

## Management of changing and its role in supporting the requirements of comprehensive quality management / an opinions' survey of a sample of workers in Al-Itihad factory for the food industry in Babil Governorate

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### ABSTRACT

The study aims to find out the extent of the impact of management of changing as an independent variable with its dimensions and fields (technological change, behavioral change, functional change, structural change) on Comprehensive(Total) Quality Management (TQM) as a responsive variable with its dimensions (commitment and supporting higher management, focusing on the customer, continuous improvement, decision-making of evidence-based, employee participation), through continuous visits to the Itihad factory for food Industry in Babil Governorate, it was found out that there is a problem which is that: the factory management has a lack of knowing the extent of the possibility of supporting the TQM through the changing management in proportion to the need for change which possessed by the aforementioned factory management, also what is the level of the impact of changing management in comprehensive quality management? A study was conducted on the factory, that a sample was adopted as a model that includes a part of the units of the concerned research community which are representative of it and carries common characteristics, this part does not need to study all the terms of the community, also a questionnaire was designed for the purpose of measuring the study variables, through the use of (Stephen Thomson) equation for the number of workers (2000) workers, according to the opinions of some managers in the management of the factory, the insufficient number of directors of managements, departments and sections inside the factory, using the automation system in the factory, with the impact of the current conditions of the Corona pandemic in the country as a whole as well as its effect on the factory, a random sample was selected by distributing 160 forms to a number of workers, most of them engineers working in different fields in the factory, through the use of methods (AMOS.V22). and (SPSS.V22) and statistical programs.

**Keywords:** Total Quality Management, Transformational leadership, changing management, comprehensive quality management

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### 1. Introduction

The industrial environment is considered one of the economy means in the country, in light of the intertwining of the data of this environment with external and imported production and renewed competition in it, the industrial organizations need leadership that can adapt the management of change, strengthen their relationship with their managers, analyzing the environment and interact with it with awareness, vigilance and intelligence, because the environment surrounding the organizations in general is characterized by being a dynamic environment whose characteristics change constantly from time to time as a result of intense competition and development in many economic aspects, which led to the change of many concepts which are related to management, especially in light of contemporary business environments which characterized by increased of the competition and continuous change, seeking to adopt the overall quality performance in all areas of the organizations work environment, modern intellectual trends have emphasized on the distinguished role of the leadership and changing management in promoting the requirements of total quality management, in order to these organizations to be able to keep pace with their competitors at the forefront of what those leaders aspire

to, using changing management to enhance the requirements of total quality management to simulate the goals of the organization and achieve its goal, also to establish a bright image in the minds of the public and the competitors, as the organizational change is not built from nothing, rather, it stems from the needs of the organization through ideas with a set of plans and visions drawn by its leadership to reach comprehensive quality management in the organization, in order to advance its reality in its various functional and organizational joints through the commitment and support of senior management, focusing on the customer, continuous improvement, decision-making on evidence-based, and employee participation in a way that achieves interaction between leaders and workers [1]. In order to raise motivation to the highest level with the ability to interact, interact and influence on workers to urge them to complete the works, duties and tasks which are assigned to them in an environment dominated by cooperation and concord to build loyalty among workers.

Through the fact that the importance of Al-Itihad factory for the food industry in Babylon in Iraq economy through the adoption of the Ministry of Trade in preparing the supplying card with the sugar “Sukar Al-Itihad” in Babylon, the importance of the study began in providing a hypothetical model that was selected and statistically examined to arrive at an image that reflects the relationship and the influence between the study variables, to know the level of its application to benefit from the nature and the importance of the relationship between the study variables. The researcher has faced some challenges, especially in the practical aspect of obtaining information and meeting some managers because of their preoccupation with their practices, in addition to the absence of most workers due to the country’s conditions and the Corona pandemic[2, 3]. In addition, the absence of most workers in the laboratory due to cases of quarantine, basing on the foregoing, the current study included two variables: managing change as an independent variable, total quality management as an approved variable. The problem of the study was diagnosed in the limited application of these variables in the Itihad factory, especially that the interest in these variables is lesser than the ambition, in addition to its dependence in managing most of its affairs on traditional style of managing, as well as , keeping these variables without renewed research and analysis that is appropriate for the spirit of the times, which will miss the benefit of its intellectual data to improve and generate an industrial organization whose aim is to continuously improve to reach comprehensive quality management to reach the maximum satisfaction of customers, keeping pace with the performance of the international organizations and its continuation in sustainable competition[4-7].

## **2. The study hypotheses**

### **2.1. Main hypothesis**

The first main hypothesis indicated that (There is no significant correlation between changing management, with its areas and dimensions, enhancing the requirements of the (TQM). Four sub-hypotheses are derived from it:

A- There is no significant correlation relation between structural change and supporting the requirements of TQM.

B- There is no significant correlation relation between the technological changing and the enhancement of TQM requirements.

C- There is no significant correlation relation between the behavioral changing and the enhancement of TQM requirements.

D- There is no significant correlation relation between job changing and the enhancement of TQM requirements.

While the second main hypothesis indicated that (There is no significant influence relationship of significant changing management in promoting the requirements of total quality management) as four sub-hypotheses are derived from them:

A- There is no significant effect of structural changing in enhancing the requirements of TQM.

B - There is no significant effect of significant changing in enhancing the requirements of TQM.

C- There is no significant effect of behavioral changing in enhancing the requirements of TQM.

D- There is no significant effect of functional changing in enhancing the requirements of TQM.

### **2.2. The theoretical side**

The concept of changing management has become a permanent feature of the business management scene. New and huge fields have opened up and innovative technologies have emerged that have put previously powerful business models under the sword of threat, to meet these challenges, business organizations have become more experienced in applying best practices in managing change, as they have become more sensitive and more aware of the role that the culture of change plays in this regard, that it is considered a process by which a comprehensive

plan is developed that aims to bring about adjustments in the current situation by investing all available resources in the organization and in the surrounding environment through developing the vision and common mission of the organization, hence, we find that the primary responsibility for bringing about this change rests with the leaders through the exercise of their duties [8, 9]. In addition, most recent reports indicate that executives believe that only one of the three planned changes is actually working, a study also found that more than 90,000 workers who underwent the change process in their organizations increased their use of stress-related drugs (Harigopal, 2006), also, there are challenges that may face the application of change management principles in organizations. One of the reasons for these challenges is that the scientific literature that lacks the approval to conduct basic change processes, the fragmented literature on changing management can make it difficult to define and apply principles of changing management based on scientific evidence instead, that changing management practitioners may rely on expert opinions more readily available from well-known writers on changing, and the second challenge that facing changing management practitioners is the difficulty of learning from experience, as researches on developing expertise indicate that learning and resulting improvements in performance occur over time through repeated practice in a specific area [10, 11]. Also changing can be an intervention in one or more of a stage, it can be in various forms of quality improvement, the changing may be also radical and comprehensive, or the changing may be gradual. (Al-Anzi, 2013: 33) defined the two changing approaches which are related to Total Quality Management as follows: Radical (comprehensive) change: is the changing that aims to identify all the elements of building a culture of quality and to identify the appropriate approaches to the events of change. Gradual changing: This method of changing is relatively slow, as it has fundamental changes with tangible indications that support the formation of a positive mental image that prepares individuals to accept a work culture according to quality standards, in general, changing is defined as the transition from one state to another, which is usually desired (Autissier & J.M.2007: 6). Changing management is one of the modern trends in management that many organizations have adopted at the present time as a natural result of rapid and successive changes at all levels of quality improvement with the creation of high competitive advantages, especially with regard to the application of quality standards (Al-Anzi, 2013: 17-21), Mansour defined it (Mansour, Soleimani, 2019: 64) as it is a planned administrative work that affects the organization by adopting other values, knowledge and techniques in order to improve and develop the effectiveness of the organization, ensuring its ability to meet the challenges of the environment and achieve its goals, as the organizations' response was quick to take into account all the causes of changing management in the behavior of individuals towards accepting the new work mechanisms in accordance with standards that ensure the achievement of quality in the outputs by making changes in the following aspects [12].

- Exiting of the domestic competition space into the global and regional competition space.
- The modern work environment makes everyone responsible for the quality of the work that he accomplishes.
- Standing on the needs of the organizations in terms of the level of performance work in both sides, the administrative and technical work, and technology management.
- Orientation to continuously improve and develop the quality of outputs.
- Developing the innovative and creative capabilities of individuals concerned with applying the mechanisms of the quality system through the participatory management system.

The importance of changing management comes from the constant need to amend and change goals in accordance with the requirements of renewal, as indicated by maintaining the active vitality: Changing management works to renew vitality within organizations and countries, focusing on meeting the needs of markets after they sought to meet specific services, fueling the desire for development, improvement and upgrading: Changing management works to explode demands, fuel desires, develop motivation towards upgrading and progress, changing management also seeks to form a more efficient and flexible management team, that develop employee knowledge and skills, improve their behavioral patterns, the development of systems for decision-making procedures with the development of positive participation, this is what makes the organization renewable also this is what directs the objectives of the public administration to the needs of society, thus taking into account the interests of customers (Al-Farajji, 2014: 223), from which we conclude two main goals:

1- Moving from the current reality to another in future as a result of the rapid developments of environmental changes, adapting to the new situation because the direction and failure to bring about changing leads the organization towards disability. As for adaptation, it is not an easy and simple matter, as this depends on the organization's ability to define its goals of the required change.

2- Determining the required path or direction of changing according to what this concept carries because it is considered a window towards the bright future or a window towards the darkness that the organization enters.

Therefore, the required path of change is directed towards competition by developing the organization for its products to achieve excellence or increase research and encouraging creativity.

There are several strategies for rebuilding the changing management, which are in charge of the forces responsible for change which are implemented in three stages (Arafa, 2012: 18): namely (the phase of demolition and removal of the old, the phase of preparation, the phase of establishing the main structure), among the most important of these strategies (upgrading and growth strategy, hegemony strategy, power authority, organizational renewal strategy, the biggest problem facing changing management in organizations is that it accepts change by workers with the most of those in charge of the organization because the basis of the resistance is the non-acceptance of the change taking place, therefore, it faces resistance from most individuals or groups or at the level of the organization as a whole, which is a natural phenomenon and is considered as a reaction, which it means "individuals abstaining from changing or not adhering to it to the appropriate degree and relying on the status quo" (Al-Amiyan, 2005: 335), as it was mentioned by (Arafa, 2012: 53) that the reactions of changing differ from one person to another, as they fall from acceptance to resistance and rejection. As for (Al-Hashimi, 2010: 20), he defined it as those behaviors that appear on the part of individuals as a result of their fears of these changes, the innovations which are taking place in the organization, because they see it threatening their stability.

### **2.3. Total quality management**

Total Quality Management (TQM) is an integrated administrative philosophy that continuously aims to improve the quality of products and processes to achieve customer satisfaction, as it is considered a comprehensive new and modern subject for contemporary trends in management science, it includes all departments of the organization, the process of implementing the comprehensive quality management also requires a real change in the organization's design, operations and culture in the strategic extant, this change may be a complex task for many organizations that seek to adopt improvement (Al-Maamouri, 2019: 137). The concept of Total Quality Management changes as a result of development, as the transition from the concept of (old) management to the modern and contemporary management concept for the purpose of achieving higher quality in everything, it is not limited to a specific area within the organization, but rather includes all of them, i.e. with the active participation of all work joints (operations, jobs, operational stages ... etc.) to achieve continuous improvement and gain customer satisfaction (Ahmed, 2009: 64), it was defined by (Oakland, 2003: 30) as a comprehensive approach to improving competitiveness and flexibility through planning, organizing, understanding each activity, involving everyone in all levels of TQM, it ensures that the management adopts a general strategic view of quality and focuses on prevention rather than inspection, also it is defined by M. Muhokopadhyay, 2020: 20, it is a comprehensive and structured approach for the organizational management that seeks to improve the quality of products and services through continuous improvements in response to continuous follow-up. Total quality management requirements can be specified separately for a particular organization or it may be committed to the established standards, in addition the total quality management is the basic measure for differentiation among all organizations, due to its superior strategic importance, its impact on enhancing effectiveness and competitiveness, thus staying in the market, as it plays an important role in improving the competitive position for organizations, by focusing on providing goods or services of high quality to the customer, which contribute to increasing customer loyalty and then enhancing the organization's reputation (Hammoud, 2009: 79), it has been evident through the purposeful use of TQM that many prospects for success are achieved, represented by a reduction in consumer complaints, reducing them and reducing (quality costs, accidents, complaints, increasing market share, customer satisfaction, increasing productivity, profits achieved, achieving multiple savings in the field of communications, and active participation. (Qasrawi et al., 2017), both (Al-Otaibi, 2007: 23) and (Yusef, 2007: 31) agreed that the total quality management system is a system of documenting responsibilities and coordination between the service and production departments in the organization, improving awareness of comprehensive quality management policies, with the continuous development of services to achieve customer requirements. As well as reducing the cost of services and goods which are provided, in addition to reducing complaints by workers and customers, also raising production efficiency by increasing the market share, also, Total Quality Management has a set of objectives and goals, the most important of which is to focus on the needs of the market, working on translating these needs into an implementable design specification, creating performance measures to achieve the highest performance in all areas, the development of simple procedures for quality performance, increase the competitiveness of the organization and ensure the continuous improvement of all sectors, levels and activities of the organization,

increase the efficiency of the organization in customer satisfaction with the excellence for workers and training them in the method of developing operations (Kamalia and Amal, 2013: 38).

Jouda (Jouda: 2004, 312) summarizes the most important benefits that organizations gain from implementing the system as follows:

A- Ensuring the consistency of the product quality. The focus here is on the continuity of the same level of quality in the organization's products.

B - Continuous improvement procedure, as the quality management system requires continuous improvement in activities and processes on a permanent basis.

C- Raising the efficiency of workers through continuous education and training.

D - Increasing the competitiveness of the organization and work to help it to enter new markets.

E - Reducing the total costs of the organizations for many reasons, the most important of which is reducing the mistakes of workers as a result of training and calibration of devices.

F- Discipline and adherence to work procedures and instructions as a result of documenting these procedures and instructions.

#### **2.4. Changing management and the total quality management principles**

The principles of the total quality management are not achieved unless they interact with changing management, forming together a distinctive feature in contemporary organizations and an imperative in the work and behavior of organizations, that innovation is a new idea to apply principles or improve the product, thus, innovations refer to change, but not all of changes are innovations, given that change may not require new ideas (Awatif 2009: 109), moreover, changing management has become the basis and rule, also stability has become a specific process with a period of time, so that compatibility with new situations occurs and then acceptance and satisfaction with changing, this applies to the organizations that are considered part of the individual's life that its goal is to raise the level of these organizations and improve the quality of the products they provide, so it must address any form of resistance to this change (Abdul Ra'uf, 2019: 40), Madi adds in (Madi, 1995: 53) that excellence based on organizations depends mainly in its movement on the desires of customers, through the systematic and continuous introduction of customer feedback data, which are used in strategic planning in the organization's change processes as well as in its production processes for the goods it provides, also, there is an urgent need for those organizations to change the perception of their members working in the organization to the point that achieving their individual successes which do not contradict with achieving the success of the organization. On the contrary, it is the success of both individuals with the organization in establishing cooperation between them. Harper, S. C. 1998,3), that the decision-making is based on the data that is collected through feedback. This data is analyzed regularly and periodically for those events so that comprehensive quality management can be achieved, also through the practical application of the idea of the cooperation through teamwork and training it to use creative and analytical methods in the decision-making process, granting working individuals greater powers, especially with regard to some decisions which are related to job design or organizational policies that have an impact on them, in addition to the presence of effective transformational leadership that is considered a primary influence for the possibility of change in industrial organizations, because notices and rhetoric are not enough, because it is counterproductive if it is not accompanied by a good example of management change that has a common vision known to all employees, that helps to avoid duplication of efforts or their conflict with each other [13, 14].

#### **2.5. The practical framework**

For the missing values and before starting the process of analyzing data and extracting statistical indicators, one must first ensure that the data does not suffer from a deficiency or missing values. If the data contains missing values, so there are several options for the researcher to either delete the question or item that contains missing values or estimate the missing value by one of the estimation methods, the third is to treat the data as it is, for the purpose of identifying the missing values, the researcher extracted the repetitions and percentages by using the (SPSS V.23) program, as it is clear from the program output that the data does not suffer from missing values. The aim of test of normal distribution of data is to determine the distribution of the data, in addition to determining whether the tests to be used are parameter tests, or non-parametric tests (Sekaran & Bougie, 2016: 238), as the evaluation of the normal distribution is carried out through statistical methods, especially by performing the Kolmogorov-Smirnov test or the Kurtosis & Skewness coefficients (Tabachnick & Fidell, 2014: P.198), (Hair et al, 2010: 71) believes that the standard value to ensure that the data are normally distributed is

that they fall within the permissible range which is ( $\pm 1.96$ ), as the data were tested by using the Kolmogorov-Smirnov test, as shown in the Table 1.

Table 1. Results of the normal distribution test

Type and parameters of the test Research variables	Kolmogorov-Smirnov		
	Statistics test	The value significance	The significance of the test
the management of change	.0700	.0830	significant
Total quality management requirements	.0770	.0570	significant

It is clear from the value of the significance level of the Kolmogorov-Smirnov test for the study variables that it was greater than the significance level at (0.05), this indicates that the variables follow a normal distribution.

## 2.6. The test stability

The stability refers to the extent of the internal consistency of the scale, which means that the questions are all aimed at a general purpose to be measured, as the likelihood of obtaining the same results when repeating the same scale again (P: 144, Oppenheim, 1992), as the stability is used to determine (to what extent it is possible to repeat the use of the scale and the results remain the same, the stability of the scale over time, and the results of the scale are similar for a different period of time), the Cronbach's Alpha Coefficient is used to measure the internal consistency of the scale items, its dimensions, its variables, and the scale as a whole (184: De Vaus, 2002), since the value of Cronbach's Alpha ranges between (0-1), as it should be equal to or higher than (0.70) in order to be considered as having acceptable internal consistency (Hair et al. 2019, P: 775) while Sekaran & Bougie, 2016: 290) indicated that if the value of (Cronbach's Alpha is equal to or higher than (0.60), it is considered an acceptable value, but if it is lesser than that, its internal consistency is considered weak and does not bear the acceptable level of stability, the stability test of the measuring instrument (the questioner) can be clarified as shown in Table 2.

Table 2. Results of the internal consistency test of the scale

Study variables and dimensions	Number of items	Alpha Cronbach parameter for variables and dimensions
Technological change	5	0.963
Behavioral change	5	0.962
Structural change	5	0.962
Career change	5	0.963
the management of change	20	0.96
Employee participation	5	0.962
Focusing on the customer	5	0.961
Higher management commitment and support	5	0.963
continuous improvement	5	0.962
Evidence-based decision making	5	0.962
Total quality management requirements	25	0.959
For all items of the questionnaire	65	0.964

Table 2 shows that the values of Cronbach's Alpha ranged between (0.959 - 0.963) for the variables and dimensions of each dimension, which is greater than (0.70), this indicates that the variables and dimensions have adequate internal consistency, while the internal consistency coefficient (Cronbach's Alpha For the scale in total, its value was 0.964), as it enjoyed a high evaluation, these results indicate that the study scale (the questionnaire) has a high level of stability, this is evidence of the extent of its internal consistency, the stability of its items, evidence of the extent to which the scale can be repeated and giving the same results, therefore other statistical tests can be performed based on these results.

### 2.6.1. The validity of the tests

The validity reflects the extent to which the phenomenon to be studied can be measured through the data which were collected, in addition to know whether the answers of the sample members agree with the true meaning of the items of the questionnaire, do these items actually measure what they were designed to measure, in order to ensure the validity of the current study is tested, this will be done through two main types of validity: Content Validity and Construct Validity, that the determinants of validity related to the validity of the construction involving on calculating and examining other relationships or statistics, while the validity of the content does not involve any statistical calculations, rather, through personal judgments, the content's validity, also known as face validity, which is concerned with evaluating the appropriateness of the items and variables used in the study to represent a specific concept through the true expression of the definition and theoretical content of this concept (2017: P.1570) Bryman & Bell, as this kind of validity is usually checked through a rational analysis of the test content, as it is based on subjective and individual judgments, resulting from feedback from peer reviewers or through pre-test final exams on a small group that represents part of the overall study sample (Bryman & Bell, 2017: P.159), the content validity or apparent(face) validity was conducted in the current study by a group of expert professors who specialized in the field of business administration, statistics, and psychology in Iraqi universities, whose number is (13) arbitrators, as a group of comments were raised by them about the scale items, as the researcher made the amendments agreed upon by the arbitrators with regard to amending some items or adding or deleting other items, they were used to improve the study scale before the final distribution, while as for Construct Validity, it represents the extent to which a set of indicators (items) accurately represent the concept for which it was developed (Hair et al, 2019: 162), or the issue of whether or not an indicator or a set of indicators (items) that are designed to measure a particular concept is to really measure that concept (Bryman & Bell, 2017: 158), there are two types of construct validity that can be measured and tested, namely Convergent Validity and Discriminant Validity (Hair et al, 2019: 162), the convergent validity is related to the evaluation of the extent of the correlation and strength of a group of items with a specific variable or dimension, it can be evaluated through global saturations (Factor Loading) when using the confirmatory factor analysis (CFA), when using the Factor Loading method to evaluate the convergent validity in the dimensions or variables, as we should define the standard Factor Loading for each indicator that measures that dimension or variable (127: Hair et al, 2019), while we find through Discriminant Validity the evaluation of the level in which each dimension is distinguished from the other dimensions. Correlation value between dimensions of variables is lesser than (0.90), otherwise, they are combined with each other as they measure the same thing and do not differ among themselves (Hair et al, 2019: 677-676), as exploratory constructive validity and confirmatory factor analysis will be used as follows:

#### 1. Exploratory construction validity

Exploratory constructive validity depends on the exploratory factor analysis (EFA) method whose primary purpose is to summarize and reduce multiple variables in a smaller number of variables, as they are called Factors, as each of these factors has some or all of these variables, as the exploratory factor analysis gives the items freedom to relate to the factor that fits and agrees with them, so that it does not depend on the hypothetical structure of previous studies regarding the structure of measures, while in the current study, it will be based on an exploratory factor analysis by using (SPSS, V.23) to test the first variable scale (changing management), the second variable scale (Total Quality Management requirements), this is in order to explicitly explore for the dimensions that are included under these scales, so an exploratory factor analysis will be used to help for defining the dimensions that are included in the scale as well as identifying the items that are not related to the scale structure and whose dimensions must be removed from the scale, by adopting standards that should be met in the result of this analysis as they are as follows:

#### 2. The scale of data suitability (KMO)

To verify this condition, the researchers recommended the use of the (Kaiser-Meyer-Olkin) scale (KMO), which is one of the important steps in this analysis and indicates the suitability of the data for parameter analysis, as the KMO statistic ranges between (0-1), the value (0) indicates that the total of the partial correlations is greater than the sum of the total correlations, as this indicates that the correlation model is widespread (here the use of exploratory factor analysis is not appropriate or suitable), but if the value is close to (1), this indicates that the model of correlations are consistent and the factor analysis will be reliable, this indicates the safety of the exploratory factor analysis greatly, Kaiser (Kaiser, 1974) recommends that the acceptable values be greater than

(0.50) while the values that are lower than this value means that the researcher must either collect more data (increase the sample size) or rethink the variables included in the scale, this is a basic condition that must be fulfilled (Kaiser, 1974), in addition to the Bartlett test, which tests the existence of correlations between variables that indicate that the correlation matrix is a single matrix (Identity Matrix), which aims to verify that the correlation coefficients do not reach the value to zero after making sure that there are acceptable correlations between the items of the questionnaire condition of the significant value (Chi-Square) to denote the acceptability of the mentioned correlation coefficient.

- ❖ The cumulative percentage of the explained variance gives greater significance when it exceeds.(0.50)
- ❖ The Eigen Value is not lesser than the integer one.
- ❖ Increasing the saturations of the items (Loading) from (0.30) in order to be statistically significant.

### 2.6.2. The Changing management variable

It is clear from Table 3, the adequacy of the sample size for the changing management variable, which consists of (20) items. The value of the KMO test is greater than (0.50), which amounted to (0.898), which it is according to (Kaiser) classification is considered a good value, also as shown in the table, the (Bartlett) test indicates the presence of significance, as the test value reached (1222.083) at a level of significance (0.000) which is lesser than (0.05) as the results confirm the verification of the necessary criterion of the criteria for the Exploratory Factor Analysis Test (EFA) in relation to the items for the variable management changing.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.898
Bartlett's Test of Sphericity	Approx. Chi-Square	1222.083
	df	190
	Sig.	0.000

As verifying the remaining criteria above requires the use of the Principal Components (Field, Andy., 2009: P 627) method, which also helps in verifying the validity of statements, as the number of underlying dimensions of the scale, that this method is used to extract the factors.

Table 4 shows the results of the factor analysis according to the basic components method.

Table 4. Results of the factor analysis for the changing management variable items

Items	code	Loading Factors			
		First factor	Second Factor	Third Factor	Fourth Factor
1 Providing training programs to meet their required skills needs.	S1	.637	-.396-	.210	-.171-
2 Involving the largest number of workers in training and development programs.	S2	.554	-.324-	.185	-.090-
3 The employees of the organization are trained in the change programs they need.	S3	.602	-.525-	-.030-	.266
4 Approaching and communicating with working individuals during the change process.	S4	.613	-.217-	-.190-	.159
5 Conducting a periodic evaluation of the performance of its working members	S5	.644	-.330-	-.247-	.255



Items	code	Loading Factors				
		First factor	Second Factor	Third Factor	Fourth Factor	
6	according to which the appropriate training program is determined. Entering the latest technological methods used in communication operations.	P1	.639	.142	-.347-	-.204-
7	The organization seeks to change the technological devices used and develop them to keep pace with changes.	P2	.557	-.064-	-.497-	-.023-
8	The introduction of the Internet in providing services to customers.	P3	.639	.209	-.192-	-.244-
9	Having an advanced equipment system in preparing, storing, archiving and retrieving all its information to be submitted to the decision maker in a timely manner.	P4	.671	-.086-	-.230-	-.257-
10	Adopting processes to improve the quality of its outputs on new software, computers, and algorithms.	P5	.666	-.065-	-.051-	-.275-
11	Studying and developing its organizational structure continuously and whenever the need arises.	G1	.601	-.267-	.409	-.081-
12	Changing the organizational structure in the organization when creating departments or jobs in it.	G2	.769	-.174-	.049	-.035-
13	Merging and creating departments and whenever there is a need for change.	G3	.592	.054	.387	-.265-
14	Accurately change communication lines between all its departments.	G4	.698	.125	.035	.174
15	Constantly making changes to management units.	G5	.618	.318	.200	-.082-
16	Changing the type of activities and tasks assigned to employees.	J1	.528	.143	.083	.603
17	Determining the way to do business.	J2	.558	.543	.107	-.032-
18	Updating changes in the size of responsibilities, powers and authorities.	J3	.662	.202	.248	.157
19	Paying attention to the research and development process and considers it one of the basic tasks	J4	.586	.450	-.154-	-.006-
20	Keeping pace with and continuously developing that is happening in the environment with regard to systems and methods of work.	J5	.586	.358	.049	.261

The results shown in Table 5 indicate the saturations or loading of the items on the extracted factors (four factors) in varying proportions, as to recycle the saturations of the items on the factors appropriately, with the aim of improving the position of the extracted factors, i.e. making a balance of the saturations on the extracted factors, the best way to rotate is the (promax<sup>2</sup>) method (Dudin, 2013:p. 195-198), in order to show the features of the worker and the items that are saturated on it greatly, a comparison is made at each item that is saturated on more than one factor and remains on the largest saturation of the worker and neglects the rest of the other saturations (For one paragraph) to clarify the features of the worker and the constituent items, i.e. (one item is saturated on one factor only) , as it is clear in Table (5).

Table 5. Results of parameter analysis of the post rotation changing management variable items

Items	Code	Loading Factors				
		Functiona l change	behavioral change	structural change	technological change	Interplays
1	Providing training programs to meet their required skills needs.	S1			.467	.636
2	Involving the largest number of workers in training and development programs.	S2			.427	.455
3	Training the personnel of the organization on the change programs they need.	S3			.798	.710
4	Approaching and communicating with working individuals during the change process.	S4			.628	.485
5	Conducting a periodic evaluation of the performance of its working members according to which the appropriate training program is determined.	S5			.768	.649
6	The introduction of the latest technological methods used in communication operations.	P1		.757		.590
7	The organization seeks to change the technological devices used and develop them to keep pace with changes.	P2		.669		.562
8	Entering the Internet in providing services to customers.	P3		.709		.548
9	Having an advanced equipment system in preparing, storing, archiving and retrieving all its information to present it to the decision maker in a timely manner.	P4		.728		.577
10	Adopting processes to improve the quality of its outputs on new software, computers and algorithms.	P5		.652		.527

Items	Code	Loading Factors				Interplays
		Functiona l change	behavioral change	structural change	technological change	
11 Studying and developing its organizational structure continuously and whenever the need arises.	G1		.759			.607
12 Changing the organizational structure in the organization when creating departments or jobs in it.	G2		.701			.626
13 Merging and creating departments and whenever there is a need for change.	G3		.697			.573
14 Accurately change communication lines between all its departments.	G4		.483			.534
15 Constantly making changes to administrative units.	G5		.504			.530
16 Changing the type of activities and tasks assigned to employees.	J1	.640				.670
17 Determining the way to do business.	J2	.750				.619
18 Updating changes in the size of responsibilities, powers and authorities.	J3	.706				.565
19 Paying attention to the research and development process and considers it one of the basic tasks	J4	.677				.569
20 Keeping pace with and continuously developing that is happening in the environment with regard to systems and methods of work.	J5	.723				.542
The Eigen		7.775	1.682	1.103	1.015	
The percentage of Interpreted variance%		38.874	8.409	5.514	5.074	
Cumulative percentage of variance%		38.874	47.283	52.796	57.871	

Table 5 shows contributions or interplays (Dudin, 2013: p. 195-198). interplays are the variance percentage of the variable that can be explained by the extracted factors, as the highest value of contributions is reached at the item (employees in the organization are trained on the changing programs that they need), as its value reached to (0.71), this means that the extracted factors explain together an amount of 71% of the variance of this item, of course when the value of contribution is the higher for the item will be better, while the lowest value of the

item (involving the largest number of workers in training and development programs) reached its value (0.455). This means that the extracted factors together explain 45% of the variance of this item.

### 2.6.3. The variable of comprehensive quality management requirements

Table 6 shows the adequacy of the sample size for the variable of the total quality management requirements, which consists of (25) items, as it turns out that the value of the (KMO) test is greater than (0.50), which reached to (0.908), which according to the classification of (Kaiser) is considered a good value. As shown in the table, the (Bartlett) test indicates the presence of significance, as the test value reached to (1904.513) at a significance level (0.000), which is lesser than (0.05)

Table 6. KMO and Bartlett's test of the variable items of TQM requirements

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.908
Bartlett's Test of Sphericity	Approx. Chi-Square	1904.51
	df	3
	Sig.	0.000

The above results confirm the verification of the necessary standard of the EFA test standards regarding the items which related to the TQM variable. Verification of the remaining criteria above requires the use of the Principal Components method which also helps in verifying the veracity of the statements and the number of latent dimensions of the scale. Table 7 shows the results of the factor analysis according to the method of the basic components.

Table 7. The results of the parameter analysis for the TQM requirements variable items

Items	Code	Loading Factors				
		First Factor	Second Factor	Third Factor	Fourth Factor	Fifth Factor
1 Learning the employees how to implement the comprehensive quality requirements.	K1	.692	-.153-	.386	.029	-.112-
2 Delegating powers to various administrative levels.	K2	.689	-.014-	.402	-.241-	.204
3 Focusing on teams as a way to improve commitment and ensure that their goals are met.	K3	.540	-.065-	.378	-.360-	-.261-
4 Applying the teamwork method and considering it a fundamental pillar in the success of the implementation of TQM	K4	.558	-.109-	.527	.076	.205
5 Providing the appropriate means for communicating employee proposals to higher management.	K5	.700	.035	.362	-.326-	-.110-
6 Emphasizing the need for speed in meeting the needs and desires of customers.	V1	.612	.476	.037	.012	.119
7 Adopting multiple methods to know customers' opinions about the quality of their products.	V2	.641	.129	-.293-	-.102-	-.089-
8 Using scientific methods to predict the needs and desires of your customers for products.	V3	.623	.431	.067	.000	.103

	Items	Code	Loading Factors				
			First Factor	Second Factor	Third Factor	Fourth Factor	Fifth Factor
9	The organization's recognition of the current and future requirements of its external clients.	V4	.599	.349	-.318-	.009	-.058-
10	Dealing with complaints related to product quality as a top priority.	V5	.606	-.281-	-.188-	-.076-	.284
11	Commitment to implementing the requirements of comprehensive quality management.	C1	.617	.429	-.133-	.073	-.157-
12	Encouraging distinguished employees to provide better performance by giving them rewards and incentives.	C2	.617	.304	-.173-	-.099-	-.117-
13	Providing material and moral support to implement the requirements of total quality management.	C3	.437	.451	.149	.399	.099
14	Actively participating in the implementation of total quality management and the continuous improvement process.	C4	.542	.482	.027	.037	.147
15	Arranging the resources needed to educate and train personnel.	C5	.532	.362	-.211-	-.010-	-.093-
16	Reducing the discrepancy between customers' expectations about the level of product quality and the level of quality provided to them.	B1	.684	-.110-	-.193-	-.227-	.126
17	Adopting multiple scientific and technological methods and tools for the purpose of improving the quality of its products.	B2	.639	-.309-	-.135-	.188	.454
18	Presenting the results by comparing them with planned results in order to make improvements.	B3	.692	-.261-	-.331-	-.229-	-.063-
19	Taking responsibility towards society through continuous improvement.	B4	.661	-.261-	-.193-	-.077-	.441
20	Management views continuous improvement at work as part of the quality requirements.	B5	.654	-.317-	-.310-	-.207-	-.237-
21	Making decisions through the set plans and the goals specified therein.	N1	.615	-.252-	.049	.309	-.059-
22	It encourages its workers to participate in the decision-making process.	N2	.698	-.258-	-.014-	.318	-.144-
23	Adopting market needs when making product development decisions.	N3	.744	-.216-	.079	.157	-.168-

	Items	Code	Loading Factors				
			First Factor	Second Factor	Third Factor	Fourth Factor	Fifth Factor
24	Taking into consideration the proposals of its workers in the decision-making process.	N4	.588	-.350-	-.089-	.341	-.287-
25	Completing the decision-making process for implementing comprehensive quality management systems according to clear scientific foundations.	N5	.704	-.091-	.149	.147	-.171-

As shown in Table 7, the saturations of the items on the extracted factors, which are (five) in varying proportions, after performing the rotation of the items on the extracted factors, the items are saturated on the factors in different proportions while preserving the condition that the saturation ratios are greater or equal to (0.30) so we see that one item is saturated on more than one factor, in order to show the features of the factor and the items that are saturated on it more, a comparison is made at each item that is saturated on more than one factor, maintaining the greatest saturation of the factors and neglecting the rest of the other saturations (for one paragraph) to clarify the features of the factor and the items that make up it, i.e. (One item is saturated on one factor only), as shown in Table 8.

Table 8. The results of the parameter analysis for the TQM requirements variable items after rotation

	Items	Code	Loading Factors					
			Higher Management Commitment and Support	Evidence-Based Decision Making	Employee Engagement	Customer Focus	Continuous Improvement	Interplays
1	Teaching employees how to apply the comprehensive quality requirements.	K1			.758			.664
2	Delegating powers to various administrative levels.	K2			.829			.736
3	Focusing on teams as a way to improve commitment and ensure that their goals are met.	K3			.733			.636
4	Applying the teamwork method and considering it a fundamental pillar in the success of the implementation of TQM	K4			.719			.649
5	Providing the appropriate means to communicate employees' proposals to senior management.	K5			.835			.740
6	Emphasizing the need for speed in meeting the needs and desires of customers.	V1				.393		.618
7	Adopting multiple methods to know customers' opinions about the quality of their products.	V2				.411		.532
8	Using scientific methods to predict the needs and desires of your customers for products.	V3				.401		.589
9	The organization's recognition of the current and future requirements of its external clients.	V4				.344		.585

	Items	Code	Loading Factors					
			Higher Management Commitment and Support	Evidence-Based Decision Making	Employee Engagement	Customer Focus	Continuous Improvement	Interplays
10	Dealing with complaints related to product quality as a top priority.	V5				.713		.568
11	Commitment for implementing the requirements of comprehensive quality management.	C1	.762					.612
12	Encouraging distinguished employees to provide better performance by giving them rewards and incentives.	C2	.684					.527
13	Providing material and moral support to implement the requirements of total quality management.	C3	.625					.585
14	Actively participating in the implementation of total quality management and the continuous improvement process.	C4	.717					.550
15	Arranging the resources needed to educate and train personnel.	C5	.659					.467
16	Reducing the discrepancy between customers' expectations about the level of product quality and the level of quality provided to them.	B1					.537	.584
17	Adopting multiple scientific and technological methods and tools for the purpose of improving the quality of its products.	B2					.856	.764
18	Present results by comparing them with planned results in order to make improvements.	B3					.729	.713
19	Taking responsibility towards society through continuous improvement.	B4					.370	.742
20	Management views continuous improvement at work as part of quality requirements.	B5					.768	.723
21	Making decisions through the set plans and the goals specified therein.	N1		.728				.543
22	It encourages its workers to participate in the decision-making process.	N2		.814				.676
23	Adopting market needs when making product development decisions.	N3		.776				.659
24	Taking into consideration the proposals of its workers in the decision-making process.	N4		.792				.674
25	Complete the decision-making process for implementing comprehensive quality	N5		.706				.577

Items	Code	Loading Factors					
		Higher Management Commitment and Support	Evidence-Based Decision Making	Employee Engagement	Customer Focus	Continuous Improvement	Interplays
management systems according to clear scientific foundations.							
The Eigen		9.956	2.166	1.542	1.040	1.012	
The percentage of Interpreted variance%		39.822	8.664	6.167	4.159	4.048	
Cumulative percentage of variance%		39.822	48.487	54.654	58.813	62.862	

It is clear from table (8) interplays, as the highest value of them was reached in the item (**adopting multiple scientific and technological methods and tools for the purpose of improving the quality of their products**), as their value reached (0.764). This means that the extracted factors together explain 76% of the variation of this item, while the lowest value was reached in the item (**arranging the resources needed to educate and train working personnel**), as its value reached (0.467), this means that the extracted factors together explain 46% of the variance of this item.

### 3. Analysis of the correlation among the study variables

This topic examines the correlation relationship among the independent variable and the interactive variable, changing management in its dimensions and fields (technological change, behavioral change, structural change, functional change), as the dependent variable is the requirements of total quality management, as the goal of correlation analysis is to discover the existence of a significant relationship between the variables, and the results of the correlation analysis are as follows:

1-Examining the hypothesis of the main study (the first), which states (there is no significant correlation between changing management and the requirements of TQM)

The correlation coefficient between changing management and total quality management requirements reached (0.805 \*\*) at the level of significance (0.000), which is lesser than the level of significance (0.05), as the value of (t) reached to (16.204) which is greater than the tabular value of (t) reaching to (1.660), This means that rejecting the null hypothesis and accepting the alternative hypothesis, which states (there is a significant correlation between changing management and the requirements of TQM).

2- Examining the hypothesis of the second sub-study, which states (there is no significant correlation between the dimension and the field of behavioral change and the requirements of TQM)

The correlation coefficient between the dimension and field of behavioral change and the requirements of total quality management was (0.680 \*\*) at the level of significance (0.000), which is lesser than the level of significance (0.05), as the value of calculated (t) was (11.086), which is greater than the tabular (t)value reached to (1.660), this means rejecting the null hypothesis and accepting the alternative hypothesis, which states (there is a significant correlation between the dimension and the field of behavioral change and the requirements of TQM).

3- Examining the hypothesis of the third sub-study, which states (there is no significant correlation relationship between the dimension and the field of structural change and the requirements of TQM)

The correlation coefficient between the dimension and field of structural change and total quality management requirements reached (0.701 \*\*) at the level of significance (0.000), which is lesser than the significance level (0.05), as the calculated(t) value of reached (11.771), which is greater than the value of (t) tabular value (1.660), this means rejecting the null hypothesis and accepting the alternative hypothesis, which states (there is a significant correlation between the dimension and the field of structural change and the requirements of TQM).

4- Examining the hypothesis of the fourth sub-study, which states (there is no significant correlation between the dimension and the field of career change and enhancing the requirements of TQM) The correlation coefficient between the dimension and the field of job change and enhancing the requirements of TQM was (0.736 \*\*) at the level of significance (0.000), which is lesser than the level of significance (0.05), as the value of (t) calculated was (13.011), which is greater than the value of the tabular(t) value (1.660), this means rejecting the null hypothesis and accepting the alternative hypothesis, which states (there is a significant correlation between the dimension and the field of career change and strengthening the requirements of TQM).



Table 9. Showing the correlation values between the dimensions and areas of changing management and the requirements of TQM

Dependent variable	Dimensions and fields of changing management variable	Correlation value and level of significance		tabular t test			
Total quality management requirements	Technological change	Correlation value	0.605**	9.075	1.660		
		Sig	0.000				
	Behavioral change	Correlation value	0.680**	11.086			
		Sig	0.000				
	Structural change	Correlation value	0.701**	11.771			
		Sig	0.000				
	Career change	Correlation value	0.736**	13.011			
		Sig	0.000				
	the management of changing	Correlation value	0.805**	16.204			
		Sig	0.000				
	Number of the accepted hypotheses			5		Correlation is significant at the 0.01 level (2-tailed).**	
	Percentage			% 100			

#### 4. Conclusions

The conclusions and recommendations contribute to the most important part of research and studies, as they represent the overall output of the practical side, as well as contribute to solving the study problem, adding a new scientific fact in the field of knowledge, as this chapter is the conclusion of the previous chapters, Complementing to them and the outcome of the researcher's modest scientific effort in preparing for the current research. The results indicated that the managers who are responsible for the departments, sections and the production lines work to respond to the individual needs of the workers on an ongoing basis according to the capabilities and powers, in addition to providing advice and guidance in order to develop the organization's workers, as the organization operates on the hourly system (hourly wages) relies on experience and competence in determining the appropriate wage, the results indicated that the organization is concerned with the changes occurring in the surrounding environment in order to confront it and prepare for it or adapt to it. The results indicated that the organization seeks to change and develop devices to keep pace with the changes taking place in this field and within the available capabilities, also to introduce the latest technological methods which used in production processes as the organization prepares detailed feasibility studies when changing one of the production lines or developing a new production line, that the results showed that the organization is interested in training programs to meet its needs of the required skills, as workers are trained on the change programs they need, as a periodic evaluation of the performance of its wages which is carried out according to which the appropriate training program is determined according to the needs of the organization, the results indicated that the organization seeks to keep pace with the development with what is happening in the field of work to serve the goals and plans of the organization and in line with the aspirations and expectations of the customers.

#### 5. Recommendation

In order to complete the research effort, based on the conclusions and analytical readings reached by the previous research on the results of the study in its practical aspect, the researcher developed a set of ideas and formulated recommendations that could contribute for solving the study problem, presenting a set of recommendations and suggestions, as required by research and scientific necessity, which contribute to a benefit to the industrial organization (Itihad Factory / Food Industry) in the field of strengthening and improving the

total quality management, as well as increasing its interest in changing management processes. It is imperative that the factory management working on developing mechanisms and means to enable its workers to accomplish their tasks, especially: Holding interactive workshops, which are held on the basis of brainstorming between the units and departments of the authority, preparing programs for the dualism and cross-fertilization of knowledge between colleges, universities and institutes which are related to the management of the factory, giving more attention and allocating sufficient time by managers to listen to their talented employees and those with renewed ideas). The necessity for the plant management to adhere to continuous changing management and make it a renewed management style for it, through its constant interest in changing the behavior of its human resources by providing them with skills, knowledge and experiences, also attracting creative talents in the field of specialization, as well as renewing the job and making it compatible with the data of the industrial environment, providing for the technological change and knowledge sharing, and the entering new software and algorithms for the factory, as well as interest in changing its structures and making them flexible to achieve comprehensive and total quality management. The management of the factory shall invest in the changing management in strengthening the total quality management through concern for the change in the behavior of its human resources, the change in its structures and the changing in its functions in line with the changes in its environment, as well as the technological change.

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