, (2013) indicated the importance of employee awareness of hotel goals and strategies for successful implementation of continuous improvement.

Conclusions

Through the results, the following was concluded:

- 1- Aims of applying kaizen activities before the kaizen training, the average value was 2.05 and after the training it became a greater value, which is 3.40.
- 2- Personal skills before the kaizen training, the average value was 1.89 and after the training it became a greater value, which is 3.40.
- 3- Leadership skills before the kaizen training, the average value was 1.61 and after the training it became a greater value, which is 3.40.
- 4- Communication skills before the kaizen training, the average value was 1.97 and after the training it became a greater value, which is 3.43.
- 5- Kaizen staff experiences and practices before the kaizen training, the average value was 1.8 and after the training it became a greater value, which is 3.42.
- 6- Teamwork before the kaizen training, the average value was 1.98 and after the training it became a greater value, which is 3.44.
- 7- Technique of using kaizen before the kaizen training, the average value was 1.88 and after the training it became a greater value, which is 3.41.
- 8- HR performance indicators before the kaizen training, the average value was 2.02 and after the training it became a greater value, which is 4.046.

Recommendations

Based upon both the literature reviewed and the field study findings, the following recommendations could be suggested:

1. Holding training courses for hotel employees aimed at improving their performance level and developing their behavioral and practical skills using kaizen.

2. Kaizen Technique, big achievements come from small and incremental changes. Eliminate obstacles in operation that slow down order completion or cash collection. Find ways to provide customers with more value and a better accommodation experience with greater profit, because quality plus speed equals lower cost.
3. Kaizen includes setting HR performance evaluation standards for systems and operations, and then seeking to raise these standards. When improvements are made to a process, new standard work must be documented in order to maintain improvements and establish a new baseline for improvement. Standardized work also reduces variation in processes and enhances discipline.

References

- 1- Alvarado-Ramirez, K., Pumisacho-Alvaro, J.A., Miguel-Davila, J.A. and Suárez-Barraza, M.F. (2018), “*Kaizen, a continuous improvement practice in organizations: a comparative study in companies from Mexico and Ecuador*”, The TQM Journal, Vol. 30 No. 4, pp. 255-268, doi: 101108/TQM-07-2017-0085.
- 2- Amin, M., Aldakhil, A.M., Wu, C., Rezaei, S. and Cobanoglu, C. (2017). *The structural relationship between TQM, employee satisfaction and hotel performance*. International Journal of Contemporary Hospitality Management. Vol. 29, No.4, pp.1256-1278.
- 3- Anderson, C., and Lawrence, B. (2014). *The influence of online reputation and product heterogeneity on service firm financial performance*. Service Science, Vol. 6, No. 4, pp. 217–228. <https://doi.org/10.1287/serv.2014.0080>.
- 4- Barreda, A., and Bilgihan, A. (2013). *An analysis of user generated content for hotel experiences*. Journal of Hospitality and Tourism Technology, Vol. 4, No. 3, pp. 5–5.
- 5- Blomberg, Nygard, A., and Anderson, C.K. (2016), *United Nations World Tourism Organization (UNWTO)*, United Nations world tourism organization study on online guest reviews and hotel classification systems: An integrated approach. *Service Science*, Vol. 8, No.2, pp. 139–151.
- 6- Chhikara, N., Gahlyan, A. (2017), *Kaizen Implementation for Improving Productivity and Quality in Manufacturing Industry: A Case Study*, International Journal of R and D in Engineering, Science and Management, Vol. 6, Issue 3, pp.1-14.
- 7- Choi, Y. H., and Bazarova, N. N. (2015), *Self-disclosure characteristics and motivations in social media: Extending the functional model to multiple social network sites*.

- Human Communication Research, Vol.41, No.4, pp. 480–500. <https://doi.org/10.1111/hcre.12053>.
- 8- Claver-Cortés, E., Pereira-Moliner, J., Tari, J.J. and Molina-Azorin, J.F. (2015), “*TQM managerial factors and performance in the Spanish hotel industry*”, Industrial Management and Data Systems, Vol. 108 Nos 1-2, pp. 228-244, DOI: 10.5367/te.2013.0352.
 - 9- Demirbas, D., Blackburn, R. and Bennet, D., (2022), *Kaizen Philosophy in a modern day business*, Published by Istanbul University Press, Vol. 9, No.47, Doi: 10.26650/B/SS05.2021.001
 - 10- Delic, M., Radlovacki, V., Kamberovic, B., Maksimovic, R. and Pecujlija, M. (2014), “*Examining relationships between quality management and organisational performance in transitional economies*”, Total Quality Management and Business Excellence, Vol. 25 No. 4, pp. 367-382.
 - 11- DeNisi, A.S. and Murphy, K.R. (2017), *Performance appraisal and performance management: 100 years of progress?* Journal of Applied Psychology. Vol.102, No.3, pp. 421.
 - 12- Dudin, M.N., Smirnova, O.O., Vysotskaya, N.V., Frolova, E.E. and Vilkova, N.G. (2017), “*The Deming cycle (PDCA) concept as a tool for the transition to the innovative path of the continuous quality improvement in production processes of the agro-industrial sector*”, European Research Studies, Vol. 20 No. 2, pp. 283-293.
 - 13- Egyptian Hotel Guide (2016), 33th edition Egypt.
 - 14- Fryer, K. J., Ogden, S., and Antony, J. (2013). *Bessant’s continuous improvement model: revisiting and revising*. International Journal of Public Sector Management, Vol.26, No.6, pp. 4-4.
 - 15- Glover, W.J., Farris, J.A. and Van Aken, E.M. (2014), “*Kaizen events: assessing the existing literature and*

- convergence of practices*”, Engineering Management Journal, Vol. 26 No. 1, pp. 39-61.
- 16- Imai, M. (2021). *Strategic KAIZEN™: Using Flow, Synchronization, and Leveling [FSL™] Assessment to Measure and Strengthen Operational Performance*, McGraw-Hill. 1st ed. June 9, 2021.
- 17- Hailu, H., Tadesse, F., Tsegay, K., Jilcha, K. and Hailu, T. (2020), “*Relationship between Kaizen philosophy and organizational performance empirical investigation: a case of Ethiopian manufacturing industries*”, European Online Journal of Natural and Social Sciences, Vol. 9 No. 4, pp. 735-751.
- 18- Hansen, A. (2021), “*The purposes of performance management systems and processes: a cross-functional typology*”, International Journal of Operations and Production Management, Vol. 41 No. 8, pp. 1249-1271.
- 19- Hashemi, K. (2020). *Introduction and Implementation of TQM*. <https://www.isixsigma.com/methodology/total-quality-management-tqm/introduction-and-implementation-total-quality-management-tqm/> { Accessed at 28/3/2022 }
- 20- Imai, M. (2022). *Gemba Kaizen: A Commonsense, Low-Cost Approach to Management*, Alpina Publisher, Russian ed. March 28, 2022.
- 21- Jung, H. S., and Yoon, H. H. (2016). *What does work meaning to hospitality employees? The effects of meaningful work on employees’ organizational commitment: The mediating role of job engagement*. International Journal of Hospitality Management, Vol.53, pp.59–68., Doi: <https://doi.org/http://dx.doi.org/10.1016/j.ijhm.2015.12.004>
- 22- Lavigne, E. (2018), “*How structural and procedural features of managers’ performance appraisals facilitate their politicization: a study of Canadian university deans*”

- reappointments”, *European Management Journal*, Vol. 36 No. 5, pp. 638-648.
- 23-Lawrence, B., and Perrigot, R. (2015), *Influence of organizational form and customer type on online customer satisfaction ratings*. *Journal of Small Business Management*, Vol. 53, pp. 58–74. <https://doi.org/10.1111/jsbm.12184>.
- 24-McDermott, O., Antony, J., Sony, M. and Healy, T. (2022), “*Barriers and enablers for continuous improvement methodologies within the Irish pharmaceutical industry*”, *Processes*, Vol. 10 No. 1, doi: 10.3390/pr10010073.
- 25-Mosadeghrad, A.M. (2014), “Why TQM programmes fail? A pathology approach”, *The TQM Journal*, Vol. 26 No. 2, pp. 160-187.
- 26-Murphy, K.R. (2020), “*Performance evaluation will not die, but it should*”, *Human Resource Management Journal*, Vol. 30 No. 1, pp. 13-31.
- 27-Mwaniki, C. and Okibo, B. W. (2019), *Effects of Total Quality Management on Financial Performance in the Banking Sector: a Case Study of National Bank of Kenya*. *IOSR Journal of Economics and Finance (IOSR-JEF)*, e-ISSN, 2321-5933.
- 28-Narban, J.S., Kumar, A., Narban, B., Pratap, S. and Narban, S., (2016), *Performance appraisal practices in hospitality industry in New- Delhi: An Exploratory Study.*, Vol. 2, No. 2, pp.289–300.
- 29-Oropesa-Vento, M., García-Alcaraz, J.L., Rivera, L. and Manotas, D.F. (2015), “*Effects of management commitment and organization of work teams on the benefits of Kaizen: planning stage*”, *Dyna*, Vol. 82 No. 191, pp. 76-84, Doi: <http://doi.org/10.15446/dyna.v82n191.51157>.
- 30-Phan, A. C. Abdallah, A. B. and Matsui, Y. (2017), *Quality management practices and competitive performance: empirical evidence from Japanese manufacturing*

- companies,” International Journal of Production Economics, Vol. 133, No. 2.
- 31-Prathap Kaluthanthri and Atasya Osmadi, (2020), “*performance dimensions of Sri Lankan hotel industry*”, planning malaysia: Journal of the Malaysian Institute of Planners Vol. 18 ISSUE 1 (2020), pp. 131 – 147 //doi.org/10.15405/epms.2019.12.2
- 32-Sharma, A. and Sharma, T. (2017), “*HR analytics and performance appraisal system: a conceptual framework for employee performance improvement*”, Management Research Review, Vol. 40 No. 6, pp. 684-697.
- 33-Speer, A.B., Tenbrink, A.P. and Schwendeman, M.G. (2020), “*Creation and validation of the performance appraisal motivation scale (PAMS)*”, Human Performance, Vol. 33 No. 2-3, pp. 214-240.
- 34-Taylor, P. J., and Pierce, J. L. (2019), *Effects of introducing a performance management system on employees' subsequent attitudes and effort*. Public personnel management, Vol.28, No. 3, pp 423-452.
- 35-Tortorella, G.L., Giglio, R. and van Dun, D.H. (2019), “*Industry 4.0 adoption as a moderator of the impact of lean production practices on operational performance improvement*”, International Journal of Operations and Production Management, Vol. 39 Nos 6-8, pp. 860-886, Doi: 10.1108/IJOPM-01-2019-0005.