

The Role of Continuous Improvement Strategy (Kaizen) in Information Technology - Analytical Research at the State Company for Electrical and Electronic Industries

1. Asra Abdul Alsalam Khalil / Researcher, Baghdad University.
Email: calaxy123@gmail.com
2. Dr. Suhair Adel Hamid / Baghdad University, College of Administration and Economics, Iraq.
Email: dr.suhairadel@coadec.uobaghdad.edu.iq

ABSTRACT

The purpose of this study emerges from the fact that most organizations nowadays are suffering from waste of time, money, and energy. They are facing the dilemma of achieving the ultimate performance. Thus, and based on utilizing innovative and leading techniques and strategies, with fierce competition already figured out, the researcher distributed (144) surveys, which resulted in (108) of the total surveys available to be statistically analyzed. Each Purposive Sample comprises of (General Managers, Procurators, and Section Managers). The survey was built according to **Likert Scale** of Sample Members Response. This survey, which included (60) articles in total, adopted the strategy of personal interviews and field notes as auxiliary tools in the process of collection and analysis of statistical methods; most notably (SPSS, Amos). In addition to (Pearson Scale) of Coefficient of regression samples, and coefficient of correlation. All of that to highlight the outcomes of this research, which proved the validity of the assumptions that there is a relationship between Continuous Improvement (Kaizen), and Information Technology. If this strategy is vastly implemented within the communication networks infrastructures of research companies, it will lead to better investments via the means of customer communication, and information exchange.

MOST NOTABLE CONCLUSIONS:

- Developing innovative methods to improve administrative works within the company taking the survey.
- Moving away from the typical, routine, and complex administrative procedures.
- Taking advantage of technology advancement as required.
- Drawing the attention of the top management towards implementing Continuous Improvement Strategy (Kaizen).

MOST PROMINENT RECOMMENDATIONS:

- Conducting a research on Continuous Improvement Strategy and leadership orientation, highlighting the importance of leadership intelligence, and its application in other sectors and areas which are not included in this research.
- *Article Received: 20January 2021, Revised: 14 February 2021, Accepted: 14 March 2021*

INTRODUCTION

One prominent feature of environmental change is the rapid and continuous fluctuation. Recent years have witnessed remarkable development in the environment inside majority of sectors, which caused a set of changes that followed the Great Industrial Revolution in the last century. This caused a great impact on local and international organizations. The world is moving towards modern technology and development. This has prompted other organizations to strive to implement the required utilizations that would put them within the creative and innovative organizations list. To achieve this, they adopted and implemented the continuous improvement strategy

(Kaizen), which is considered one of the most important pillars the organization relies on during the process of performance development. This can be done via applying minor improvements continuously, and for continuous periods, that is called “short time jumps”, all of this to achieve a better level of performance, and get rid of the deficiencies present within the organization, regardless of their specialty and work nature. Information technology also contributes to modifying the traditional state of organizations daily work and practices, and urges them to adopt new and more effective practices.

RESEARCH PROBLEM

The interest in the continuous improvement strategy (Kaizen) aims at directing the top management, and enhancing the individual roles inside the organization, as they are considered the driving force of the operational process.

The problem of the research stems from the fact that most organizations nowadays suffer from waste, as they face the problem of achieving the ultimate performance by not relying on leading and innovative techniques and strategies in order to compete fiercely. Organizations face many obstacles because they are not familiar with technological advancement tool, and due to not utilizing modern technological foundations. Hence, we oblige the necessity to understand the role of information technology, and its relationship with continuous improvement strategy (Kaizen).

Thus, the company taking the survey is facing the problem of wasted time, energy, and even, and that is what the researcher concluded through reconnaissance visits to the company. Only then, the problem of the research materialized. As it was proven that there was some kind of weakness in the organization management. Depending on all of the above, the research problem can be expressed by asking the following questions:

QUESTIONS

- 1- What is the scale and nature of implementing Continuous Improvement Strategy (Kaizen) by Top Managements at The State Company for Electrical and Electronic Industries?

- 2- What is the relationship status between Continuous Improvement Strategy (Kaizen) and Information Technology?

RESEARCH OBJECTIVES

- 1- Strengthening the role of Information Technology in the company taking the survey, and aiding the understanding of top management and managers with the major concepts of information technology. In addition to being vigilant to the effects of applying these strategies inside the company. Thus, increasing the effectiveness of the organization
- 2- Working on developing the top management and managers in the company taking the survey with proper knowledge. In addition to the concepts of the Continuous Improvement Strategy (Kaizen), in order to benefit and increase the efficiency of the organization.
- 3- Submitting regular requests and recommendations to develop the role of the Continuous Improvement Strategy (Kaizen) in achieving organizational creativity, through implementing a technology that benefits the current and future research organization.

THE HYPOTHESIS OF THE RESEARCH

The hypothesis scheme aims at clarifying the logical relationships of the set of main variables and related sub-variables for each of them.

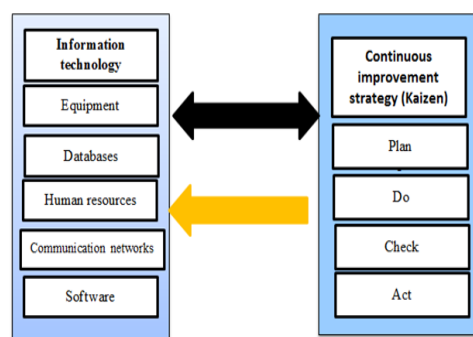


FIGURE (1): RESEARCH MODEL

RESEARCH HYPOTHESES

There is a logical relationship between Continuous Improvement Strategy (Kaizen) and Information Technology, which in turn produces the following sub-hypothesis:

- 1- **Sub-hypothesis (I):** there is a significant correlation between the planning dimension and Information Technology.
- 2- **Sub-hypothesis (II):** there is a logical relationship between post-implementation and Information Technology.
- 3- **Sub-hypothesis (III):** there is a significant correlation between Post-Audit and Information Technology.
- 4- **Sub-hypothesis (IV):** there is a significant correlation between post-correction and Information Technology.

There is an effect of the IT continuous improvement strategy, from which the following **Sub-Hypotheses** arise:

- 1- **The first sub-hypothesis:** there is a significant effect of the planning dimension in Information Technology.
- 2- **The second sub-hypothesis:** there is a significant effect of the implementation dimension on Information Technology.
- 3- **The third sub-hypothesis:** there is a significant impact via Auditing in Information Technology.
- 4- **The fourth sub-hypothesis:** the significant effects presence of the corrective dimension regarding Information Technology.

IMPORTANCE OF THE STUDY

- 1- To draw the management's attention, we explain the (Kaizen) strategy and make it more appropriate for the organization to elevate the performance related to the fluctuating regulatory environment in Iraq.
- 2- The importance of achieving a balance between the strategy of continuous improvement and organizational creativity, utilizing technological advancement, and applying information technology standards in the company being researched.
- 3- Establishing the understanding of top management and managers with the concepts of information technology standards, and knowing the effects of applying these standards in the company. Hence, the importance of continuous improvement as it is one of the major and revolving resources, and it is fairly difficult

to compensate for that. Therefore, the management must work efficiently to achieve organizational creativity by focusing on information technology.

- 4- It must be noted that this study has coincided with COVID-19 regulations, which importance was greatly highlighted via the use of continuous improvement strategies (Kaizen) hand in hand with information technology. All of that to achieve longevity and creativity.

FIRST: THE THEORETICAL FRAMEWORK OF THE RESEARCH VARIABLES

CONTINUOUS IMPROVEMENT STRATEGY (KAIZEN)

The Kaizen strategy has its origins in the supply chain management of the Japanese auto industry, namely "Toyota Car Production System". Which was developed and implemented in the early 1950s by Taiichi Ono, a former executive vice president of Toyota Motors. Kaizen initially focused on the concept of non-waste manufacturing, and eliminating waste out of the production procedures. These wastes are considered non-value-added activities that the customer or the beneficiary considers as a no-added-value to the product or service of higher, and with the passage of time, waste-free production has become more prevalent in European companies (Demibras et al, 2019: 3). Kaizen's strategy has aroused great interest among academic researchers and practitioners in terms of achieving high quality products with minimal effort. It has become a common and applicable strategy in many countries, and has gained practical foothold around the world (Janjic et al, 2019: 14). Kaizen is of Japanese origin, and consists of two words (Kai) meaning change, and (Zen) meaning for better. The best translation describing it is "continuous improvement" (De carvalho, 2016: 12). Researchers have emphasized the benefits of continuous improvement in Japan and the United States, and the Japanese assure its longevity. Through this analysis, the cumulative returns are increased. Besides that, the US strategy focuses on making fundamental practical changes, and most often, these changes and processes are short term (Prosaic, 2011: 173). It indicates that when a process is applied properly, that will enforce the concept of humanity practically within the workplace, removes hard unnecessary work, teaches people how to conduct rapid experiments using scientific methods, and how to prevent waste (Al-Jabouri and Al-Garbawi, 2015:

306). Pan Kaizen talks about the Japanese life strategy, which includes that any Japanese man or woman life cycle could be continuously improved. Also, it focuses on fixing problems, and making changes as required. Kaizen creates a mindset for improvement, and draws people to address issues and solve problems (Agmoni, 2016: 226).

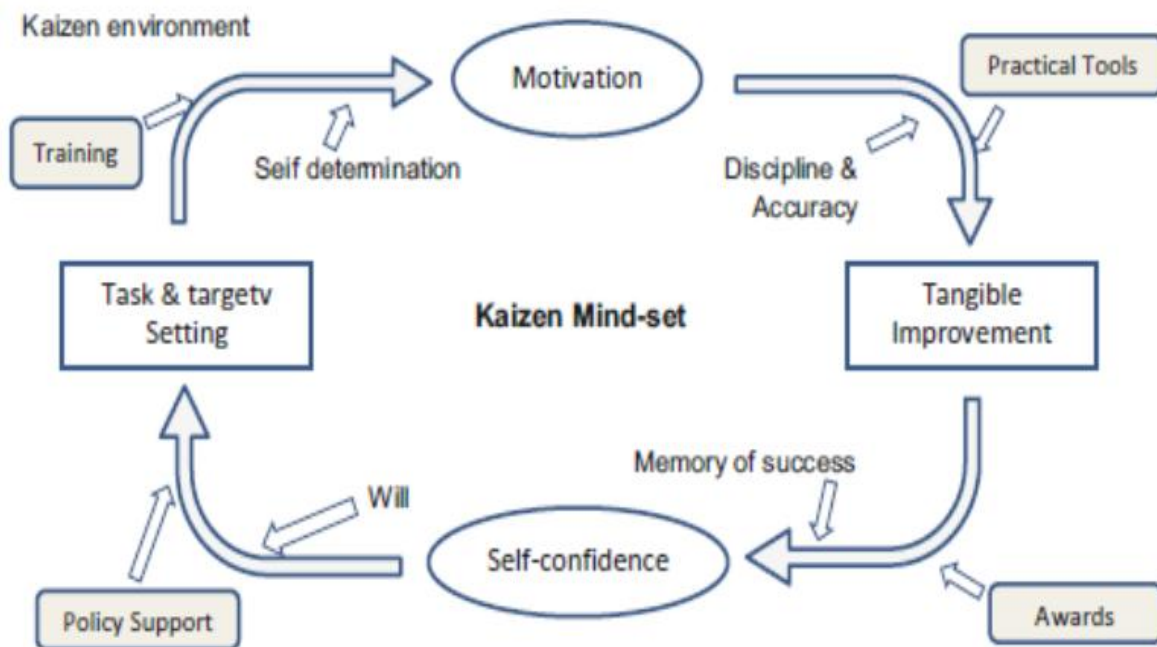
There are three types of (waste) that begin with the letter **M**; and Kaizen is seeking to get rid of, which are:

MUDA: It means all types of activities that drain resources and has added value. It is divided into seven forms called "The Seven Wastes", and the most important one is the waste resulting from

overproduction. It also includes other types of waste: transportation - inventory - movement - waiting - excess operations and defective products. An eighth form of waste is also present, which is **the waste of talents**.

MORA MORA: It means waste resulting from conflict of powers or procedures.

MORI: It means waste caused by physical stress, due to useless work or stress, and this may be due to a defect such as technical malfunction (Masuda: 2019:6). Kaizen demonstrates that there must be a continuous improvement regarding strategies of thinking.



The researcher concludes from the above model that the individual needs training and policy support from top management, which in turn will lead to motivation and self-confidence. All of which has a tangible effect on improving performance, by using tools and methods of continuous improvement.

Kaizen provides a management model in which the internal requirements of the organization, employees, and management are met. And the external requirements of customers and others through the technologies and practices used, with the support of employees at all levels are also met. Still, some future tasks of management are related to the suitability of management practices. (276: KALVA 2018 R. ET. AL).

WORKERS AT SHOP FLOOR LEVEL	SUPERVISORS	MIDDLE MANAGEMENT	TOP MANAGEMENT
Engage in kaizen through the suggestion system and small group activities	Use kaizen in functional roles	Publishing and implementing the objectives of (Kaizen) as directed by the senior management	Be determined to introduce kaizen as a corporate strategy
Practice discipline in the workshop	Improve communication with workers and sustain high morale	The use of Kaizen in raising functional abilities	Provides support and direction for kaizen by allocating resources
Engage in continuous self-development to become better problem solvers	Support small group activities (such as Quality circles) and the individual suggestion system.	Setting, maintaining and upgrading standards	Establish policy for kaizen and cross functional goals
Enhance skills and job performance expertise with cross education	Introduce discipline in the workshop	Designing intensive training programs to develop employee awareness	Realize kaizen goals through policy deployment and audits
	Provide kaizen suggestion	Develop skills and tools to solve problems	Build systems, procedures and Structures, conducive to kaizen.

SOURCE: FROM THE PREPARATION OF THE RESEARCHER BY ATTRIBUTION KALVA, R., ET. AL: CONTINUOUS IMPROVEMENT THROUGH KAIZEN IN A MANUFACTURING ORGANIZATION, INDIA, INTERNATIONAL JOURNAL OF ENGINEERING DEVELOPMENT AND RESEARCH (IJEDR), VOLUME 6, ISSUE 1, 2018, P.276

On this basis, the contributions of researchers and writers about their views in defining the **Kaizen strategy** can be clarified, namely

N	Name of the Researcher	Kaizen Strategy Definition
1	(Aishah, 2016: 87)	The ability of an organization to gain a strategic advantage by broadening the participation in innovation by a large proportion of its members.
2	(Masouda, 2018: 6)	It is the search for making continuous improvements in machines, materials, work and production methods by encouraging suggestions and ideas by work teams from the economic unit or factory.
3	(Supriyanto et al, 2019:112)	It is a strategic framework for efforts to improve the quality of services, the quality of employees, and the products that aim to satisfy customers.
4	(Olszewska, 2019:176)	It is the philosophy of involving all employees from the lowest levels to the top management in the change process.

THE STEPS AND REQUIREMENTS FOR THE SUCCESS OF KAIZEN STRATEGY:

It has four steps, and it is called (The PDCA cycle), They are as follows: (Aichouni & Al-Ghonamy, 2010: 129-130)

- A- PLANNING (PLAN):** In this stage, planning for what needs to be done is achieved, and that is defining the objectives, specifications, and necessary processes.
- B- IMPLEMENTATION (DO):** In this stage, what has been planned is implemented.
- C- EVALUATION AND EXAMINATION (CHECK):** In this stage, the results obtained from the process are evaluated and examined, and compared with the objectives and specifications.

- D- IMPROVEMENT (ACT):** In this stage, and based on the evaluation results, improvements and modifications to the process or product are made, and we go back to the first stage, and so on.

Continuous improvement is a continuous process that aims to achieve permanent excellence in performance, and the participation of employees in all steps of the continuous improvement process is one of the most important elements necessary for its success.

INFORMATION TECHNOLOGY: THE DIMENSIONS OF INFORMATION TECHNOLOGY



(Gray 2011, 6) defines it as individuals' access to the information they need as quickly as possible, during the shortest period of time, and at the lowest possible cost. Such tech devices are: mobile phones, personal computers, and television. Also, the continuous development of information technology helps in creating new ideas and challenges for individuals to be able to improve their performance, learn from

Modern technologies, and adapt to the changes and developments that occur in the surrounding environment (Mitic et al 2017: 2). These performance levels constantly interact with the environment surrounding them, inside and outside of the organization; Figure (3) can illustrate information technology interaction from inside and outside of the organization

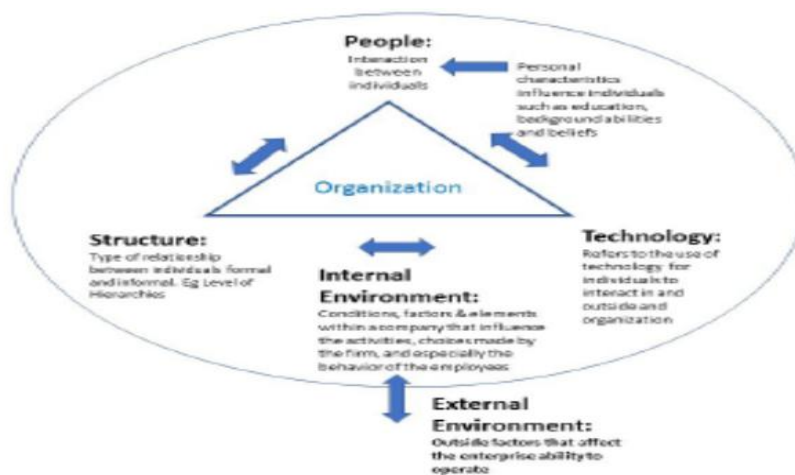


Figure (3)

Foerster-Metz, Ulrike Stefanie, et al. (2018) "Digital Transformation and its Implications on Organizational Behavior." Journal of EU Research in Business.

One of the most prominent models in Information Technology

TECHNOLOGY ACCEPTANCE FORM (TAM):

In 1989, Davis used TAM model to explain computer use behavior as shown in figure below. Davis (1989)

TAM model goal was to explain the general requirements of computer acceptance that lead to recognizing user behavior across wide ranges of computing technologies of end-users and user groups

(Lai P.C: 2017: p6). The TAM model of technology acceptance is one of the most important theories presented to explain individuals' Behavior.

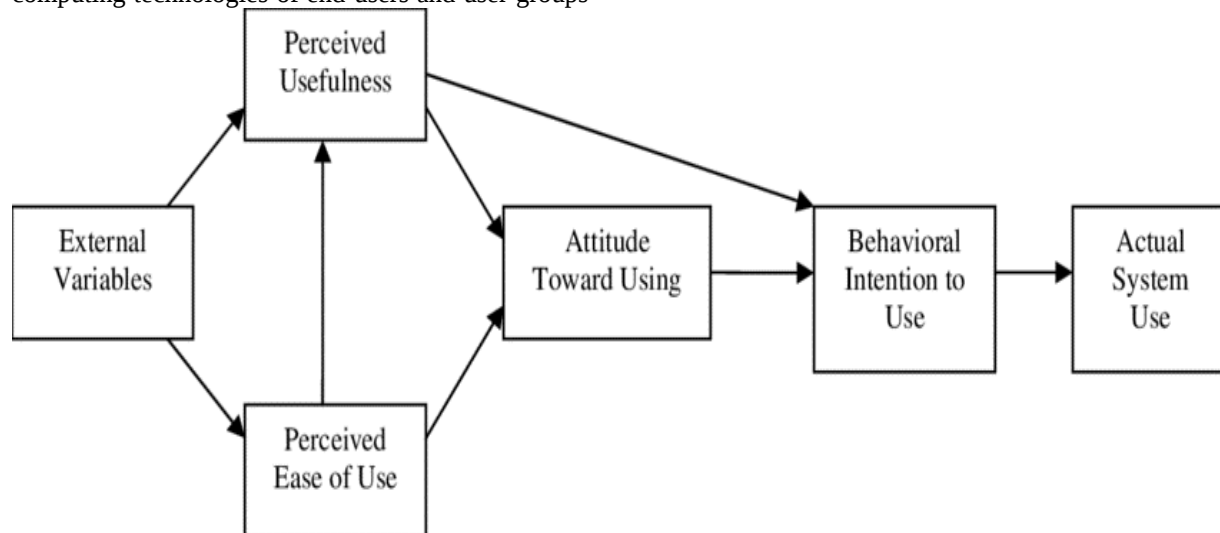
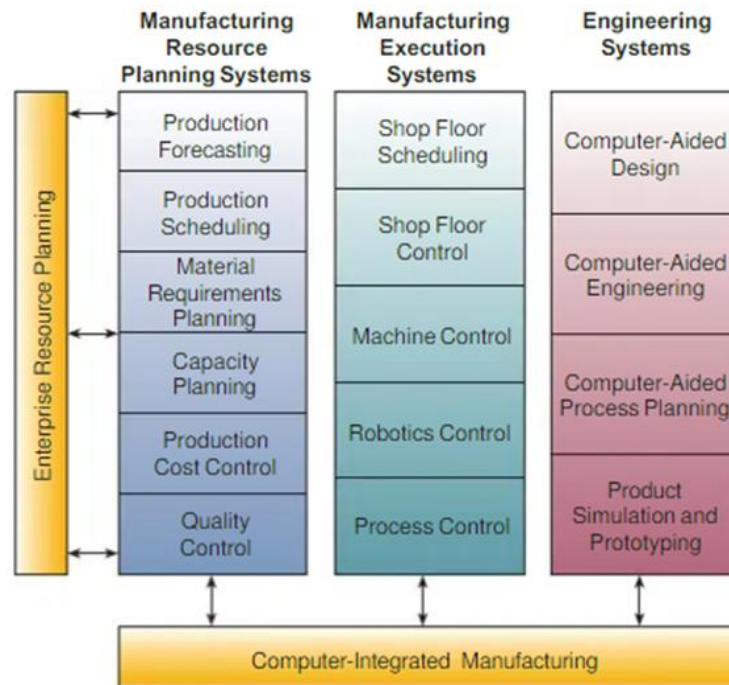


ILLUSTRATION OF THE TECHNOLOGY ACCEPTANCE (TAM) MODEL

Source: Lai, PC "The literature review of technology adoption models and theories for the novelty technology." JISTEM-Journal of Information Systems and Technology Management 14.1 (2017): p:7

INTEGRATED COMPUTER MANUFACTURING SYSTEM (CIM)

Manufacturers were working on simple models, and with limited configuration options. But things changed, supply chain vision evolved from start to finish, electronic business tools developed on the Internet, and a technological revolution in factory management has occurred. Information systems are used to support integrated computer manufacturing (CIM). It is the integration of all production and support operations using multi-functional computer networks, business software, and other technological tools and devices.



INTEGRATED COMPUTER MANUFACTURING SYSTEM (CIM)

Source: O'Brien, James A & Marakas, George M, (2010) "INTRODUCTION TO INFORMATION SYSTEMS ", McGraw-Hill Companies, p: 296

TOTAL PRODUCTIVE MAINTENANCE (TPM)

(TPM) goal is to improve overall productivity by enhancing equipment availability. How does Total Productive Maintenance work? In the pursuit of "perfect production", this is extremely difficult, as unforeseen problems arise even in the best plans.

TPM maintenance is a business advantage – meaning, no downtime or equipment failure, which means merely production and profit. Building on a Productivity Maintenance (TPM) methodology, Pirsig (1996) emphasizes seven unique broad elements, and four major themes in any TPM implementation program. The four main themes in his TPM implementation program include: training, decentralization, maintenance prevention, and multiple skills. As presented in Figure (4).

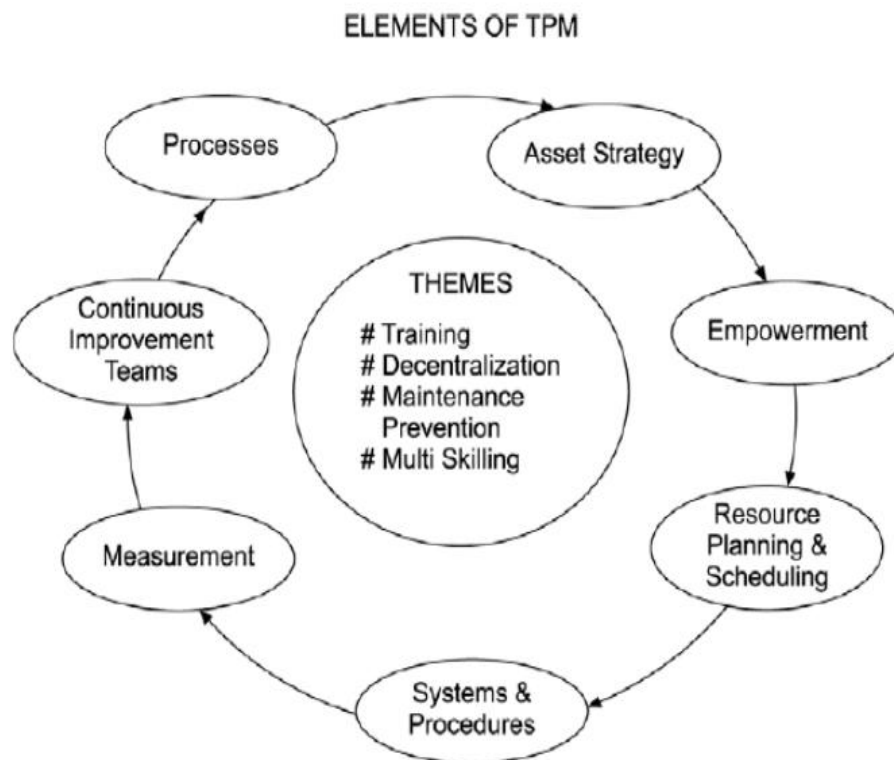


Figure (4)

Dawood, Lamyaa Mohammed, and Mohanad A. Sahib. "Developing Total Productive Maintenance Model (TPM) For Small Medium Size Enterprises (SME). 2017: P 250-251

AS FOR THE MOST IMPORTANT DIMENSIONS OF INFORMATION TECHNOLOGY IN THE STUDY RESEARCH

- A- **Hardware:** The term hardware refers to the physical components which the information technology system depends on. It includes the basic-input-output-system (BIOS), the central processing unit (CPU), various storage devices, communication devices and tools (Ajam: 2007: 40). Reynolds (2010: 7,8) has pointed out what is considered the most important physical components of information technology is **INFRASTRUCTURE**, this includes: **(SOFTWARE, HARDWARE AND EQUIPMENT, DATABASES, COMMUNICATION NETWORKS)**.
- B- **Software:** with the widespread adoption of corporate methods of all sizes, there is a

growing need to expand and develop (Fitzgerald and Stol 2017). It is a set of software applications designed to coordinate or control the functions of the physical components of the computer. They act as an interface between the user and the computer, and each type of computer has its own operating system and software. It has a set of commands and instructions inserted in the computer, to process data stored inside, in a way that ensures achieving output results. As well as allowing the physical hardware of the computer to do its tasks, as well as the intangible parts of the computer operating system (Abdulahdi: 2018: 415_416).

- C- **Database:** Database is vital for data collection, information, stored and related files that describe current and previous tasks and operations done by the organization,

which could be referred to and modified as required.

AS FOR THE DATABASE CATEGORIES:

- 1- **Databases Hierarchy:** which are data linked to each other by the relationship of the one with the whole in a hierarchical form that starts from the head that branches into interconnected branches
- 2- **Network Database:** The network data structure consists of a set of nodes or links that are called nodes and branches.
- 3- **Relational Databases:** is one of the most used databases with personal computers. It is also used with Mainframes Large computers, and it is more used because it does not need memory or large storage media (Zainuddin K. 2010: 61-62).
- 4- **Communication and Network:**

There are three types of networks (Al-Titi, 2012: 57-69), including:

- 1- **INTERNET NETWORK:** any global network is the network of networks, which is about millions of computers connected with each other via satellites, and it is also a local network in which information is exchanged locally within the company, and data is transferred in it quickly and effectively.
- 2- **INTRANET NETWORK:** It is an internal internet network surrounded by a "Fire Wall" for security purposes, which connects the organization's various electronic systems.
- 3- **EXTRANET NETWORK:** which is a private intranet network that selected external groups are allowed to enter, as it allows individuals and organizations from outside the company to have specific access to the private intranet network.

D- HUMAN RESOURCES AND SKILLS:

The human element represents the most important variable to complete any operation of any type or size, as this resource represents the main driver of field and actual operations, and the importance of the human resource does not stop at this point, but rather the capabilities of this resource must be sufficient to achieve the required

performance and success in the field of information technology. And communications, the skills, capabilities, capabilities, and experiences play a pivotal role in the success of the entire process, as the individual is the one who puts in place the operational systems and programs, develops and detects errors, modifies situations and provides the management with what is required, the necessary features and specifications on time, and thus the availability of a cadre capable of using information and communication technology. Properly speaking, it is the main focus of the ICT infrastructure (Al-Sheikh, 23, 2011).

THE RELATIONSHIP BETWEEN STRATEGIC CONTINUOUS IMPROVEMENT (KAIZEN) IN INFORMATION TECHNOLOGY

In order to achieve pioneering success, a successful organization works on ensuring its survival and continuity strongly. The organization must not remain at the same level of efficiency, that is, not only doing routine work or tasks, but rather, its strategy must be on the long-term and looking to the future. Therefore, applying information technology helps the organization cooperate and improve the proposals and ideas of working individuals, through understanding, and making effective decisions during the process of application (Wolff, 2016: 73,75 & Pett). This is based on introducing positive changes to the business, to develop products and services. All of that is done through enhancing technological innovations utilizing data and information relating to marketing and production lines. Thus, allowing the organization to gain a competitive advantage that supports its position and level in the market (Li, 2012: 371).

PRACTICAL FRAMEWORK FOR RESEARCH

FIRST: NATURAL DATA DISTRIBUTION TEST RESULTS:

(There is a significant correlation between continuous improvement strategies and information technology)

The coefficient of relationship between the continuous improvement strategy and information technology was (0.610), at the level of significance (.000). It is less than the significance level (0.05), which indicates a significant correlation relationship do exist between the continuous improvement strategy and information technology. This means, that the more the surveyed company adopts the

components of information technology, the more that leads to the realization of the elements of continuous improvement. According to all of the above, the second major hypothesis is accepted, which states that there is a significant correlation between the

elements of continuous improvement strategy and information technology, with all regards to its dimensions in the company that is being surveyed.

RESULTS OF THE CORRELATIONS BETWEEN CONTINUOUS IMPROVEMENT STRATEGY AND INFORMATION TECHNOLOGY					
INDEPENDENT VARIABLE DEPENDENT VARIABLE	ELEMENTS OF CONTINUOUS IMPROVEMENT				The OVERALL INDEX
	Planning	Implementation	Auditing	Correction	
The OVERALL INDEX	0.583	0.557	0.495	0.491	0.610

TABLE (27) RESULTS OF THE CORRELATIONS BETWEEN CONTINUOUS IMPROVEMENT STRATEGY AND INFORMATION TECHNOLOGY

As for the results of the correlation relationships at the micro level, that is, the dimensions between the study variables, they were as follows:

- 1- **The relationship between planning and information technology:** A first sub-correlation hypothesis has been developed that "there is a significant correlation between the planning dimension and information technology." As shown by the results in Table (27), the coefficient of implementation correlation with information technology reached (0.583), which is a strong correlation higher than (0.30) at a significant level (0.000). This makes us accept the first sub-hypothesis from the second main hypothesis.
- 2- **The relationship between implementation and information technology:** A second sub-correlation hypothesis has been put forward, stating that "there is a significant correlation relationship between the implementation dimension and information technology." As shown by the results in Table (27), the coefficient of implementation correlation with information technology reached (0.557), which is a strong correlation higher than (0.30) at a significant level (0.000). This causes us to accept the second sub-hypothesis from the second main hypothesis.
- 3- **The relationship between auditing and information technology:** A third sub-

correlation hypothesis has been put forward, stating that "there is a significant correlation relationship between the audit dimension and information technology". As shown by the results in the above table, the coefficient of audit correlation with information technology reached (0.495), which is a strong correlation higher than (0.30) at the level of significance (0.000). This makes us accept this sub-hypothesis.

- 4- **The relationship between correction and information technology:** The results of the statistical analysis showed the existence of "a positive and direct significant correlation between the correction dimension and information technology." As the value of the correlation coefficient between these variables (0.491), this result leads to the acceptance of the fourth sub-hypothesis of the second main hypothesis.

We will present the results of the effect of the independent variable, represented by the continuous improvement strategy with its four elements in information technology, and then present the results in line with the four assumptions as follows:

- 1- **The sub-hypothesis states: (There is a significant effect of the planning dimension in information technology).** The results show that the effect value is (0.616), while the value of F is (54.713), which is greater than the tabular F value of

(3.94) at the level of significance (0.05). As for the determination factor, its value was (0.340). This means that planning explains the value of the percentage (34%) of information technology, while the remaining percentage is (66%), and is due to other external factors, and these results confirm the validity of the first sub-hypothesis completely.

2- The sub-hypothesis states: (There is a significant effect of the implementation dimension in information technology).

The results show that the effect value is (0.533), while the F value is (47.801), which is greater than the tabular F value of (3.94) at the level of significance (0.05). With regard to the coefficient of determination, its value was (0.311), which means that the implementation explains the value of the percentage (31%) of information technology, while the remaining percentage reached (69%), and is due to other external factors, and these results confirm the validity of the second sub-hypothesis completely.

- 3- The value of (F) computed between after the audit in information technology was (34.422), which is greater than the tabular value of (F) of (3.94) at the level of significance (0.05). Accordingly, we accept the hypothesis, which states (there is a significant effect of the audit dimension in information technology) at a significance level (5%), that is, with a degree of confidence (95%). Through the value of the coefficient of determination (R^2), amounting to (0.245), it is evident that after the audit, it explains the percentage (25%) of the variables that occur in information technology. As for the remaining 75%, it refers to other variables that are not included in the research form. It is clear through the value of the marginal slope coefficient (β) of (0.430), that an increase in the audit dimension by one unit will increase the value of information technology to (43%).

The value of the constant (α) in the equation (1.961), that is, when the audit dimension is equal to zero, the IT ratio will not be less than this value.

- 4- The value of (F) computed between the correction dimension in information technology was (33.622), which is greater than the tabular value of (F) of (3.94) at the level of significance (0.05). Accordingly, we accept the hypothesis, which states (there is a significant effect of significant correction dimension in information technology) at a significance level (5%), that is, with a degree of confidence (95%). Through the value of the coefficient of determination (R^2), amounting to (0.241), it becomes clear that after the correction, it explains the percentage (24%) of the variables that occur in information technology, and the remaining percentage (76%) refers to other variables that are not included in the research model. . It is clear through the value of the marginal slope coefficient (0.4), of (0.435), that an increase in the correction dimension by one unit will increase the value of information technology to (44%). The value of the constant (α) is reached in the equation (1.957), that is, when the correction dimension is equal to zero, the IT ratio won't be lower than this value.

It is also evident from Table (30) that the elements of continuous improvement had a significant effect on information technology as a whole, with a regression factor of (0.659).

In light of those results related to the main hypothesis (5), the highest impact values (0.616) were for the direction of the planning effect in the overall information technology. While the lowest impact values were (0.430) for the direction of the audit impact in the overall information technology. The results of the effect of excluding the elements of continuous improvement in information technology resulted in (4) significant influence relationships out of a total of (4), i.e., 100%, which will lead to the validity of the hypothesis in general.

Analysis of the Dimensions of the Continuous Improvement Strategy in Information Technology								
Dimensions of the continuous improvement strategy	Dependent variable	Fixed Limit Value (α)	The value of marginal slope coefficient (β)	The coefficient of determination (R^2)	Calculated (F) Value	Tabular (F) Value	Sig	Indication
Planning	Information Technology	1.202	0.616	0.340	54.713	3.94	0.000	Intangible
Implementation		1.595	0.533	0.311	47.801		0.000	Intangible
Auditing		1.961	0.430	0.245	34.422		0.000	Intangible
Correction		1.957	0.435	0.241	33.622		0.000	Intangible
Continuous Improvement Strategy		1.074	0.659	0.373	62.933		0.000	Intangible

Table (30) Analysis of the Dimensions of the Continuous Improvement

Strategy in Information Technology

CONCLUSIONS AND RECOMMENDATIONS**CONCLUSIONS**

A continuous improvement strategy, which aims to diagnose the main problems and act to fundamentally address them, can by integrating a focus on side effects. And as one of the methods of strategic cost management, whose tasks include:

- 1- Improving the efficiency of the production process.
- 2- Reducing waste of time and resources.
- 3- Achieving an organized work, which requires an effort that may be more important in the beginning than efficiency and effectiveness. It initially prepares senior management and creates a qualitative impetus in relation to (the Kaizen strategy) and the quality standards it contains.
- 4- Reducing the rate of administrative awareness, and training workers to diagnose the causes leading to the failure of Kaizen so

TRACK ON IMPACT RELATIONSHIPS BETWEEN CONTINUOUS IMPROVEMENT STRATEGY AND INFORMATION TECHNOLOGY					
Variables		Estimate	S.E.	C.R.	P
A Continuous Improvement Strategy	Information Technology	0.659	0.083	7.970	***

Table (3) Source: prepared by the researcher using the Amos program.v.23

that those causes are low, with the aim of avoiding and avoiding them. All this for the effective implementation of the Kaizen Continuous Improvement Strategy.

RECOMMENDATIONS

- 1- Developing a strategy to rehabilitate the infrastructure for the information technology vocabulary and build advanced software compatible with the changes of the times.
- 2- Applying administrative concepts to departments such as activating the principle of participation, forming teams, teamwork and administrative decision-making in a way that encourages creativity.

INFRASTRUCTURE INSTRUMENTS: **COMPONENT SKILLS**

1- Hardware:

- A- Our bank uses modern devices and equipment at work.
- B- The bank's use of advanced devices and equipment provides opportunities for adopting new work styles.
- C- Our bank uses advanced devices and equipment and motivates employees to use them.

2- Software:

- A- Software application ready to serve client goals, as well as, our bank goals.
- B- A ready-made software application that ensures completing tasks during a short period of time, and successful exchange of information.
- C- Our ready-made software application ensures the possibility of modifications required, and helps keeping in touch with all technological developments.

3- Communication

- A- Depends on networks to ensure flow of information between departments and branches.
- B- Communication systems and networks with a main task, which is dealing with large number of invoices, receipts, and solving problems of the end-customer

- C- Depends on modern communication tools and devices, to facilitate the information exchange, such as: "the Internet, intranet, extranet, e-mail, and other tools".

4- Human Resources:

- A- Our employees are highly-skilled individuals, with great knowledge in the fields of information technology.
- B- Our employees' skills outweigh the skills of our competitors other other banks.
- C- Our employees have the privilege of training effectively in the Information Technology, in order to utilize the software in the best way possible.

5- Database:

- A- Databases are flexible, which is updated regularly to meet the requirements of latest global technology updates.
- B- Databases facilitates collecting, analyzing, storing, and retrieving of data and information with ease.
- C- Databases are categorized professionally, which is a safe strategy that ensures flow of accurate information between departments and decision-makers.

REFERENCES

1. Demirbas, Dilek & Rhys Blackburn& David Bennett (2019)"KAIZEN PHILOSOPHY IN A MODERN-DAY BUSINESS",Istanbul University Publication,Merkez Mah. Begonya Sokak.
2. O'Brien, James A& Marakas, George M, (2010)" INTRODUCTION TO INFORMATION SYSTEMS ", McGraw-Hill Companies, p :296
3. Al-Jubouri, Nassif Jassim Al-Gharbawi, Hazem Abdulaziz(2015) " the possibility of the theory of limitations and continuous improvement(kaizen) and its reflection on cost reduction and maximization of achievement, Al-Kut Journal of economic and Administrative Sciences, vol.1, No. 19, pp. 298-331.

4. Zainuddin: digital databases and their importance in building search engines: Mohammed Mahmoud Zainuddin assistant professor of education technologies Faculty of Education King Abdulaziz University: No. 29: p :2010: pp. 61-62.
5. Supriyanto, Achmad & Rochmawati&Djum Djum Noor Benty (2019)"Kaizen: Quality Improvement Innovation Higher Education in the Industrials Revolution 4.0", Advances in Social Science, Education and Humanities Research, volume 381, pp-112.
6. Masouda, Sharifi (2018)" Japanese Kaizen as a gateway to improving career quality how Toyota and Japanese companies have become attractive work environments, sixth international forum, new development model and quality of life " Tahri Mohammed bashars University:6.
7. Pett, Timothy & Wolff, Jim A. (2016)," ENTREPRENEURIAL ORIENTATION AND LEARNING IN HIGH AND LOWPERFORMING SMES", Journal of Small Business Strategy, Vol. 26, No. 2.
8. Abdulhadi sources and services of general reference information in libraries and information centers (Arabic Edition) P. 415-416 :2018.
9. Mohamed Aichouni & Abdulazziz I. Al-Ghonamy, Third Conference on "Qualityin University Education in the Islamic World " On the theme: "The Application ofRegional and International Indicators of Academic Quality and Accreditation inUniversities in the Islamic World- Towards Excellence as a Means Not Merely OnOutcome", Naif Arab University for Security Science (20-22 December 2010).
10. Al-Taiti, Khader Misbah, (2012)," Information Technology Management", First Edition, Dar Al-Hamid publishing and distribution, Amman, Jordan.
11. Olszewska, Kinga (2019)" Cost management with budgeting and Kaizen Costing ", World Scientific News, 133, pp.176-188.
12. Agmoni, Erez (2016)"THE ROLE OF KAIZEN IN CREATING RADICAL PERFORMANCE RESULTS IN A LOGISTICS SERVICE PROVIDER",Scientific Journal of Logistics,2 (3),pp. 225-245.
13. 'Ajam ' Ibrahim Mohammed Hassan Ajam, information technology and knowledge management and their impact on strategic choice, comparative analytical study of the views of a sample of Iraqi bank managers, PhD thesis submitted to. Mustansiriya University-Faculty of management and economics, 2007, P. 40.
14. De Carvalho,Cleginaldo Pereira(2016)" Kaizen: A Continuous Process of Improving Companies",Revista de Gestão & Tecnologia 3.3.
15. Sheikh, Zeid Fawzi Ayoub, 2011, linking the university to the community proposed model within the framework of the application of e-government, unpublished master's thesis, Faculty of management and Economics, University of Mosul.
16. Prosic, Slobodan (2011)" KAIZEN MANAGEMENT PHILOSOPHY", I International Symposium Engineering Management And Competitiveness,pp. 173-178.
17. Reynolds, George W. (2010)," INFORMATION TECHNOLOGY MANAGERS", Printed in The United States of America, Course Technology, Cengage Learning, University Of Cincinnati
18. Gray, Iain, 2011, Information and Communication Technology Strategy Board.
19. Otsuka, Keijiro & Jin, Kimiaki (2018) "Applying the Kaizen in Africa a New Avenue for Industrial Development", Tetsushi Sonobe National Graduate Institute for Policy Studies (GRIPS) Tokyo, Japan.
20. Aishah, binti Awi, N (2016)"The Effect of Lean Kaizen Application on Student's Satisfaction in Malaysian Higher Education Sector",A thesis submitted in partial fulfilment of the Coventry University's requirements for the Degree of Doctor of Philosophy. P:83-87
21. Lai, P. C. "The literature review of technology adoption models and theories for the novelty technology." JISTEM-Journal of Information Systems and Technology Management 14.1 (2017): 21-38

22. Fitzgerald, B., Stol, K.-J., 2017. Continuous software engineering: A roadmap and agenda. *J. Syst. Softw.* 123, 176–189.
23. Li, Chia-Ying. (2012)," The influence of entrepreneurial orientation on: p371technology commercialization: The moderating roles of technological turbulence and integration", *African Journal of Business Management* Vol. 6, N (1), pp. 370-387.
24. Masuda: Japanese Kaizen as a gateway to improving career quality: How did Toyota and Japanese companies become attractive work environments? Conference Paper - May 2019: Sharifi masoudeh University Tahiri Mohammed - Bashar – P. 6
25. Kalva, R., et. al: Continuous Improvement Through Kaizen in a Manufacturing Organization, India, *International Journal of Engineering Development and Research (IJEDR)*, Volume 6, Issue 1, 2018, P.276
26. Dawood, Lamyaa Mohammed, and Mohanad A. Sahib. "Developing Total Productive Maintenance Model (TPM) For Small Medium Size Enterprises (SME)." 2017:P 250 -251.