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Total Quality Management Strategies and their Impact on Digital Transformation Processes in Educational Institutions. An Exploratory, Analytical Study of a Sample of Teachers in Iraqi Universities

Dr. Ali Kadhim Hussein Alsharifi [a]

[a] *Assistant Professor, Al-Furat Al-Awsat Technical University, Iraq. E-mail: inkr.ali6@atu.edu.iq*

Abstract

One of the administrative concepts that has gained widespread traction across all industries, particularly the education sector, is total quality management techniques. Numerous industries have been successful in putting (quality management) into practice and benefiting from its tenets, allowing them to stand out in their applicability, It is one of the driving forces behind enterprises' shift to a knowledge-based economy, and to stay competitive, organizations must disseminate digital culture and focus on organizational transformation, The goal of the research is to present contemporary concepts that are not too far away, but it was not something that could be changed easily because it is an expression of life and one of the fundamental and widely recognized principles. Therefore, the research started from a problem represented by the lack of interest of the research sample in (total quality management) practices in the context of the digital transformation process, the practice of total quality management, how to lead the digital transformation processes, and knowing the relationship between them, conveyed in several different questions? Do our educational institutions have the plans and initiatives necessary to put comprehensive quality procedures into practice? Has TQM created a framework that explains the digital transformation process? The research was based on a sample of (170) respondents, all of whom were subjected to analysis and included a number of members of the bodies. It was conducted at a number of Iraqi universities, including Karbala, Babylon, AL-Furat Al-Awsat Technical, and Al-Qadisiyah. Using the statistical program (SPSS, V.23), teaching from experts in quality assurance, university performance, and follow-up committees for e-learning, as well as the current study, a set of results have been reached, the most significant of these is that Total Quality Management is an organizational strategy that helped to start the road of digital transformation and is one of the essential elements that it uses to help firms develop their digital capabilities. The research's key conclusion is that the educational environment is experiencing an extreme state of flow. Digital transformation procedures should be used because they are no longer a choice but rather a management system and a perfect proactive action that can be implemented in the postmodern era and begin to bear fruit.

Keywords: Total Quality Management Strategies, Digital Transformation.

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Introduction

The digital and technical era is witnessing continuous development in all sectors, including the educational sector, due to the distinguished role that TQM plays as an organizational thought and a comprehensive management approach upon which the process of changing the economic, social and technological environment of organizations is based. In the environment of intensive digital globalization, business organizations are increasingly facing various challenges. Among them are the high costs of quality, strong durability, and rapid technical development. Most organizations have already entered or are entering into digital change and transformation through its various applications, which results in important changes in the business environment, which has increased pressure on organizations to become more competitive, although they are not immune. Against all these changes, including the process of digital transformation and its positive impact on organizational improvement and development, organizations began to realize that the economic success of any country depends largely on the ability of organizations to adapt to the internal and external environment and provide high-quality products and services with great competitive capabilities. Digital transformation provides an advantage Competitive and value-added, quality centers have provided a collective approach to the (TQM) movement Enable employees to work and explore a variety of proposals and ideas, especially in improving services and general basics. Therefore, this research stems from two main variables, which are total quality management and digital transformation in a number of educational institutions, and the research was divided into four sections. The third topic deals with the practical aspect and testing hypotheses, correlation and influence relationships, and deals with the conclusions and recommendations that have been reached.

The First Topic: The Scientific Methodology of the Research

The scientific research methodology represents the road map that the researcher follows, the steps followed, and the general framework for the research variables, as follows:

First: The Research Problem

The world has changed from focusing on strategic management thinking away from the industry structure and competitive situation to the strategic internal factors of digitization such as continuous improvement, organizational climate, administrative skills, knowledge and culture, so educational institutions are not far from this transformation, Considering quality is crucial to making decisions and being able to comprehend what success means in the context of digital transformation, as well as due to the environmental and health changes brought on by the Corona pandemic, it was necessary for educational institutions to search for new and alternative methods and technical methods that keep pace with change in the world, and the extent of their willingness to understand the nature of digital transformation, as total quality management significantly reduces Remarkable tendency towards errors and moving towards the completion of tasks and application. The lack of interest within the research sample in TQM procedures in light of the digital transformation process is thus the problem with the study, and the ensuing questions are as a result:

1. Determining the strategies of total quality management and the nature of their applications in educational institutions.
2. Do the strategies of total quality management enhance the digital transformation processes in the educational institutions under study?
3. What is the availability of the skills, capabilities and capabilities required to carry out the digital transformation process?
4. Do our educational institutions have the plans and initiatives necessary to put into place total quality practices in time for these changes?
5. What are the challenges faced by educational institutions in leading the digital transformation process?

Second: Research Objectives

The current research seeks to achieve the following goals.

1. Diagnosis of total quality management strategies and what role they play in leading the digital transformation process.
2. Diagnosing the effectiveness of digital transformation processes in educational institutions.
3. Assess the degree to which the elements of comprehensive quality management are connected to the procedure for digital transformation.
4. Determine the impact of the overall quality dimensions on the digital transformation process
5. Providing everything that contributes to assisting educational institutions in leading the transformation process, which was the reason for the maturation of their technical capabilities away from digital challenges.

Third: The Importance of Research

1. Provide an idea of the variables of the current research in the educational institutions that are witnessing great growth in the field of total quality management practice and the changes they need in the field of digital transformation.
2. Provide a theoretical contribution to each of them and determine the type of relationship and impact between them in a way that serves future directions in educational institutions.
3. The importance of the research lies in its application and selection of a topic related to the field of educational administration, which helps in developing and developing the skills of teachers to adapt to the digital transformation.
4. Exposing the ability of educational institutions to invest in comprehensive quality strategies in facing digital challenges and their varying effects on performance and sustainable development.

Fourth: Research Hypotheses: The Research is based on Two Main Hypotheses

The First Main Hypothesis

(There is no association between the characteristics of comprehensive quality management methods and digital transformation) and a set of sub-hypotheses emerges from them as follows.

A. The relationship between senior management support and digital transformation is not statistically significant.
B. Employee engagement and digital transformation do not statistically significantly correlate.
C. Training and the digital transformation process do not statistically significantly correlate.
D. Continuous improvement and digital transformation have no statistically meaningful association.

The Second Main Hypothesis

(There is no effect of total quality management practices in the process of digital transformation in its dimensions) and the following percussive hypotheses emerge from it.

A. Whole quality management approaches and the usage of technology have no discernible relationship.
B. Whole quality management approaches and changes in value creation have no discernible relationship.
C. There is no significant impact relationship between total quality management practices and structural changes.
D. Financial change and total quality management approaches have no discernible relationship.

Fifth: Justifications for Choosing the Topic: One of the Reasons that Prompted the Choice of Research

1. Determine the objective reasons that impede the practice of total quality management in educational institutions.
2. Digital transformation operations are no longer an open option, but rather it has become a binding matter and an administrative and organizational reality that must be adapted to, despite the technological difficulties at the beginning of the emergence of the Corona pandemic

Sixth: Research Limits

1. Temporal boundaries. Borders extended for the period between (10/15/2021 to 3/15/2022).
2. Spatial boundaries. It was represented by the selection of a group of faculty members from the officials of the quality assurance and academic performance divisions and from the workers in the e-learning follow-up committees in four Iraqi universities, including (Al-Furat Al-Awsat Technical University, University of Karbala, University of Babylon, University Al-Qadisiyah).

Seventh: Data Collection Methods: Data were Collected using the following Methods

1. The theoretical side. The researcher relied on many scientific sources such as foreign books, periodicals and treatises related to the current topic, as well as foreign research and articles through the World Wide Web (Internet).
2. The practical side. The research used a questionnaire as its primary method for gathering information on the viewpoints of a sample of e-learning instructors and those involved in quality control and university performance at many Iraqi institutions, and the search form consisted of three axes, including the first axis of personal information For the respondents, either the second axis includes the dimensions of total quality management practices based on the scale (Bagga and Syed: 2020: 64). This axis includes four dimensions (senior management support, employee participation, training, and master improvement) and includes five paragraphs for each dimension with a total of (20) Paragraph. As for the third axis, it relates to digital

transformation, and it was measured based on the scale of (Gharib, 2015: 29). The axis includes four dimensions (the use of technologies, changes in value creation, structural changes, and financial changes) and it includes (5) paragraphs for each dimension, with a total number of Paragraphs (20). Clarity and accuracy have been taken into account in formulating the paragraphs of the scale so that the respondent can understand all the variables. The five-point Likert scale was adopted and is one of the most widely used methods in the administrative and social sciences. The researcher confirmed the consistency and stability of the research scale, and table (1) presents the components of the measurement tool and its paragraphs for each variable and the sources cited from them as stated in the questionnaire and its test.

Table 1: The Main Variables and their Sub-Dimensions Included in the Questionnaire and its Test

The Main Variables	Main Dimensions	Code	The Number of Paragraphs	Sources
The first axis Personal data	**- marital status** **- the age** **- Qualification** **- Length of service** **- Duration of work in the current job**			Prepared by the researcher and in the light of the information contained in the questionnaire and to serve the current research
The second axis	**total quality management strategic**	TQM	**5**	(Bagga and Syed: 2020: 64)
	1- Support of senior management.	TMS	**5**	
	2- Employee participation	EP	**5**	
	3- Training.	TR	**5**	
	4- Continuous improvement	CI		
The thread axis	**- Digital transformation**	DT		(Gharib, 2015: 29)
	1- Use of technology	UT	**5**	
	2- Changes in value creation	CVC	**5**	
	3- Structural change	SC	**5**	
	4-Financial change	FC	**5**	
total summation			**40**	

Sources: In light of the sources contained therein.

The Second Topic: (The Theoretical Side)

The First Axis: Total Quality Management (TQM)

The roots, principles and practices of (TQM) extend back to the early twentieth century and still attract the attention of researchers, as it is not just a completely independent concept, but rather a misleading that includes a growing set of sciences, knowledge and technology that were common in organizations over the past three decades, but it is not a new management theory, but it is A form of organization that manages lives of continuous improvement (Straviskiene and Serafinas, 2020: 9).

1. The Concept of (TQM)

Some experts believe that the history of total quality management came from the book of thinkers (Lamed Tegmentum) and the book (Karrwa Wasitkawa) Total Quality Control to know total quality control according to the Japanese method, and others say that the terminology (TQM) originated from the US Navy's initiative to rely on great recommendations Total quality management experts (William Doming), and (TQM) was not widely accepted in the eighties. This American statistician, consultant, and administrator developed many methods and foundations for the use of statistics in production and labor management. He presented statistical methods and showed his real interest in Japan and its culture. It is not surprising that he attracted the Japanese for his role in achieving the Japanese economic miracle because it lacks abundant natural resources, which he was invited to solve its economic problems (Jancikoya and Brychta, 2009: 81 9). included in the questionnaire and tested. In light of this, the concepts of total quality management (TQM) have multiplied. We present some concepts that were mentioned by some researchers in this field, as shown in Table (2).

Table 2: The Concept of Total Quality Management (TQM) According to the Opinions of some Researchers and Writers

ت	Researcher name	Concept
1	Mosadeghrad 2006:608	It is the culture of his organization that is bound to achieve integration with the aim of . satisfying customers through continuous improvement, and it is one of the preferred competitive strategies and a way to manage the organization to improve its strategic effectiveness in order to compete globally.
2	Oluwatoyin et al, 2008 p: 4	The degree to which a product or service meets customer expectations.
3	Hur, Hyung 2009: 850	Administrative innovation confirms the organization's full commitment to customers for continuous improvement within the organization.
4	Duran cengiz 2014: 67	An administrative philosophy that makes an effective change in operations using a . number of strategies because it is (changing the culture, participating in dual education, ensuring continuous improvement, and satisfying internal and external customers).
5	Karyotakis and moustakis 2014: 38	The need for renewal and reform in order to meet the new needs of society and . achieve prosperity in the environment of globalization and competitiveness.
6	Noupan fatemeh, 2017: 68	A management philosophy and idea and a comprehensive organizational approach that enables systems and procedures to meet the growth in customer Demotion.
7	Androceanu Armenia, 2017: 63	A collection of traits and qualities that offer the product the royal treatment to satisfy particular needs.
8	Shwet, at el, 2018: 128	It is modern management thinking, an exploratory journey, and an organizational approach that adds value to organizations to face competition and technological challenges.
9	Yeng et al 2018: 2	A set of principles and motivating arguments that serve as the foundation for ongoing organization and development in order to maximize system effectiveness prior to planning, organization, and production. In order to attain a degree of satisfaction for consumers and other stakeholders, it is a method based on participatory management
10	Staxena et al 2019: 394	It is the feature that distinguishes the product or service from its competition, and it is not the responsibility of one member of the organization, but rather a common endeavor to manage citizens, workers and suppliers for the sake of customer happiness.
11	Daqar, 2020: 65	A system for evaluating an individual's activity based on his expectations, culture, and experience.

Source: Prepared by the researcher in the light of the sources contained therein.

It can be said that total quality management is a successful administrative approach and a strategic philosophy to control and monitor the functional performance of organizations, improve their operations and invest their energies to strengthen their competitive position in order to achieve excellence and knowledge transformation.

2. *The Importance of Total Quality Management (TQM*)

As a result of administrative practices and the contribution of many researchers, the concept of total quality management emerged as a response to the new requirements facing organizations and current markets, their complexity and constantly changing in order to maintain their competitive position. The importance of total quality comes as follows:

- **A.** Total quality management means providing different things to people in practice and application, and it seems that the differences relate to the scale of thinking about total quality management, which is a form of postmodern capitalism. Thus, total quality management as a program and management of quality, business operations, and marketing is a model and manifestation of postmodernism (Mitcher, 2014: 2).
- **B.** (TQM) forces organizations to perceive product quality from the perspective of customers, which is the focal point of total quality management. Deming introduced for the first time in Japan to ensure continuous improvement, a model consisting of four stages (plan, do, check, active), for the life cycle (Duran Cengiz et al, 2013: 68).
- **C.** It is a joint effort by the management and the workforce concerned with ensuring the satisfaction and loyalty of customers and their happiness, knowing their reactions and exceeding their expectations, and it plays a vital role in achieving excellence in the production of goods and services (Saxen, Mditm at el, 2019: 394).

D. In order to maintain their competitiveness, businesses need to apply (TQM) processes properly, which raises the quality of the goods and services they offer (Yeng et al, 2018: 2).

E. Total quality management practices identify strengths and weaknesses and provide qualitative contributions and models for quality implementation (Carcia, Rama Alonso, 2014: 353).

F. (TQM) achieves the zero defect every time and from the first time you do an error-free work, meaning everything that the organization does is correct from the first time and every time and in a graceful way (Uduk Paul, 2015: 2).

G. Customers will be disappointed when the service's perceived quality falls short of their expectations. A service is regarded as being of high quality when it meets the demands and desires of consumers, offers consistent service, and beyond their expectations (Daqar, 2020: 65).

H. It helps to create a new culture in successful organizations that use (TQM) practices, and thus becomes the proposed method for changing life in organizations (Hur Hyung, 2009: 851).

I. The application of (TQM) leads to improvements in organizational performance and in productive quality as well as increasing capabilities. Two-thirds of the United States of America either failed or stopped implementing quality management programs as a result of its negative impact on profits. Performance has been achieved on a larger scale (Mossadekrad, 2006: 609)

J. One of the main and critical factors that drive organizations to achieve maximum customer satisfaction and the lowest total costs for the organization while continuing to improve. Quality management consists of four parts (quality planning, quality assurance, quality control, quality improvement) and one of the most prominent advantages and principles of total quality management Which (Noupan fatemeh, 2017: 68), (Qadeer, Ahmad, 2014: 664) and Ralea, Cristina et al, 2019: 123) explained:

- Achieving customer satisfaction.
- Rapid and continuous improvement.
- Raise the general spirit of the organization.
- Strengthening the internal capabilities of the organization (facilitating the process of effective communication).
- Enriching team spirit (participation and empowerment)
- Develop a clear vision for employees and manage relations between all parties.
- Achieving goals and standards for employees.

All of these serve as guidelines for their implementation when strategies and processes are aligned with the culture of the organization (Mosadagh Rad, 2016: 619) creasing competitive capabilities).

3. Dimensions of Total Quality Management (TQM)

The researchers differed in defining the dimensions of total quality management and the most influential in the activity of organizations, and the term quality dimensions is defined as a measurable term and that these dimensions deal with the characteristics of each phenomenon or object, and the most common dimensions were classified and included (tangible and behavioral, known as soft variables), and it has (Bagga and Syed: 2020: 64) explained that the dimensions of total quality management are as follows: - (senior management's backing, workers' participation, training, and ongoing improvement), which are consistent with the nature and scope of the research application and will be adopted in our current research agency.

A. Senior Management Support (TMS). Senior management aims to integrate all organizational activities and procedures, and the contribution of quality is fundamental to the success of business at all levels. It is a modern administrative system that integrates the basic principles formulated by (Doming, Philip, Corsby, Ishkawa, and others) with values In Japanese, senior management has the first and last opinion in directing its activities and operations towards customers and achieving long-term benefits (Androniceanu, 2017: 64).Successful business practices based on digital business have shown that senior management has a clear strategy as it is committed to transformation and defends employee participation in The process in order to be able to work at different functional levels (Schwertner k., 2017: 389) Therefore, senior management must take the lead in formulating goals and strategies for it that reflects its philosophy in creating any proactive work oriented towards customers (AI ayddin, 2017: 15) .

B. Employee Participation (EP). It relates to the willingness of employees to provide services and meet the needs of the customer, and the employees realize their influence on others and their influence, which increases their success in the market in order to improve competitiveness and increase their distinction over competitors (Alshammary, 2017: 7). The participation of employees and their willingness to practice and apply organizational goals on a large scale is evidence that total quality management achieves its goals to ensure integration in soft issues (Sigh and Geetika, 2011: 530). Organizations face issues with internal quality

due to unclear job descriptions, a lack of visions and missions, and the organization's ignorance of the perceptions of its employees. Organizations need to improve their performance, especially in terms of quality, in an effort to ensure survival in the competition with other organizations. It must develop a strategy to satisfy the consumer through the involvement of all its members. in Total Quality Management (Aryanny and Iriani, 2019: 1).

C. **Training (TR).** Some countries, including South Korea, have taken giant steps to improve the quality of life for people, stimulate the economy, and promote technological programs as a means to bridge the cultural gap and reduce it between generations by improving training and communication between parents and news on the one hand, and between first-generation employees and second-generation employees (Woyke Divide, 2009: 17). Therefore, the application of the principles of total quality management contributes to solving problems as it is a necessary measure that activates the leading role played by senior management in implementing training programs because it focuses on the interaction of people in various aspects of the organization (Nouban and Mohammad, 2017: 69).

   The importance of training often lies in addressing difficult logistical problems and more flexible issues, and employees find that digital transformation is difficult and may resist or try to hinder it, so when their employees have adequate training, resistance may decrease and the existing gap shrinks (Kupper, et al ,2019: 1).

D. **Continuous Improvement (IC).** Organizations need multifunctional working groups that deal with management, participate in solving problems, and provide an environment that helps employees to commit and take responsibility for improving the process and initiating the necessary steps for customer satisfaction (Psychogios et al, 2007: 45).

   Continuous improvement and focus on customers are essential elements, both of which seek to integrate the goals and functions of the organization to satisfy customers and increase competitive advantage. Continuous improvement provides sustainable development in the various areas of the organization (Bon and Sam, 2013: 517).

   At all organizational levels, organizations must implement a continuous improvement plan. This helps the organization achieve high performance and is one of the crucial elements in continuous improvement processes (Jadeen et al, 2015: 23). In an effort to ensure survival in the rivalry with other organizations, companies must continuously enhance their performance, particularly in terms of quality. They could experience issues with internal quality brought on by ambiguous job descriptions, a lack of goals and objectives, and a company's ignorance of the perspectives of its personnel. It must develop a strategy to satisfy the consumer through Involve all its members in total quality management.

The Second Axis: Digital Transformation Strategies

The digital transformation strategy can take several forms and models to improve customer experience, including (customizing products and services, personalizing, improving efficiency, and automating tasks and activities and digitizing them) help increase productivity and enhance creativity and decision-making. To build a culture of success, it is essential to support the digital transformation process. In the United States and many other industrialized nations, higher education institutions are embracing this trend. And our educational institutions must provide new products and services based on transforming the needs of the beneficiaries and investing their energies (the cake was not bigger unless we all transformed), and what are the reasons that made (South Korea) a pioneer in the field of technology, and what efforts would be taken in the upcoming years to raise living standards, boost the economy, and promote technological initiatives that helped reduce.

First - The Concept of Digital Transformation

The journey of emerging organizations often involves ups and downs, opportunities, successes and failures. We have to work hard towards competition, and many organizations may be exposed to pressures and challenges to keep pace with digital transformation and think about specific practices to maintain their competitive position and how to deal with programs of change and transformation despite It is not a magic solution to problems, so embarking on a journey of digital transformation has become vital in order to pursue institutional differentiation in a rapidly changing business environment (Kupper et al, 2019: 1), and from here it is necessary to identify the concept of digital transformation in light of what some have stated. Writers and researchers in this context, as shown in Table (3).

Table 3: The Concept of Digital Transformation According to the Opinions of Some Writers and Researchers

S	Name research	Concept
1	Singh and Geetika, 2011: 529	The use of digital technology makes things more effective and efficient, taking advantage of new capabilities and adapting them to emerging and new capabilities.
2	Kane at el ,2015:13	The main and driving force behind massive transformations in many industries in order to create value for customers in the digital context.
3	Wade Michael, 2015: 3	It is the process of using digital technology that makes things more efficient in all aspects of human society, and it is the process of organizational change.
4	Brysch Armin, 2017: 3	the move to digital commerce, a component of the digital economy, and the resulting organizational, technological, economic, and marketing challenges.
5	Santi Cata, 2018: 608	Transforming digital services or businesses by replacing non-digital or manual processes with the latest digital technologies
6	AL-Sherbaz ,2018 :1	It is an investment in thought and a change in behavior to bring about a radical . transformation in the way of work and benefit from the great technical development to serve the beneficiaries faster.
7	Frederic et al, 2019: 3	An application of digital technologies, which represents successful behavior, a complete change, and a tremendous organizational challenge.
8	Bican and Alexander, 2020: 4	A swift transformation of company operations, procedures, capabilities, and ش models to strategically and urgently exploit changes, opportunities, and digital technology and its effects on society.
9	Sayabek and A. Utegenova,2020: 40	Digital integration refers to the multidimensional integration of a variety of technologies and business processes into the digital economy that exceeds the scope of earlier transformations due to the addition of new technical capabilities.

Source: Prepared by the researcher in the light of the sources contained therein.

It can be said that digital transformation is a fundamental transition to make appropriate changes that are compatible with business models and the environment to maximize the real value for beneficiaries by creating new technologies and channels that achieve high performance to ensure sustainability at work**.**

Second: The Importance of Digital Transformation

The importance of total quality management is highlighted in the following points:

1. There is no approach suitable for everyone to successfully complete digital business and transform it as a roadmap to be followed. Organizations may need to develop their digital capabilities. These capabilities consist of three agile components: awareness and sensing new technological trends, i.e. their ability to identify their future directions and make informed decisions that facilitate the process Entering non-traditional competitors and building shareable digital capabilities Rapid change to improve performance, increase revenues, and improve efficiencies (Wade Michael, 2015: 11)
2. Digital transition processes face difficulty in predicting digital transformations. Digitally successful organizations increase the likelihood of providing employees with many times the required skills than lagging organizations, which reduces potential risks. Leaders must adopt failure as a condition for success. The digital agenda starts from the top (Kane et al, 2015: 4).
3. Digital transformation can be considered as a better improvement of resources and as a means of interacting with entities and systems in order to bring about digital and fundamental transformations in the way business is implemented so that these changes embody excellence and sustainability (Bican and Alexander, 2020: 4).
4. The process of digital transformation facilitates the entry of non-traditional competitors and builds shareable digital capabilities. The combination of change and digital transformation will improve performance, increase efficiencies and innovations, and provide protection against digital disruptions in various fields (Wade Michael, 2015: 5).
5. Digital transformation affects all sectors of society, especially the economic sector in organizations, which includes changes in business operations, especially the basic ones, and modifies products, processes and organizational structures. Society is undergoing a profound transition as a result of the widespread use of digital technology and the need for organizations to establish procedures to carry out these complicated transformations (Sayabek A Utegenova, 2020: 408).
6. The use of digital technologies provides a change in the business model, new revenues and value, and productive opportunities (Brysch Armin, 2017: 3).

Third: Dimensions of Digital Transformation

People working in digital transformation believe that computer changes can change the general view of digital transformation and the procedural aspects of it and from the perspective of the organizational structure by looking at four main dimensions in the digital transformation process represented in (the use of technologies, changes in value creation, structural changes, financial changes which he referred to (Gharib, 2015: 29). Which will be approved as it is consistent with the nature and field of application of the research.

1. The Use of Technologies (UT)

Digital transformation consists of the integration of personal and organizational information technology environments to achieve integration between technologies and business processes in the digital economy, and includes organizational aspects, including technologies from abroad in order to improve customer experience and shorten the life cycle, and from within to influence business goals And leadership and hierarchical structures, and when all departments and job opportunities are affected, it leads to new business models. The use of technologies is of a multi-faceted nature that exceeds the level of previous technologies and has high technical capabilities (2020: 409 Sayabek). When the distinguishing feature of agile operations is software development in order to compete, customers welcome the emerging changes that occur. Their behavior should be regulated on the basis of applied technologies and ideas because they correspond to conditions that reduce the possibility of failure in the practice of modern technologies (Gharib, 2015: 29).

Technologies play an important role in quality management, so high-tech organizations often have better operational performance and high quality and business performance compared to low-tech organizations (Bolatan et al,2016: 447)

2. Changes in Value Creation (CVC)

The use of digital technologies to change the business model provides revenue, new value, and productive opportunities that contribute to the transition to digital business easily (Brysch, 2017: 3).

The growth of digital payment methods has created more sales via the Internet, in other words, creating additional value for customers (Gharib, 2015: 32).

Today, the focus on using modern devices and creating value for customers has become the most important characteristic of organizations, which prompted them to make a significant shift in the way customers use them, how to communicate and interact with them, and respond to their needs.

3. Structural Changes (SC)

Digital transformation affects all sectors of society, especially the education sector, which includes changes in the use of platforms and computer programs and modification of some organizational structures. Organizations must develop administrative and technical practices to carry out these complex transformations. Therefore, society in general faces a radical change due to technologies. Digitalization and its comprehensive applications, in order to survive, compete and achieve benefits in various fields (Sayabek, 2020: 408) Changing the traditional organizational structure pattern to digital organization represents an organizational and institutional culture based on the typical infrastructure, and it is possible that the organizational culture and structure can turn into a difficult matter. It is painful in digital transformation because it directly affects the skills and behavior of individuals in the organization (Gharib, 2015: 34).

4. Financial Changes (FC)

Digital transformation strategies have the potential to achieve a significant increase in the creation of financial value and the creation of sustainable competitive value, but of course it is not without risks. Therefore, management needs to look back, plan and make decisions due to economic and social changes and the Corona pandemic regarding digital transformation, invest the energies available to it, and exploit the interests that affect Digital Operations (Gharib, 2015: 28).

In the field of education, there are many external customers for the product. In fact, the (student) is the first customer who benefits from the product (the education he received) throughout his life, and the second customer is the parents (supervisors and sponsors), because he uses the product and defends it in exchange for education, and the third customer The prospective employers who pay to benefit from the education and the fourth customer is the society represented by the government organizations that pay the money and costs involved in the education, while the internal customers are the professors and the board of directors in the institutions of higher education. The organization must deal with these dissimilar contents in this context and provide the necessary funds in Achieving this and reforming higher education (Militaru, at el, 2013: 114

Fourth: The Relationship Between Total Quality Management Strategies and Digital Transformation

Changes in consumer behavior, the emergence of new businesses, and digital trends have led to the creation of new sectors for new competitors, and have endured the speed of this transformation. Environmental trends and organizational practices have witnessed new stages in light of the Corona pandemic. Soft tools and adaptation to the

thought revolution should be dealt with on a large scale. Successful organizations Digitally, the possibility of providing its employees with the required qualities and skills increases more than risk organizations, which reduces the potential risks for organizations' departments to adopt failure as a condition for success, and since education services began to explore the possibility of practicing total quality management, there are difficulties in assigning education service elements using elements of industries such as customers and The outputs and workflow that affect the implementation of total quality management, despite the complexity of its adoption in education services, in order to evaluate the experience of organizations that had a positive impact on its application (12: 2019, Alauddin and Yamada). The implementation of total quality management differs, and there is a great deal of concern about the possibility of applying it in E-learning or not. Organizations may face difficulties by their nature. There is a difference between the educational institution and the industrial company in terms of the extent of providing the participating processes and interaction with customers, despite that there are a number A large number of studies for the implementation of total quality management in educational institutions, especially institutions of higher education, and it can be used as a practice of self-evaluation in higher education institutions through a set of steps, including (the commitment of senior management to define the mission and statement of vision at the stage, the definition of the customer, to ensure the success of the application of total quality management and its effects Positivity on business, goals and strategies) (13: 2019, Alauddin and Yamada). The most important characteristic of digital transformation is the risk that has become a cultural norm. More than that, digitally advanced organizations seek new levels of competitive advantage and adapt to any emerging technology, despite the great challenges associated with social initiatives, multiple data, and a lack of interoperability with current information technology systems. (388: 2017, Schwertner).

Whole quality management techniques are a process rather than a method for organizing value for technology users. It must be handled in the technological age from a predictive viewpoint using digital technology rather than a preventive approach. This results in a challenging situation since there is a lack of awareness of the significance of technology and the applications that are necessary in the sector. It adapts smoothly and flexibly to future modifications needed for quality management (lee, 2019: 11). If total quality management practices are to be implemented successfully, you need suppliers and the critical and necessary factors, including (management support and commitment, strong and effective leadership, strategy for quality, long and short-term planning, maximizing employee understanding and voluntary participation, increasing productivity and consumer comfort (Masadegh Rad, 2016: 619).

The third topic: the practical framework of the research.

The Third Topic: Statistical Description and Presentation of Research Results, Analysis and Interpretation

This topic includes presenting and analyzing the results of the applied research with the interpretation of the results. It is divided into two axes: the first. It included a presentation of the independent variable total quality management in its dimensions (support of senior management, employee participation, training, continuous improvement). The second axis, in terms of its dimensions, dealt with the dependent variable of digital transformation (technology use, modifications to value creation, structural modifications, and financial modifications). Categories to which the arithmetic averages belong, defining the category, finding the length of the category (1-5) = 4, and then dividing the range by the number of categories (4/5) = 0.80. Then (0.80) is added to the minimum scale (1) or subtracted from the minimum scale (5), as in the previous table (Dewberry, 2004: 15).

The First: Description of the Variable (Total Quality Management) and is Represented by Four Dimensions and Agencies

1. Senior Management Support (TMS)

The results of Table (4) refer to the arithmetic mean, standard deviation, response intensity, and the relative arrangement of the respondents' answers towards the dimension of senior management support. It is noted from the table that the support of senior management has obtained an arithmetic mean (3.7637) and a standard deviation It reached (.69305), with an answer strength of (75%), and came in the first rank, which indicates the commitment of the senior management towards the philosophy of total quality and its adoption as a contemporary method, a proactive approach, and a suitable way for postmodern life.

2. Employee Participation (EP)

The results of Table (4) refer to the arithmetic mean, standard deviation, response intensity, and the relative arrangement of the employee participation dimension. The arithmetic mean (3.6573) was obtained, with a standard deviation of (.61222), and the response intensity was (73%), and they came in the order The second, which indicates that the participation of employees took a large part at the level of the sample answers in order to enable them to

reduce the gap and develop their capabilities and competence to deal with addition a problems such as change and digital transformation.

3. Training (TR)

The results of Table (4) show the arithmetic mean, standard deviations, response intensity, and the relative order of the training dimension. It obtained an arithmetic mean (3.4386 and a standard deviation (.61331) and it came with an answer intensity of (72%) and took the fourth rank, which indicates the training and development processes were not at the required level, despite the educational institutions' education, growth and development in the level of skills and knowledge, and keeping away from potential concerns.

4. Continuous Improvement (CI)

The results of Table (4) refer to the arithmetic mean, standard deviation, response intensity, and the relative arrangement of the continuous improvement dimension. Takes decisive steps to improve the quality of its services to survive in the competitive environment.

Table 4: Arithmetic Means, Standard Deviations, Response Intensity, and Relative Arrangement of the Dimensions of Total Quality Management

Search variables (Total Quality Management)	Arithmetic mean	standard deviation	The severity of the answer	relative arrangement
Senior management support (TMS)	3.7637	.69305	75%	First
Employee participation (EP)	3.6573	.61222	73%	Second
Training (TR)	3.4386	.61331	69%	fourth
Continuous improvement (CI)	3.6175	.67696	72%	third
Total Quality Management (TQM)	**3.6193**	**.56403**	**72%**	

Source: prepared by the researcher in the light of the results of the electronic calculator.

The Second: The Statistical Description of the Digital Transformation Variable, which Includes four Dimensions, as Follows

1. The Use of Technology (UT)

The results of Table (5) show the arithmetic mean, the standard deviation, the intensity of the answer, and the relative arrangement of the respondents' answers towards the dimension (using technology). The table shows that this dimension has obtained an arithmetic mean (3.5392) and a standard deviation of (.62388) with an answer strength of (71%) and came in first place, which means that educational institutions seek to use technology as a successful behavior to face radical changes and benefit from new technologies effectively.

2. Changes in Value Creation (CVC)

The results of table (5) the arithmetic mean, standard deviation, and reaction intensity for the dimension (changes in value creation), as it is noted that this dimension has obtained an arithmetic mean (3.5310), with a standard deviation of (.59342), and the response intensity was (71%), and it came in the third order. This indicates that changes in value, including innovation and sustainability, were in accordance with business needs due to the rapid change in the global business environment.

3. Structural Changes (SC)

The results of Table (5) provide information about the dimension's arithmetic mean, standard deviation, response strength, and relative arrangement (structural changes). And it came in the second order, which means that the structural changes took a large part of the respondents enjoying sufficient flexibility because they are compatible with digital strategies.

4. Financial Changes (FC)

The results of Table (5) show the arithmetic mean, standard deviation, response intensity, and the relative order of the dimension (financial changes). This dimension did not receive the required attention due to weak financial support and lack of financial allocations in providing advanced devices and equipment to keep pace with modern digital transformations. At the general level, the total quality management variable obtained an arithmetic mean of (3.6193) and a standard deviation of (.56403) and a response intensity of (72%) and came in the first order, which means that this variable received sufficient attention from the sample as an acceptable and vital way to ensure integration. On all soft issues. As for the digital transformation variable, it obtained an arithmetic mean of (3.5006), with a standard deviation of (.48695), and the intensity of the response was (70%). And assessing the objectives of the system, and therefore the level of effort is still uneven between those institutions, as shown **in Table (5).**

Table 5: The Mathematical Means, Standard Deviations, Level of the Response, and the Relative Positioning of the Digital Transformation of the Variable with Respect to its Dimensions

search dimensions digital transformation	Arithmetic mean	standard deviation	The intensity of the answer relative arrangement	relative arrangement
The use of technology(UT)	3.5392	.62388	73%	first
Changes in Value Creation (CVC)	3.5310	.59342	71%	third
Structural changes (SC)	3.5345	.53614	72%	second
Financial Changes (FC)	3.3977	.56067	68%	fourth
digital transformation(DT)	3.5006	.48695	70%	-

Source: prepared by the researcher in the light of the results of the electronic calculator

Third: Examining the Theories of the Relationship Between Digital Transformation and Comprehensive Quality Management

The researcher relied on testing the hypotheses of the correlation matrix (Pearson simple correlation coefficients), in which the Pearson coefficient values range between (-1), which means a complete inverse correlation, and (+1), which means a perfect positive correlation (Dewberry, 2004: 15).

Testing the first main hypothesis: which states (Total Quality Management and Digital Transformation do not statistically significantly correlate). The findings in Table (6) demonstrate that comprehensive quality management and digital transformation are positively and significantly correlated, with the correlation coefficient reaching (72.) At a significant level (1%), which means that the hypothesis has been confirmed and accepted, and this confirms the interest of the research sample members that total quality management is a strategic framework that provides the necessary resources to lead the digital transformation. The sub-hypotheses emanating from it will be tested as follows:

1. The first sub-hypothesis. (There is no statistical correlation between senior management support and digital transformation processes) The results of Table (6) indicate the existence of a significant and positive correlation, as the correlation coefficient was (574.) at a significant level (1%), which indicates the validity of the hypothesis and its acceptance, confirms this is senior management's commitment, and it bears responsibility for the success of the digital transformation process at all organizational levels.
2. The second sub-hypothesis (there is no statistical correlation between employee participation and digital transformation processes). The results of Table (6) show the existence of a significant and positive correlation, as the correlation coefficient reached (637.) at a significant level (1%), which indicates that the validity and acceptance of the hypothesis refers to enabling employees to participate and giving them confidence in presenting ideas that contribute to the desired transformation.
3. The third sub-hypothesis (there is no statistical correlation between training and digital transformation processes). The results of Table (6) show the existence of a significant and positive correlation, as the correlation coefficient reached (70.) at a significant level (1%), which indicates the validity of the hypothesis. And its acceptance verifies the continuation of workers' education and training in the area of quality assurance as well as the dissemination of all available information regarding cutting-edge technical advancements.
4. The second sub-hypothesis (there is no statistical correlation between continuous improvement and digital transformation processes), the results of Table (6) show a significant and positive correlation, as the correlation coefficient reached (59.) at a significant level (1%), which indicates the validity of the hypothesis And its acceptance, this confirms the focus of total quality management on the continuation of improvement processes being the key to encouraging users and expanding opportunities for innovative thinking.

Table 6: Matrix of Correlation Coefficients between Total Quality Management Practices with its Dimensions and Digital Transformation with its Dimensions

Correlations										
	X1	X2	X3	X4	X	Y1	Y2	Y3	Y4	Y
X1	1.000	.644**	.632**	.547**	.818**	.515**	.478**	.515**	.424**	.574**
X2	.644**	1.000	.784**	.775**	.915**	.616**	.481**	.574**	.471**	.637**
X3	.632**	.784**	1.000	.690**	.886**	.671**	.614**	.605**	.485**	.708**
X4	.547**	.775**	.690**	1.000	.866**	.541**	.462**	.519**	.492**	.598**
X	.818**	.915**	.886**	.866**	1.000	.670**	.583**	.634**	.538**	.721**
Y1	.515**	.616**	.671**	.541**	.670**	1.000	.641**	.677**	.565**	.865**
Y2	.478**	.481**	.614**	.462**	.583**	.641**	1.000	.652**	.586**	.858**
Y3	.515**	.574**	.605**	.519**	.634**	.677**	.652**	1.000	.537**	.845**
Y4	.424**	.471**	.485**	.492**	.538**	.565**	.586**	.537**	1.000	.795**
Y	.574**	.637**	.708**	.598**	.721**	.865**	.858**	.845**	.795**	1.000

Source: Prepared by the researcher in the light of the results of the electronic calculator

The Second Axis: Testing the Impact Hypotheses between Total Quality Management and Digital Transformation in its Dimensions

In the light of this paragraph, the hypotheses will be tested in order to verify their validity. To calculate the percentage of variables that can be explained by simple linear regression and the coefficient of determination (R2), the digital transformation process at the studied educational institutions was broken down into its component parts.

Firstly. Testing the second main hypothesis (Whole quality management approaches and digital transformation have no discernible relationship).

The findings shown in Table (7) show the parameters of the regression model applied to determine how total quality management techniques affected the process of digital transformation, and for the purpose of testing that hypothesis and standing on that effect, which is built according to the regression equation y = a + b (x).

1. The total quality management practices have contributed to the impact on the digital transformation with a percentage of (.52) of the changes that occur in the digital transformation process, supporting the calculated value of (t) of (3.702), according to the determination coefficient (R2), which was equal to (.52). The remaining percentage is due to other variables and factors that are not included in the model, and this explains the strength and significance of the model.
2. The value of the regression coefficient for total quality management practices in digital transformation amounted to (28.150), which is a significant and positive value. The hypothesis is confirmed and accepted.

A. Testing the first sub-hypothesis, which states (There is no effect of a significant and favorable association between the use of technology and comprehensive quality management techniques).

1. The determination coefficient (R2) was equal to (.52), supporting the computed value of (t) of the impact of total quality management practices on the digital transformation with a percentage of (.52) of the changes that take place during the process (3.702),while the remaining percentage is due to other variables and factors that are not included in the model, and this explains the strength and significance of the model.
2. The value of the regression coefficient for total quality management practices in digital transformation amounted to (28.150), which is a significant and positive value. The hypothesis is confirmed and accepted.

B. Testing the first sub-hypothesis, which states (There is no effect of a significant and favorable association between the use of technology and comprehensive quality management techniques)

1. The determination coefficient (R2) was equal to (.52), supporting the computed value of (t) of the impact of total quality management practices on the digital transformation with a percentage of (.52) of the changes that take place during the process (3.702), while the remaining percentage is due to other variables and factors that are not included in the model, and this explains the strength and significance of the model.
2. The value of the regression coefficient for total quality management practices in digital transformation amounted to (28.150), which is a significant and positive value. The hypothesis is confirmed and accepted.

A. Testing the first sub-hypothesis, which states (Total Quality Management Practices and the Use of Technological Innovation Do Not Have a Significant and Positive Relationship).

B. Testing the fourth sub-hypothesis, which states (A significant and favorable association between comprehensive quality management techniques and financial improvements does not exist.).

1. **The Information in Table** (7) shows that the coefficient of determination had a value of (46), which means that the overall quality management techniques had an impact on structural changes, accounting for (46) of the changes in value creation, supported by the value of (t) calculated and amounted to (6.196), while the remaining percentage is due to other factors and variables that are not included in the model, and this explains the strength and significance of the model.
2. The value of the total quality management practices regression coefficient in the financial changes dimension came to (17.452), which is a substantial and positive value. This is supported by the calculated (f) value (17.452), which is greater than the tabular one at a significant level (1%), which indicates the validity of the hypothesis. and accept it.

   It is clear from the analysis that the practices of total quality management enhance the digital transformation processes because of its elements and contributed to the creation of a new business model and played a prominent role in the transition process. With transformations and the lack of a coherent regulatory framework and a clear strategy that draws a roadmap and timetable for digital transformation to promote sustainable development .ology)

Table 7: Testing the Relationship of the Impact of Total Quality Management and Digital Transformation with its Dimensions

Dimensions of digital transformation	Regression	R^2	The calculated t-value	The calculated F-value	Moral level
Technology use (UT)	29.917	.54	3.702	137.801	0.000
Changes in value creation (CVC)	20.342	.51	5.444	86.987	0.000
financial changes (SC) structural changes	19.622	.48	6.537	113.397	0.000
structural changes(FC)	17.452	.46	6.196	17.452	0.000
(TQM)	28.150	.52	3.183	183.457	0.000

Source: prepared by the researcher based on the outputs of the program (SPSS, V.24).

The Fourth Topic: Conclusions and Recommendations

First: Conclusions

1. This study dealt with a comprehensive organizational approach (TQM), after which it is one of the most important factors in the technological environment that witnesses many critical processes that help organizations build their digital capabilities as a source of concern for many societies and all over the world, as the results indicate the role played by quality management comprehensive in achieving a proactive strategy in the digital transformation process.
2. Total quality management practices were compatible to some extent with digital transformation strategies because they reflect the philosophy and orientations of educational institutions, and that the environmental system has become a new system that requires a work model that is commensurate with modern digital and technological changes.
3. The findings show a favorable and significant association between the processes of digital transformation in the study institutions and the practices of overall quality management in all of its dimensions, and it has created a positive change in the behavior of the teachers in the research sample and the adoption of new models and businesses as it is the only option in light of the Corona pandemic.
4. Digital transformation processes have become a sustainable option that grows and develops continuously and within a short period, not for the sake of digitization and electronic governance, but rather to keep pace with the growing needs of postmodernism.
5. Total quality management, while not being the panacea for all issues in educational institutions, is one of the agile technologies that has assisted in closing the digital divide.
6. Total quality management practices contributed to maximizing the understanding of employees and their voluntary participation in promoting the digital transformation process and achieving a qualitative addition that showed strengths in order to enhance it and address weaknesses in applying the digital transformation process in the institutions under consideration. he fourth topic: conclusions and recommendations.

Second: Recommendations

1. The technological environment is witnessing a state of extreme flux. New ideas should be embraced that help in the development and development of digital culture for all its employees through proactive actions in maximizing total quality management practices in the organizational, technological and educational fields.
2. The need to enhance the digital culture of employees and the commitment of senior management to the comprehensive quality approach and have sufficient readiness to adapt to digital transformation
3. Educational institutions should take the lead in strengthening and enhancing the practices of total quality management, as it is a successful and flawless administrative requirement in creating clear goals and strategies, and in order to be able to work at different job levels to lead the digital transformation in them.
4. Work to enable decision-makers to enable and consolidate the practices of total quality management to achieve merit, efficiency and satisfy users (students, teachers, parents, employers) through the evaluation and continuous improvement of its programs and strategic plans.
5. Re-inventing digitization in order to solve all the problems it is exposed to and provide support and technical capabilities in order to continue its development and update appropriate strategies.
6. Total quality management can be considered the essence of administrative thinking and a criterion based on the satisfaction of students and teachers and the necessity of merit-based service provided in higher education institutions. It is an integrated organizational strategy and a priority borne by all parties in the educational process.

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