

The Effectiveness of the Control Methods Used in Higher Education Institutions in the Era of Digital Transformation

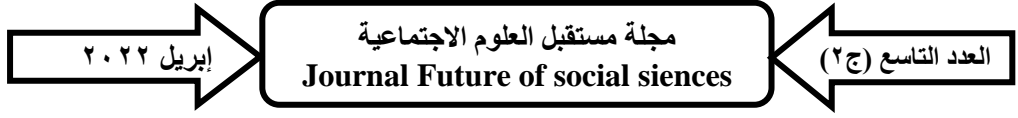
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Abstract:

The problem of the study in the current research was to study the supervisory methods used by higher education institutions to carry out their supervisory function and the effectiveness of those methods according to the requirements of the era of digital transformation. Determining the relationship between the supervisory methods used in higher education institutions and the effectiveness of those methods in the era of digital transformation , Determining the relationship between some demographic variables and the effectiveness of the supervisory methods used in higher education institutions in the era of digital transformation, identifying the difficulties that prevent the development of the supervisory methods used in higher education institutions to be more effective in the era of digital transformation, identifying the proposed mechanisms for developing the supervisory methods used in educational institutions To be more effective in the era of digital transformation , To achieve its goals, the study relied on a set of assumptions that were represented in five hypotheses that are expected to be effective in the control methods used in higher education institutions in accordance with the requirements of the era of digital transformation, moderate. Digital transformation, there is a significant relationship between the effectiveness of the control methods used in higher education institutions and the requirements for developing those methods to be more effective in the era of digital transformation. There is a significant relationship between some demographic variables and the effectiveness of regulatory methods in the era of digital transformation. The validity of the second, third, fourth and fifth hypotheses and the incorrectness of the first hypothesis, and the study ended with a set of recommendations to increase the effectiveness of the control methods used in higher education institutions in the era of digital transformation.

Keywords: effectiveness, control methods, digital transformation.

First: Study problem

Rapid technological changes and successive developments, particularly in communications and information technology, have created electronic entities. (Sceulovs, D. & Gial, Sarkane E, 2010, P 775)

These electronic entities are diverse and flexible modern organizations that deal with all variables and developments. (Tassabehji, R. et.al., 2007)

The Fourth Industrial Revolution and the successive technological transformations on the global and local scene imposed several requirements, one of which was digital transformation, as it causes changes in how individuals perceive, think and act at work, and improves the work environment by focusing on the use of information and communication technology. (Radwan, Amal Salah 2016)

The study of (Salaimi, Jamila & Boshi, Youssef 2019) and (Qeshti, Nabila 2021) confirmed that digital transformation is no longer an option for societies, but rather a necessity imposed by the requirements of the current era and must be adopted in various sectors, and that its expansion will positively affect many aspects.

This requires that digital transformation to be carried out according to a clear strategy and specific plans to achieve the desired goals.

This was confirmed by the results of the study (Ibrahim, Mahmoud and Al-Haddad, Basma 2018), where the study showed that the institution's digital transformation mechanism depends on the existence of a clear and flexible strategy for digital transformation that includes information and communication technology and human resources that are followed up by the institution's senior management to ensure the success of work and its progress in the right way.

Digital transformation reshapes people's lifestyle, way of thinking and communicating based on available technologies with continuous planning and constant striving to reformulate scientific expertise. (Hassan, Abdul Rahman 2020. P. 8)

The digital transformation represents a motive for organizations in general and for organizations that work in a special electronic environment to think of flexible and renewable ways and methods to keep pace with renewable ideas, and this is reflected in the concepts of management, its functions and its various methods in accomplishing its work. (Al-Jizawi, Muhammad 2018. p. 214)

As the transformation of administrative functions from their traditional paper form to their electronic form, using all electronic technologies in the administration, electronic planning, electronic organization, electronic guidance, electronic control, electronic leadership, etc. appeared. (Ahmed, Maha 2021. pg. 458)

In view of the great importance of the control process for institutions, as it limits many errors that the administration may face. (Boufilel, Ibrahim and Radhia, Lazghad 2018. pg. 96)

It focuses on knowing the deficiencies and problems that workers face during the implementation of plans and then developing appropriate solutions that help them solve those problems and overcome the shortcomings. (Mahmoud, Aladdin 2011. pg. 320)

Control process has a huge role in protecting institutions and their properties from threats and risks that they may face, and in providing workers with information about their level of performance to prevent them from repeating their mistakes. (Stephen & Mary, 2009, p 414)

The use of technology by the control systems in their various activities as a modern tool in monitoring the follow-up of the implementation process has helped in a timely manner, and this is what transforms control into a flowing and continuous process. (Najm, Abboud 2004, p. 227)

Because relying on technological means in control achieves economic advantages in time, effort, and costs to achieve the desired results with the least possible losses. (Steven et.al. 1996, P 3)

Therefore, the reliance of educational institutions on technological means in the control process is necessary in view of the great transformations that educational institutions have witnessed in the field of technology as a result of developments, which led to the necessity of having an electronic control system that copes with those transformations, as the methods and features of The traditional supervision are no longer as efficient as it was in the past, especially in light of the emergence of sudden crises such as the spread of global epidemics such as the Coronavirus. (Ahmed, Maha 2021, p. 455)

Educational institutions need another type of flexible supervision capable of keeping pace with technological developments and facing crises and challenges. (Ahmed, Maha 2021, p. 458)

Because the use of this type of control helps to provide databases and achieve effective use of information systems on a

permanent basis whenever a specific decision is needed. (Gail. et.al., 2004, P 2)

the importance of relying on modern and technology-based methods in the control process - because of their clear impact on the follow-up of work, raising its efficiency and performance rates, and limiting negative phenomena that may appear during it – was emphasized by the results of several studies, including:

A study (Johnston & Cheng 2002) concluded that the use of modern electronic control methods was an effective tool for monitoring the extent of employees' commitment to work regulations.

And the results of the study of (David ,2005), (Abu Amra et al. 2015), (Al-Arian 2016), (Awad 2017), (Amin 2019), which confirmed that electronic control is an effective tool to achieve efficiency and effectiveness in work and the quality of its services.

The results of the study of (Mahmoud, 2016) and the study of (Zegha and Zaeman, 2020) also confirmed that the quality of service depends on the nature of the regulatory system prevailing in the institution and that the administrative leaders in institutions must adopt and support modern monitoring methods in order to be able to improve the performance of the institution.

Studies also confirm that reliance on electronic monitoring methods not only affects the quality of performance and raises its efficiency, but also helps in reducing negative administrative phenomena and is considered a mechanism to prevent the occurrence of any deviations or their aggravation, and this was shown by the results of the study of (Al-Arefaj 2015), (Abdel Kabir, 2017), (Ghazouani, 2018).

The university represents one of the educational institutions, which is considered one of the important foundations for the development and service of society in all developed and developing countries alike. The university constitutes a system consisting of a group of complex components represented in material and human capabilities and financial resources. To ensure the interaction of these components in an appropriate manner, the Control activities must be performed Constantly and at different times. (Ghazwani, Fatima 2018, p. 351)

It adopts the latest methods and techniques that are aligned with the nature and importance of the role played by this process on one hand, and in line with the rapid technological developments that have

become a feature of our current era and its most prominent features and challenges on the other hand.

This was confirmed by the results of the study (Sherif, Ismail 2020) which concluded that there is a positive relationship between information technology and the development of the internal control system, and therefore recommended the need to use information technology in the internal control system in government universities to protect their resources.

The successive developments that the technological revolution is witnessing emphasized the need for a capable and technologically literate society that has the ability to face various challenges in the current digital age. (Kalolo., 2019, p. 346)

The digital transformation of the university does not mean only being limited to technological tools, but a commitment to thinking about how to control mechanisms, administrative processes, and individual skills, and how to apply them. (Abdel-Razek, Azza 2010, p. 139)

By referring to the theoretical heritage guiding the study and the relevant previous studies and the framework controlling the study, the study problem was that:

The Fourth Industrial Revolution resulted in successive technological transformations that were imposed on all countries in all fields to respond to these transformations and enter the era of digital transformation by reformulating the form and pattern of practices in various institutions in line with the requirements of that era.

And since university education institutions are one of the most important institutions through which society advances, and since the success of this institution in achieving its goals and in performing its role towards its society depends on its carrying out its various administrative functions in proportion to the requirements of the era of digital transformation, and since the process of administrative control is one of the important administrative processes Which leads the institution towards achieving its goals and correcting its path if it deviates from its path, so the current research came to study the Control methods used by higher education institutions to carry out their Control function and the effectiveness of those methods according to the requirements of the era of digital transformation.

Second, the importance of the study

- 1- Monitoring is an important administrative process and one of the main tools for controlling job performance so that it is carried out in the desired manner and on the right track.
- 2- The methods and tools of control vary, on which the success of the control process depends on achieving its goals or its failure. Therefore, the institution's reliance on effective control methods is the starting point and the focal point for the success of the control process.
- 3- The various administrative processes such as planning, organizing, coordinating and controlling etc. are critical factors on which the success or mitigation of institutions depends, and the fact that the educational institution is one of the important institutions and a cornerstone in the society's progress and prosperity, so its performance of its desired role towards its society depends on the efficiency And the effectiveness of the administrative processes that take place in it , the control process in particular, because it is the process that ensures that it goes as planned and ensures that corrective measures are taken in the event of any violations.
- 4- The success of institutions is no longer dependent on the performance of their roles only, but depends on several integrated components that include the style, quality, and the development of performance in accordance with technical and technological developments and in line with the requirements of this era and the administrative process required by them at all administrative levels and for all Administrative operations.
- 5- Studying the Control methods and their level of effectiveness in light of the tremendous and unprecedented technical and technological growth witnessed in our world today helps in developing the performance of educational institutions and increasing their ability to survive and compete in light of the renewable changes and the multiple challenges they face.

Third: Objectives of the study

- 1- Determining the level of effectiveness of the control methods used in higher education institutions in the era of digital transformation .

This goal is achieved by achieving the following sub-objectives:

- A- Determining the Control methods used in higher education institutions.
- B- Determining the indicators of the effectiveness of the control methods used in higher education institutions in accordance with the requirements of the era of digital transformation
- 2- Determining the relationship between the control methods used in higher education institutions and the effectiveness of those methods in the era of digital transformation.
- 3- Determining the relationship between the effectiveness of the control methods used in higher education institutions and the requirements for developing those methods to be more effective in the era of digital transformation.
- 4- Determining the relationship between some demographic variables and the effectiveness of the control methods used in higher education institutions in the era of digital transformation.
- 5- Determining the difficulties that prevent the development of the Control methods used in higher education institutions to be more effective in the era of digital transformation .

Fourth: Study hypothesis

- 1- It is expected that the effectiveness of the control methods used in higher education institutions in accordance with the requirements of the era of digital transformation will be moderate.
- 2- There is a significant relationship between the control methods used in higher education institutions and the effectiveness of those methods in the era of digital transformation.
- 3- There is a significant relationship between the effectiveness of the control methods used in higher education institutions and

the requirements for developing those methods to be more effective in the era of digital transformation.

- 4- There is a significant relationship between some demographic variables and the effectiveness of control methods in the era of digital transformation.
- 5- There is a significant relationship between some demographic variables and the difficulties that prevent the development of the Control methods used in higher education institutions to be more effective in the era of digital transformation.

Fifthly: Concepts of the study

1- The concept of effectiveness

Effectiveness is defined from a behavioral perspective as the successful performance of a specific role. (Simpas, et.al. 1981, p 182)

Rogen sees it as doing the right things. (Roghanian, et.al. 2012, p 552)

Muller and Turnen point out that efficiency is an advantage that is achieved through good resource management, while effectiveness is an advantage determined by customer trends. (Moller and Torrones 2003).

While others view organizational effectiveness as the organization's ability to achieve its goals, grow and adapt in the context of environmental conditions and unexpected changes. (Farahbakhsh, 2007, p 34)

Cohen refers to effectiveness as the ability of managers to create conditions and situations that reflect changing priorities. (Cohen, 1993, p 49)

Al-Hawari defines it as a concept that expresses the validity of the elements used as inputs in obtaining the required results as outputs. (El-Hawary, Syed 2008, p. 63)

The effectiveness according to this study is defined as:

The ability of the control methods used by the college administration to keep pace with technological developments to achieve the objectives of the control process in a faster and easier way and more accurate outputs.

2- The concept of control methods

method means the way something works or how it works according to the definition of the legal lexicon. (Al-Faruqi, 2008, p. 16)

The rich lexicon also defined it as the approach or method. (Abu Al-Azm, Abdul-Ghani 2001, p. 35)

As for control, it means following up on the work to ensure its progress in accordance with what is specified for it and correcting its course in the event of any deviations in the future. (Derry, Zahid 2011, p. 86)

Monitoring is an administrative process carried out by the administration in order to ascertain the level of performance and to verify that the implementation of the plans that have been developed is carried out in an optimal manner, as well as working to correct deviations that may occur in the future. (Al-Tarawneh and Abdel-Hadi, 2011, p. 25)

Control process is seen as the process concerned with maintaining compliance with the system. (Invancervich, et.al. 1999. P 390)

It can also be defined as a follow-up process of activities to ensure that they are going according to what was planned and to correct any deviations that may occur in them and to ensure that they are not repeated. (Robbins, & Coulter, 1999, p 189)

It also means that it is the function that enables the president to make sure that what is being done matches what he has planned. (Aboudi, Zaid 2009, p. 160)

The control methods are defined according to this study as:

The method adopted by the college administration to ensure the progress of the educational and administrative process in accordance with what is planned and to take the necessary corrective measures in the event of any deviation from the correct or expected path.

3- The concept of digital transformation

Digital transformation is defined as the use of modern digital technologies to achieve administrative, technical, economic transformation.... etc. (Brysch, 2017, p.93)

It is also defined as the use of information and communication technology with the aim of developing institutional performance and increasing effectiveness and efficiency in the level of government services provision through the use of modern and renewable technologies. (Ministry of Technology and Communications, 2019a).

It is also known as a technique that aims to improve government performance and affects the operations that take place in government institutions daily with the aim of making these institutions dispense

with the use of papers, which increases the efficiency and quality of work. (Sulaiman, Muhammad 2006, p. 59)

Janssen and others see it as the use of modern technological applications on a large scale in management and training (Janssen, et.al., 2012, p. 261)

According to this study, digital transformation is defined as:

Relying on technological methods and modern techniques instead of traditional and routine methods based on the use of papers to develop institutional performance and increase its efficiency and quality.

Sixth: Methodological procedures for the study

(1) Type of study

This study falls under the evaluation studies, as it aims to measure the effectiveness of the control methods that are used in higher education institutions, to determine the extent to which these methods are in line with the technological and technical development that the world is witnessing today, and to determine the requirements necessary to develop these methods in order to achieve the objectives of the control process in a more positive and effective manner in light of The era of digital transformation .

(2) Curriculum of the study

This study relied on the scientific method using a comprehensive social survey of the employees of the Faculty of Social Work, Helwan University, from the administrative staff - the academic staffs.

(3) Data collection tools

The data collection tools consisted of an electronic questionnaire that was applied to the employees of the Faculty of Social Work, Helwan University, from members of the administrative staff - academic staffs who are on the job during the data collection period by using the following google form:

https://docs.google.com/forms/d/e/1FAIpQLSfkTE8N6ikwn5AySG9iMyEQGRRaW1RgsAoqTCWOVHiFDxMiVA/viewform?usp=sf_link.

(A) Design of the data collection tool

The theoretical framework of the study and previous studies were used in determining the variables of the study measured by the tool, as well as in formulating its statements.

(B) the validity of the instrument

The tool was presented to (5) reviewers from the academic staff of the Faculty of Social Work, Helwan University, to ask for their point

of view for the approval of the validity of the tool in order to ensure that the responses were related to the variables measured and the integrity of the formulation of the questionnaire's phrases. The statements about which the degree of agreement was more than (80%). Considering this, the questionnaire was formulated in its final form.

(C) Tool stability

The reliability coefficient was calculated based on the method of re-testing by applying the form to (10) subjects (outside the research community frame but are valid for its criteria) - academic staffs in the study community, then the form was re-applied to the same sample after two weeks. This sample was excluded from the study population when applying the study. The tool's stability coefficient was about (0.88%), which is an acceptable percentage for its application.

(4) Study framework

(A) human domain

The human domain of the study were represented in the employees of the Faculty of Social Work, Helwan University, members of the administrative staff - members of the teaching staff who were on the job during the period of data collection, who met the following conditions:

- 1- They should be on the job during the data collection period.
- 2- The members of the administrative body who occupy leadership administrative positions (senior specialist - director of administration - college secretary).
- 3- The academic staffs must have obtained their PhD at least (3) years.
- 4- The members of the administrative staff and academic staffs who meet the previous conditions must agree to fill out the questionnaire.

The distribution of the study population came from those who met the conditions of the study after excluding the sample on which the stability of the tool was measured, as follows:

Table (1) Distribution of the research community N = 111

Sr.	Research community	Number
1	Academic staff	90
2	Administrative staff	21
Total		111

(B) Spatial domain

The spatial field of study at the Faculty of Social Work, Helwan University, was chosen as a spatial field for the following justifications:

- 1- It is one of the largest colleges of the university in terms of the number of employees and students.
- 2- Accreditation and renewal of accreditation by the National Authority for Quality Assurance and Accreditation reflect the college's commitment to quality performance standards approved by the National Authority for Quality Assurance.
- 3- There are all administrative departments representing the administrative departments of the university.
- 4- It has a variety of scientific departments and specializations.
- 5- It has distinguished administrative and academic competencies at the college and university levels.

(C) Time domain

The period of data collection from the field was about two months, starting on 12/26/2021 and ending on 10/2/2022.

(*) Statistical analysis for the study

In its statistical treatment of field data, the current study relied on the use of the statistical program (SPSS V.16) to find the relationships between the study variables and come up with the final results for them.

The statistical methods that were used in this study were:

- Frequencies and percentages
- Arithmetic means and standard deviation
- Pearson's correlation coefficient.

Seventh: Study results:

1- Primary data for the study population

Table No. (2) Arithmetic averages and standard deviations of the mean age and years of experience for the study community N = 111

Sr.	Variables	Mean	σ
1	Age	41.50	8.97
2	Average years of experience	19.30	9.42

The previous table shows that the average age of the respondents (41.5) with a standard deviation of (8.97). This may be due to the varying job grades of the respondents from the academic staff, ranging from a doctor to a professor, and the administrative staff is from the administrative leaders and all of them are old employees

therefore most of the respondents have reached the decade The fourth age and many exceed it. The high standard deviation may be because the youngest respondents have exceeded the third decade of life and the oldest of them have exceeded the fifth decade of life. Perhaps this result is confirmed by the result that came in the same table regarding the average years of experience of the respondents, which amounted to (19.3) and with a standard deviation of (9.42).

Table (3) Distribution of the study population by gender N = 111

Sr.	Type	frequency	%
1	Male	39	35.1
2	Female	72	64.9
Total		111	100

The previous table shows that most of the respondents are females, with a percentage of (64.9%), followed by the percentage of male respondents, with a percentage of (35.1%), and this may be due to the fact that the majority of the research community is from the academic body, which represents the majority of females.

Table(4) Distribution of the study population by academic qualification N = 111

Sr.	Qualifications	Frequency	%
1	above average	4	3.6
2	university	5	4.5
3	Master's	2	1.8
4	PhD	100	90.1
Total		111	100

It is clear from the previous table that the vast majority of the research community are PhD holders, with a percentage of (90.1%), and the lowest percentage was for those with a qualification less than a university degree, at a rate of (3.6%). Perhaps this result is logical, according to Table No. (1).

Table (5) Distribution of the study population by job position N = 111

Sr.	Job position	Frequency	%
1	Senior specialist	17	15.3
2	Academic staff	81	73
3	Head of administrative department	3	2.7

Sr.	Job position	Frequency	%
4	Head of the academic department	4	3.6
5	Faculty's general manager	1	0.9
6	Vice-dean	4	3.6
7	Dean	1	0.9
Total		111	100

The results of the study showed that most of the study sample are academic staffs, at a rate of (73%), and perhaps this result is logical, since the main function of the study community is the educational job, while the lowest percentage, which amounted to (0.9%), was for the positions of college secretary and college dean. This is a logical result, since these jobs are filled by only one person.

The results for the study variables

Table (6) of the Control methods used in higher education institutions from the point of view of the study community N = 111

Sr.	Control methods	Mean	σ	Ranking
1	The college administration uses periodic reports to follow up the progress of work	0.84	4.21	3
2	The college administration uses periodic meetings to follow up the performance of the members of the administrative and teaching staff	0.82	3.99	5
3	The college administration periodically monitors the performance of all college departments and units	0.77	4.23	2
4	The college administration reviews the files related to the completion of work to monitor the performance of the members of the administrative and teaching staff	0.81	3.97	6
5	The college administration monitors the daily attendance of members of the administrative and teaching staff	0.70	4.46	1
6	The administration of the college is interested in direct observation during the workflow of the performance of the members of the administrative and teaching staff of the college	0.89	4.10	4
7	The college administration uses exceptional reports on problems related to the performance of members of the administrative and teaching staff	0.89	3.94	8

Sr.	Control methods	Mean	σ	Ranking
8	The college administration is interested in examining complaints submitted to it about the performance of members of the administrative and teaching staff	0.88	3.90	9
9	The actual performance of the faculty and administrative staff members is compared to the expected performance in accordance with the standards of the National Authority for Quality Assurance of Education and Accreditation	0.86	3.96	7
10	The college administration applies the internal audit on a regular basis	0.86	3.96	7

The results of the study show that most of the control methods used in higher education institutions from the point of view of the study community were first that the college administration carried out daily follow-up to the attendance of members of the administrative and teaching staff. The third was the Control method for using the college administration's periodic reports to follow up the progress of work, and in the last place came the Control method for using the college administration's exceptional reports on problems related to the performance of members of the administrative and teaching staff. Perhaps this result confirms that the Control methods for following up the performance of employees through attendance, absence, and regular follow-up of the academic and administrative departments represent a priority for the Control process. (Saker, Hoda, and Bouatit, Jalal El-Din, March 2020) which confirmed that university professors' attitudes towards administrative control methods represented in periodic reports and periodic meetings were positive.

With the results of this table, the study's sub-objective of determining the Control methods used in higher education institutions is achieved.

Table (7) The effectiveness of the Control methods used in higher education institutions according to the requirements of the digital transformation era N = 111

Sr.	The effectiveness of the control methods	Mean	σ	Ranking
1	Contribute to the college's achievement of its objectives	4.25	0.72	1
2	Expediting the control process quickly	4.11	0.79	2
3	Accurate implementation of the control process	3.94	0.97	9
4	Objectively evaluate the performance of the administrative and teaching staff	3.91	1.01	10
5	Optimizing the use of resources and preventing their waste	4.05	0.81	4
6	Achieving the objectives of the control process as required	4.03	0.85	5
7	Relying on modern technologies in everything related to the control process	3.97	0.89	7
8	Rely on a qualified and trained cadre to carry out the monitoring process electronically	3.96	0.93	8
9	Keeping updated of all developments related to the control process	3.83	1.05	11
10	In line with the state's trends in the era of digital transformation	4.10	0.82	3
11	Relying on electronic communication systems to link all college departments and units together	4.01	1.89	6
The level of effectiveness of the methods Monitoring from the respondents' point of view		4.02	0.89	High

The results of the study showed that the level of effectiveness of the Control methods used in higher education institutions from the point of view of the study community was high. In the third place was the indicator related to the compliance of the regulatory methods used with the state's orientations related to the era of digital transformation, and in the last place came the indicator of the effectiveness of the regulatory methods used. With regard to keeping pace with all developments related to the control process, the results that came in this table confirm that the control methods used in the study community were highly effective in achieving the goals of the control process from the respondents' point of view. This may be due to the college administration's keenness on the control process and its awareness of

its importance. With the findings of the study (Johnston, A. & Cheng, M. 2002)

Which concluded that the use of modern electronic control methods is an effective tool to monitor the extent of employees' commitment to work systems, and the results of the (David R 2016) which emphasized the importance of control methods in improving the performance of the organization and the importance of the role that senior administrative leaders play in supporting these methods, and the results of the study (Abdel Kabir, Laila, 2017), which confirmed that the application of control in all its methods is a matter of interest to all institutions on Its different fields, and the results of the study (Sherif, Ismail Othman 2021), which concluded that the use of information technology in the internal control system is better than the traditional control system to protect university resources

With the results of this table, it is confirmed that the first hypothesis of the study is incorrect, according to which it is expected that the effectiveness of the control methods used in higher education institutions according to the requirements of the era of digital transformation will be moderate, as the results proved that the effectiveness of the control methods used was high.

These results were also confirmed to achieve the study's sub-goal of determining the indicators of the effectiveness of the supervisory methods used in higher education institutions in the era of digital transformation.

With the results of Table (6), (7), the first objective of the study is achieved, which is to determine the level of effectiveness of the control methods used in higher education institutions in the era of digital transformation, where the following sub-objectives were achieved:

A- Determining the Control methods used in higher education institutions.

B - Determining the indicators of the effectiveness of the control methods used in higher education institutions in the era of digital transformation.

Table (8) Requirements for developing control methods in higher education institutions according to the requirements of the digital age N = 111

Sr.	Requirements for developing control methods	Mean	σ	Ranking
1	Completely relying on electronic reports for all college activities	3.96	0.79	9
2	Relying on modern technologies in the follow-up of members of the administrative and teaching staff of the college	4.36	0.77	4
3	Training members of the administrative and teaching staff of the college to deal with modern technological techniques	4.52	0.69	1
4	Adoption of electronic archiving of files related to the completion of work	4.35	0.79	5
5	The college uses statistical data and charts to monitor the performance of members of the administrative and teaching staff	4.22	0.77	8
6	The existence of an accurate and developed database that contains all the information required for the application of control methods	4.44	0.77	2
7	Relying on electronic methods in measuring the performance of members of the administrative and teaching staff at the college	4.34	0.72	6
8	Keeping updated of the organizational and administrative thought of the college with modern control methods in accordance with the requirements of the era of urbanization	4.34	0.75	6
9	The existence of a strong and effective communication network to communicate instructions and directives on the control methods to all departments and units quickly and clearly	4.43	0.81	3
10	The presence of a website for the college that is constantly updated and fed with data and information on everything related to control methods	4.30	0.82	7
The level of effectiveness of the methods Monitoring from the respondents' point of view		3.93	0.69	High

It is clear from the table that the first requirement necessary to develop the control methods to be more in line with the requirements of

the era of digital transformation was to train the members of the administrative and teaching staff of the college to deal with modern technological technologies. In the third place, the requirement for a strong and effective communication network to deliver instructions and directions on the control methods to all departments and units quickly and clearly. In the last place came the requirement to rely on electronic reports for all college activities completely. These results are consistent with the results of the study (Mahmoud, Fadi Al-Fateh). Tayeb, 2016)

Which emphasized the importance of those leaders adopting and supporting modern control methods so that they can improve the performance of the organization and the results of the study (Abdul Rahman, Hassan Hamad Al-Sayed 2017), which recommended the need to establish electronic management and operational information systems as a basis for contemporary control.

Table (9) Difficulties that prevent the effectiveness of Control methods in higher education institutions to match the requirements of the era of digitalization N = 111

Sr.	Difficulties	Mean	σ	Ranking
1	The lack of the physical capabilities necessary for a complete digital transformation	4.18	0.95	2
2	The lack of human capabilities necessary for a complete digital transformation	3.87	1.01	6
3	The lack of a strong internet network for all college offices and departments	3.87	1.01	1
4	The inability of some members of the faculty's administrative and teaching staff to deal with modern technologies that are commensurate with the requirements of the era of digitization	4.13	0.82	3
5	The resistance of some members of the faculty and administrative staff to change and transformation in the era of digitization	3.72	0.90	8
6	Lack of the necessary equipment to switch from traditional methods of control to methods of electronic control completely	4.08	0.93	4
7	Lack of clarity on the requirements of digital transformation for the participants in the control process	4.07	0.84	5
8	Absence of the necessary regulatory environment for the adoption of modern control methods	3.87	0.96	6
9	Absence of regulations and procedures that preserve the	3.61	1.13	9

Sr.	Difficulties	Mean	σ	Ranking
	security and confidentiality of data and information in the era of digital transformation			
10	Absence of a clear strategic vision to move towards the era of digitization in various administrative functions, including the Control function	3.73	0.95	7
	The level of effectiveness of the methods Monitoring from the respondents' point of view	3.95	0.93	High

It is clear from the results of the table that the level of difficulties that prevent the application of control methods that are in line with the requirements of the era of digital transformation in the hoped way was high. At the forefront of these difficulties came the lack of a strong internet network for all the college offices and departments, and in the second place was the difficulty of the lack of the necessary material capabilities For a complete digital transformation, And in the second place was the difficulty related to the inability of some members of the administrative and teaching staff of the college to deal with modern technologies that are commensurate with the requirements of the era of digitization. The confidentiality of data and information in the age of digitization. The results that came in this table confirm the findings of a study (Al-Arefaj, Muhammad Salih 2015), which confirmed the existence of human, administrative, technical, and financial obstacles that limit the use of electronic control.

With the results of the study in this table, the fifth objective of the study is achieved, which is to identify the difficulties that prevent the development of the Control methods used in higher education institutions to be more effective in the era of digital transformation.

Table (10): How to overcome the difficulties that prevent the effectiveness of the Control methods in higher education institutions to match the requirements of the era of digitization N = 111

Sr.	How to overcome difficulties	Mean	σ	Ranking
1	Providing the necessary physical capabilities for a complete digital transformation	4.61	0.73	6
2	Preparing the necessary human cadres to carry out the desired digital transformation	4.62	0.71	5
3	The necessity of preparing a strong net network for all college offices and departments	4.64	0.62	4
4	Organizing training courses for college employees from the administrative and academic staff to deal with modern	4.67	0.58	2

Sr.	How to overcome difficulties	Mean	σ	Ranking
	technologies that fit the requirements of the age of digitization			
5	Spreading the culture of digital transformation to overcome the resistance of some members of the administrative and teaching staff of the college to change and transformation into the era of digitalization	4.73	0.47	1
6	Provide the necessary equipment for the transition from traditional methods of control to methods of electronic control completely	4.58	0.65	8
7	Exact clarification of digital transformation requirements for participants in the regulatory process	4.64	0.63	4
8	Making the necessary organizational changes to adopt the modern control methods necessary to keep pace with the era of digitization	4.59	0.64	7
9	Establishing regulations and procedures that preserve the security and confidentiality of data and information in the age of digitization	4.56	0.71	9
10	Existence of clear strategic vision to move towards the era of digitization in various administrative functions, including the Control function	4.66	0.63	3

It is clear from the results of the table that the first suggestion for overcoming the difficulties that prevent the application of control methods that are in line with the requirements of the era of digital transformation is to spread the culture of digital transformation to overcome the resistance of some members of the administrative and teaching staff in the college to change and transformation into the age of digitization. In the second place came the suggestion for organizing Training courses for college employees from the administrative and academic staff to deal with modern technologies that suit the requirements of the age of digitization. In the third place came the suggestion of having a clear strategic vision to move towards the age of digitization in various administrative functions, including the supervisory function. The last rank was for the suggestion for setting regulations and procedures that preserve the security and confidentiality of data and information in the age of digitization. The results of the table confirm the importance of working to confront the obstacles that may confront the development of control methods so that they are more compatible and compatible with the requirements of

technological developments and digital transformation, and this was also confirmed by the results of the study (Awad, Ronald Naim 2017), which stressed the need to pay attention to the application of electronic control and its methods, as well as the need to employ modern technology and provide financial allocations to better activate it And the results of the study (Ibrahim, Mahmoud Muhammad and Al-Haddad, Basma Muharram 2018), which indicated that the mechanism of digital transformation in the institution depends on the existence of a clear and flexible strategy for digital transformation that includes information and communication technology and human resources that are followed up by the higher management of the institution to ensure the success of the work and its progress in the right way, and the results of The study (Amin, Mustafa Nadi Muhammad 2019), which recommended the need to continuously train workers in modern control systems, as well as the need to raise awareness of the importance of electronic control, and the results of the study (Salaimi, Jamila, Boshi, Youssef, September 2019), which concluded that digital transformation is no longer an option for societies Rather, it is necessary and that addressing the risks it faces requires the development of the legal and technical system in the fields of information and communications technology on the one hand, and the need to strengthen technical and electronic security teams on the other hand.

**Table (11) The relationship between the control methods used in higher education institutions and the effectiveness of those methods according to the requirements of the era of digital transformation
N = 111**

	The college administration uses periodic reports to follow up the progress of work	The college administration uses periodic meetings to follow up the performance of the members of the administrative and teaching staff	The college administration periodically monitors the performance of all college departments and units	The college administration periodically reviews the files related to the completion of work to monitor the performance of the members of the administrative and teaching staff	The college administration monitors the daily attendance of members of the administrative and teaching staff	The administration of the college is interested in direct observation during the workflow of the performance of the members of the administrative and teaching staff of the	The college administration uses exceptional reports on problems related to the performance of members of the administrative and teaching staff	The college administration is interested in examining complaints submitted to it about the performance of members of the administrative and teaching staff	The actual performance of the faculty and administrative staff members is compared to the expected performance in accordance with the standards of the National Authority for	The college administration implements the internal audit on a regular basis
Contribute to the organization's achievement of its objectives	٠,١٦٠	**٠,٣٦٧	**٠,٥٩٤	**٠,٤٥٨	*٠,٢٢٤	**٠,٦٧٩	**٠,٤١٠	**٠,٤٤٤	**٠,٦٤٢	**٠,٦٣١
Expediting the control process quickly	٠,١٠٥	**٠,٣٦٦	**٠,٥٦٥	**٠,٣٥٢	**٠,٢٢٨	**٠,٦٤٠	**٠,٤٤٣	**٠,٥٢٨	**٠,٥١٨	**٠,٥٨٧
Accurate implementation of the control process	٠,٠٤٨	**٠,٣٦٥	**٠,٤٦٨	**٠,٣٨٠	*٠,١٩٣	**٠,٦٤٣	**٠,٣٢٩	**٠,٤٤٨	**٠,٤٩٠	**٠,٥٤٢
Objectively evaluate the performance of the administrative and academic staff	٠,٠٠٩	**٠,٣١٠	**٠,٤٢٦	**٠,٤٤٢	٠,٠٨٨	**٠,٥٦٠	**٠,٣٥٩	**٠,٤٤٤	**٠,٥٠٤	**٠,٥٨٢

	The college administration uses periodic reports to follow up the progress of work	The college administration uses periodic meetings to follow up the performance of the members of the administrative and teaching staff	The college administration periodically monitors the performance of all college departments and units	The college administration reviews the files related to the completion of work to monitor the performance of the members of the administrative and teaching staff	The college administration monitors the daily attendance of members of the administrative and teaching staff	The administration of the college is interested in direct observation during the workflow of the performance of the members of the administrative and teaching staff of the	The college administration uses exceptional reports on problems related to the performance of members of the administrative and teaching staff	The college administration is interested in examining complaints submitted to it about the performance of members of the administrative and teaching staff	The actual performance of the faculty and administrative staff members is compared to the expected performance in accordance with the standards of the National Authority for	The college administration implements the internal audit on a regular basis
Optimizing the use of resources and preventing their waste	٠,٠٢٠	*٠,٢١٨	**٠,٣١٥	**٠,٣١٣	٠,١٤٣	**٠,٤٤٦	**٠,٢٥٢	**٠,٣٢٦	**٠,٣٦٠	**٠,٣٩٥
Achieving the objectives of the control process as required	٠,٠٥٥	*٠,٢٢٤	**٠,٤٠٧	**٠,٣٩٧	٠,١٤٣	**٠,٤٨٦	**٠,٣٢٦	**٠,٤١٣	**٠,٤٦٣	**٠,٤٥٦
Relying on modern technologies in everything related to the control process	٠,٠٧٥	*٠,٢٢٠	**٠,٣٦٥	**٠,٢٦٢	*٠,٢٠٠	**٠,٦٠٨	**٠,٤٠٤	**٠,٤٤٨	**٠,٤٧٢	**٠,٤٥٨
Rely on a qualified and trained cadre to carry out the monitoring process electronically	٠,١٤٧	**٠,٢٩٨	**٠,٤٢٦	**٠,٣٦١	٠,١٢٥	**٠,٥٥٦	**٠,٥٢٠	**٠,٤٤٣	**٠,٤٩٨	**٠,٥٢٨
Keeping updated of all developments related to the control process	- ٠,٠٠٦	*٠,٢٢٣	**٠,٣٥٥	**٠,٣٤٥	٠,١١٤	**٠,٥٤٥	**٠,٤٣٧	**٠,٣٨٥	**٠,٤٨٥	**٠,٥٨٨
To be in line with the trends of the state in the era of digitization	- ٠,٠٣٠	**٠,٢٧٣	**٠,٣٦٩	**٠,٣٧٥	٠,١٥٦	**٠,٥٩١	**٠,٣٣٤	**٠,٤٢٤	**٠,٤٩٤	**٠,٥٢٧
Relying on electronic communication systems to link all college departments and units together	٠,٠٢٩	*٠,٢٢٥	**٠,٣٧٦	**٠,٣٦٦	٠,١٧٢	**٠,٤٩٠	**٠,٣٩٠	**٠,٣٧٠	**٠,٤١٨	**٠,٥٥٠

(* Significant at (0.05) (** Significant at (0.01)

It is clear from the results of the table that there is a statistically significant relationship at a level of significance (0.01) between the control methods used in higher education institutions and the indicators that indicate the effectiveness of those methods according to the requirements of the era of digital transformation. Among the indicators are (contributing to the institution's achievement of its objectives, completing the supervisory process quickly, completing the supervisory process accurately, evaluating the performance of members of the administrative and teaching staff objectively, achieving optimal use of resources and preventing their wastage achieving the objectives of the control process in the required manner, relying on modern technologies in everything related to the control process, relying on a qualified and trained cadre to carry out the control process electronically, keeping updated of all developments related to the control process, being in line with the state's trends in the era of digitization, relying on electronic communication systems to connect All departments of the college and its units together) and the significance of this relationship between indicators of the effectiveness of the control methods and all the methods used in the study community has been confirmed, except for

the supervisory method of using periodic reports to follow up the progress of work ,This may be due to the fact that the use of this method represents an importance and a basic control tool, whether in light of the traditional control methods or the modern control methods required by the era of digital transformation. A study confirmed the validity of the results of the study (Abu Amra, Hisham Muhammad and others, 2015), which confirmed the existence of a clear impact of electronic control on increasing the speed of completion of transactions and increasing the effectiveness of workers, And the results of the study (Al-Arian, Esraa Adnan 2016), which confirmed that the application of electronic control had a high impact on the quality of the organization's internal services, the results of the study (Sherif, Ismail Othman, 2021), which confirmed that the use of information technology in the internal control system leads to Get the information in a timely manner.

The results of the study that came in this table confirmed the achievement of the second objective of the study, which is to determine the relationship between the supervisory methods used in higher education institutions and the effectiveness of those methods in the era of digital transformation.

Thus, it also proves the validity of its second hypothesis, which states that "there is a significant relationship between the control methods used in higher education institutions and the effectiveness of those methods in the era of digital transformation."

Table (12) The relationship between the effectiveness of the control methods and the availability of the requirements for developing the control methods

	Completely relying on electronic reports for all college activities	Relying on modern technologies in the follow-up of members of the administrative and teaching staff of the college	Training members of the administrative and teaching staff of the college to deal with modern technological techniques	Adoption of electronic archiving of files for the completion of work	The college uses statistical data and charts to monitor the performance of members of the administrative and	The existence of an accurate and developed database containing all the information required for the application	Relying on electronic methods in measuring the performance of members of the administrative and teaching staff	Keeping updated of the organizational and administrative thought of the college with modern control methods in	The existence of a strong and effective communication network to communicate instructions and directives on the control	The presence of a website for the college that is constantly updated and fed with data and information on everything
Contribute to the organization's achievement of its objectives	٠,٠٤٨	٠,١٧٢	**٠,٢٦٥	٠,١٤٤	**٠,٤٧٩	**٠,٢٦٧	**٠,٥٢٤	*٠,١٩٧	*٠,١٨٧	**٠,٤٨١
Expediting the control process quickly	٠,١٤٥	*٠,٢٣٨	*٠,٢٢٤	٠,٠٩٤	**٠,٤٦٧	٠,١٧٢	٠,٤٠٣	*٠,١٩٢	٠,١٤٢	**٠,٤٣٩
Accurate implementation of the control process	-	٠,١٥٧	٠,١٥٦	٠,٠٦٤	**٠,٣٩٢	٠,١٦٤	**٠,٤٣٨	٠,١١٦	٠,١٦١	**٠,٤٥٧

	Completely relying on electronic reports for all college activities	Relying on modern technologies in the follow-up of members of the administrative and teaching staff of the college	Training members of the administrative and teaching staff of the college to deal with modern technological techniques	Adoption of electronic archiving of files for the completion of work	The college uses statistical data and charts to monitor the performance of members of the administrative and teaching staff	The existence of an accurate and developed database containing all the information required for the application	Relying on electronic methods in measuring the performance of members of the administrative and teaching staff	Keeping updated of the organizational and administrative thought of the college with modern control methods in	The existence of a strong and effective communication network to communicate instructions and directives on the control methods to all departments and units quickly and clearly	The presence of a website for the college that is constantly updated and fed with data and information on everything
Objectively evaluate the performance of the administrative and teaching staff	- ٠,٠٤٣	*٠,٢٢٦	*٠,٢٣٣	**٠,٢٦٥	**٠,٥٥٧	**٠,٢٧٢	**٠,٥٧١	*٠,٢١٢	*٠,٢٤٢	**٠,٥٢٠
Optimizing the use of resources and preventing their waste	- ٠,١٠٨	٠,١٥٨	*٠,٢٤١	**٠,٢٧٠	**٠,٤٤٧	**٠,٣٥٢	**٠,٤٣٠	**٠,٢٩٣	**٠,٣١٩	**٠,٥٠٢
Achieving the objectives of the control process as required	- ٠,٠٤٠	٠,١٤١	٠,١٧٥	**٠,٢٥٥	**٠,٤٩٩	**٠,٣٣٨	**٠,٤٤١	**٠,٢٧٤	**٠,٢٤٨	**٠,٤٨٤
Relying on modern technologies in everything related to the control process	٠,٠٢١	**٠,٢٤٩	*٠,٢١١	٠,١٧٨	**٠,٣٨٦	**٠,٢٦٧	**٠,٤١٥	*٠,١٩٨	٠,١٨٤	**٠,٤٢٨
Rely on a qualified and trained cadre to carry out the monitoring process electronically	٠,٠٢٥	*٠,٢١٢	*٠,٢١٣	**٠,٣٠٧	**٠,٥٣٤	**٠,٣٧١	**٠,٤٣٤	**٠,٢٧٧	**٠,٤١٣	**٠,٥٨٢
Keeping updated of all developments related to the control process	٠,٠٥٣	**٠,٢٥٨	*٠,٢٠٠	**٠,٢٦٧	**٠,٥٥٩	**٠,٣١٤	**٠,٥٥٥	*٠,٢٣١	**٠,٢٨٨	**٠,٥٢٧
To be in line with the trends of the state in the era of digitalization	٠,٠٣٦	**٠,٣٣٤	**٠,٣١٦	**٠,٢٦٥	**٠,٥٧٣	**٠,٢٩٨	**٠,٥٤٢	**٠,٢٦١	**٠,٢٥٣	**٠,٤٤١
Relying on electronic communication systems to link all college departments and units together	٠,٠٩٨	**٠,٢٨٥	**٠,٢٦٢	**٠,٣٠٥	**٠,٥٥٩	**٠,٣٩٦	**٠,٥٨٤	**٠,٣١٩	**٠,٣٩٤	**٠,٥٦٢

(*) Significant at (0.05) (**) Significant at (0.01)

The results of this table show that there is a statistically significant relationship at the level of (0.01) between the effectiveness of the supervisory methods used in higher education institutions and the availability of the necessary requirements for developing the supervisory methods so that they are more compatible with the requirements of the era of digital transformation. A website for the college that is constantly updated and fed with data and information on everything related to the control methods, and the presence of a strong and effective communication network to deliver instructions and directives on the control methods to all departments and units quickly and clearly, Keeping updated of the organizational and administrative thought in the college for modern control methods in accordance with the requirements of the era of ratification, reliance on electronic methods in measuring the performance of members of the administrative and teaching staff in the college, the presence of an accurate and developed database containing all the information required

for the application of control methods, the college's use of statistical data and charts to monitor the performance of members The administrative and teaching staff, the adoption of electronic archiving of files related to the completion of work, the training of members of the administrative and teaching staff of the college to deal with modern technological technologies, Reliance on modern technologies in following up on members of the administrative and teaching staff of the college, relying on electronic reports for all activities of the college completely) whenever the control methods used are more effective. Appropriate plans to achieve electronic control and the results of the study (Awad, Ronald Naim 2017), which recommended the need to employ modern technology and provide financial allocations to activate it better, and the results of a study (Ibrahim, Mahmoud Muhammad and Al-Haddad, Basma Muharram, 2018), which concluded that the mechanism of digital transformation in the institution depends on the existence of a clear and flexible strategy for digital transformation that includes information and communication technology and human resources that are followed up by the higher management of the institution to ensure the success of the work and its progress in the right way.

These results achieve the third objective of the study, which is to determine the relationship between the effectiveness of the control methods used in higher education institutions and the requirements for developing those methods to be more effective in the era of digital transformation.

And it proves the validity of its third hypothesis, which states that "there is a significant relationship between the effectiveness of the control methods used in higher education institutions and the requirements for developing those methods to be more effective in the era of digital transformation."

Table(13) The relationship between the control methods used in higher education institutions and the difficulties N=111

	The college administration uses periodic reports to follow up the progress of work	The college administration uses periodic meetings to follow up the performance of the members of the administrative	The college administration periodically monitors the performance of all college departments and units	The college administration reviews the files related to the completion of work to monitor the performance of the	The college administration monitors the daily attendance of members of the administrative and teaching staff	The administration of the college is interested in direct observation during the workflow of the performance of the	The college administration uses exceptional reports on problems related to the performance of members of the	The college administration is interested in examining complaints submitted to it about the performance of members of	The actual performance of the faculty and administrative staff members is compared to the expected performance	The college administration applies the internal audit on a regular basis
The lack of the physical capabilities necessary for a complete digital transformation	٠,١١٠-	٠,٠٠٣	*٠,٢٢٣	٠,٠٠٥	*٠,١٨٨	**٠,٢٥٠	٠,٠٩٦	*٠,١٩٧	*٠,٢١٣	٠,١٤٣
The lack of human capabilities necessary for a complete digital transformation	٠,١٨٤-	٠,٠٢٨	٠,١١١	٠,٠٧٧	٠,٠٨٥-	*٠,٢٣٥	٠,١٠٧	٠,٠٦٦	٠,١٥٨	٠,٠٦٨
The lack of a strong internet network for all college offices and departments	٠,١٠٧-	٠,١٠٧-	٠,٠٢٢	٠,٠٥٨	٠,٠٠٣	٠,٠٣٦	-	٠,٠٠٧-	٠,١٢١	٠,٠٧٥
The inability of some members of the faculty's administrative and teaching staff to deal with modern technologies that are commensurate with the requirements of the era of digitization	٠,٠٢٥	٠,٠٧٢-	٠,٠٢٥-	٠,١٢٤	٠,٠٢٨	-	-	٠,٠٢٢	٠,١٢٢-	-
The resistance of some members of the faculty and administrative staff to change and transformation in the era of digitization	٠,٠٧٨-	٠,٠٧١-	٠,٠٣٨-	-	٠,٠٠٣	٠,٠٥٠-	-	٠,٠٠٨	٠,٠٧٥-	-
Lack of the necessary equipment to switch from traditional methods of control to methods of electronic control completely	-	٠,٠٩٣-	٠,٠٠٠	-	٠,٠٤٧	٠,١٠٧	-	٠,٠٩٠	٠,٠٩٤	٠,٠٩٣
Lack of clarity on the requirements of digital transformation for the participants in the control process	٠,١٤٨-	٠,١٤٣-	٠,٠٥٥	-	٠,١٠٩	٠,١٧٢	٠,٠٤٣	٠,١٧٧	٠,٠٧٧	٠,٠٠٢
Absence of the necessary regulatory environment for the adoption of modern control methods	-	-	٠,٠٢٠-	-	-	٠,١٢٢	٠,٠٣٨	٠,٠٠٦	٠,٠٨١	٠,٠٢٠
Absence of regulations and procedures that preserve the security and confidentiality of data and information in the era of digital transformation	٠,٠٥٩-	٠,١٤١-	٠,٠٥٣-	٠,٠١١	٠,٠٤٨-	٠,١١٦-	-	٠,٠٣٦	٠,٠٠١-	-
Absence of a clear strategic vision to move towards the era of digitization in various administrative functions, including the Control function	٠,١١٢-	٠,١٣٩-	٠,١٢٩-	٠,٠٥٤	٠,١٣٠-	٠,١٤٠-	-	٠,١٣٨	٠,١٢١-	-

(*) Significant at (0.05)

(**) Significant at (0.01)

The results of this table reflect the absence of a statistically significant relationship between the supervisory methods used in higher education institutions and the presence of difficulties that prevent the fulfillment of the requirements necessary to develop the supervisory

methods in order to be more in line with the requirements of the era of digital transformation, except with regard to the relationship between the following difficulties and control methods:

- The difficulty of (the lack of material capabilities necessary for complete digital transformation) and the control methods represented in (the actual performance of the members of the administrative and teaching staff in the college is compared with the expected performance in accordance with the standards of the National Authority for Quality Assurance of Education and Accreditation, the college administration uses exceptional reports on problems related to the performance of members The administrative and teaching staff, the college administration is interested in direct observation during the workflow of the performance of the members of the administrative and teaching staff in the college.
- The difficulty of (the lack of human capabilities necessary for a complete digital transformation) and the supervisory methods represented in (the interest of the college administration in direct observation during the workflow of the performance of the members of the administrative and teaching staff at the college) at a level of morale (0.05)
- The difficulty of (the inability of some members of the administrative and teaching staff at the college to deal with modern technologies that are commensurate with the requirements of the era of digitization) and the control methods represented in (the interest of the college administration in direct observation during the workflow of the performance of the members of the administrative and teaching staff at the college) at a level of morale (0.01)
- The difficulty of (the lack of the necessary equipment to switch from traditional control methods to completely electronic control methods) and the control methods represented in (the college administration used periodic reports to follow up the workflow) at a level of significance (0.05)
- The difficulty of (the absence of the regulatory environment necessary to adopt modern control methods) and the control methods represented in (the college administration doing daily follow-up to the attendance of the members of the administrative and teaching staff, the college administration reviewing the files related to the completion of work to monitor

the performance of the members of the administrative and teaching staff, the college administration's use of periodic reports To follow up the progress of work) at the level of significance (0.05).

Table (14) shows some demographic variables effectiveness of Control methods in higher education institutions N = 111

	Type	Age	Qualification	Occupation	years of experience
Contribute to the college's achievement of its objectives	- ٠,١١٠	٠,٠٨٢	٠,٠١٠-	**٠,٢٩٢	- ٠,٠٠١
Expediting the control process quickly	- ٠,٠٦٨	٠,٠٧٢	٠,٠٧٠-	*٠,٢١٢	٠,٠٠٢
Accurate implementation of the control process	- ٠,٠٠٩	٠,١٢٠	٠,٠٠٤-	**٠,٢٩٣	٠,٠٥١
Objectively evaluate the performance of the administrative and teaching staff	- ٠,٠١٠	٠,١٨٤	٠,٠٨٣	**٠,٢٩٣	٠,٠٨٤
Optimizing the use of resources and preventing their waste	٠,٠٥٠	*٠,٢٤١	٠,٠١٣-	**٠,٣٣٤	٠,١٤٦
Achieving the objectives of the control process as required	٠,٠٤٦	٠,١٣٩	٠,٠٥١	**٠,٣٤٦	٠,٠٨٦
Relying on modern technologies in everything related to the control process	٠,٤٤-	٠,١٠٦-	٠,٠١٢	**٠,٢٤٨	- ٠,١٦٠
Rely on a qualified and trained cadre to carry out the monitoring process electronically	٠,٠٦٦	٠,٠٠٢	٠,٠٦٦-	*٠,٢١٣	- ٠,٠٥٧
Keeping updated of all developments related to the control process	- ٠,٠٣٠	٠,٠٣١	٠,٠٠٧	**٠,٢٥١	- ٠,٠٤٩
In line with the state's trends in the era of digital transformation	- ٠,٠٤٩	٠,٠٩٢	*٠,١٩٥	**٠,٢٦٥	٠,٠١٨
Relying on electronic communication systems to link all college departments and units together	٠,٠٥٠	٠,٠٨٥-	٠,٠٥٧-	*٠,٢١٢	- ٠,١٥٥

(*) Significant at (0.05)

(**) Significant at (0.01)

The results of the table show that there is a significant relationship when:

- 1- Significance level (0.01) between the effectiveness of the used control methods and the demographic variable related to the job. This result is consistent with the results of the study (Mahmoud, Fadi Al-Fateh Al-Tayeb, 2016), which emphasized the importance of the role those senior administrative leaders play in supporting the supervisory methods in the institution.
- 2- Significance level (0.05) between the demographic variable related to age and the variable related to the effectiveness of the used control methods represented in achieving the optimal use of resources and preventing their waste.
- 3- Significance level (0.05) between the demographic variable related to qualification and the variable related to the effectiveness of the monitoring methods used, which is represented in the compliance of the regulatory methods with the state's orientations related to the era of digitization. Its performance standards and methods are in line with the state's trends in keeping pace with technological developments and changes.

As the study proves these results, its fourth goal is to determine the relationship between some demographic variables and the effectiveness of the control methods used in higher education institutions in the era of digital transformation.

It also proves the validity of the fourth study hypothesis, which states "there is a significant relationship between the effectiveness of the control methods used in higher education institutions in the era of digital transformation and some demographic variables", which were represented in this study in the variables of job, age and qualification.

Table (15) Illustrates relationship between each other Variables' demographic And the difficulties that prevent the development of the Control methods used in higher education institutions N = 111

	Type	Age	Qualification	Occupation	Years of experience
The lack of the physical capabilities necessary for a complete digital transformation	-0.020	0.268**	0.249**	0.255**	0.235*
The lack of human capabilities necessary for a complete digital transformation	-0.173	0.163	0.250**	0.204*	0.140
The lack of a strong internet network for all college offices and departments	0,021	0.172	0.389**	0.242*	0.090
The inability of some members of the faculty's administrative and teaching staff to deal with modern technologies that are commensurate with the requirements of the era of digitization	0.229*	0.066	0.287**	0.234*	0.038
The resistance of some members of the faculty and administrative staff to change and transformation in the era of digitization	0.002	-0.148	0.263**	0.214*	-0.103
Lack of the necessary equipment to switch from traditional methods of control to methods of electronic control completely	-0.038	0.137	0.200*	0.225*	0.123
Lack of clarity on the requirements of digital transformation for the participants in the control process	-0.049	0.025	0.213*	0.262**	0.083
Absence of the necessary regulatory environment for the adoption of modern control methods	-0.104	0.076	0.270**	0.229*	0.080
Absence of regulations and procedures that preserve the security and confidentiality of data and information in the era of digital transformation	0.132	0.206*	0.222*	0.218*	0.238*
Absence of a clear strategic vision to move towards the era of digitization in various administrative functions, including the Control function	-0.031	0.075	0.206*	0.209*	0.115

(*) Significant at (0.05)

(**) Significant at (0.01)

It is evident from the table that there is a relationship of varying significance at the level of significance (0.01), the level of significance (0.05) between:

- The two variables related to the qualification and the job, and the presence of difficulties that prevent the fulfillment of the requirements for developing the control methods.
- The variable related to years of experience and some indicators of the existence of difficulties that prevent achieving the requirements for developing control methods, represented in the lack of material capabilities necessary for complete digital transformation, the absence of regulations and procedures that preserve the security and confidentiality of data and information in the age of digitization.
- The age-related variable and some indicators of the existence of difficulties that prevent the achievement of the requirements for developing the control methods represented in the lack of material capabilities necessary for complete digital transformation, the absence of regulations and procedures that preserve the security and confidentiality of data and information in the age of digitization.

The existence of a significant relationship between these demographic variables and the presence of those difficulties may be due to the fact that the factors of age, qualification, job and experience may affect the level of maturity of the person and thus may increase his ability to confront and overcome these difficulties.

And the study's conclusion with these results proves the validity of its fifth hypothesis, which states that "there is a significant relationship between some demographic variables and the difficulties that prevent the development of the supervisory methods used in higher education institutions to be more effective in the era of digital transformation."

General results of the study:

1. The mean age of the respondents (41.50), standard deviation (8.97), average years of experience (19.30), and standard deviation.(٩,٤٢)
2. Most of the respondents are females, with a percentage of .(٦٤,٩%)
3. Most of the research community are Ph.D. holders, with a percentage of.(٩٠,١%)
4. Most respondents are academic staffs, at a rate of.(٧٣%)
5. Most of the control methods used in higher education institutions from the point of view of the study community are represented in the college administration's daily follow-up to

the attendance of members of the administrative and teaching staff. In the second place came the supervisory method for the college administration's periodic follow-up of the performance of all departments and units of the college, and in the third place came the supervisory method Regarding the use of the college administration's periodic reports to follow up the progress of work, and in the last place came the supervisory method for using the college administration's exceptional reports on problems related to the performance of members of the administrative and teaching staff.

6. The level of effectiveness of the Control methods used in higher education institutions from the point of view of the study community was high and came in the first place in terms of the effectiveness of the Control methods used, the indicator for the contribution of those methods to the college's achievement of its objectives, and in the second place came to the indicator for the contribution of the user control methods In the speedy completion of the Control process, and in the third place was the indicator related to the compliance of the regulatory methods used with the state's orientations related to the era of digital transformation, and in the last place came the indicator of the effectiveness of the control methods used concerning keeping pace with all developments related to the control process.
7. The results of the study confirmed the achievement of its first objective, which is to determine the effectiveness of the control methods used in higher education institutions in the era of digital transformation by achieving the following sub-objectives:

A- Determining the Control methods used in higher education institutions.

B - Determining the indicators of the effectiveness of the control methods used in higher education institutions in the era of digital transformation.

8. The study proved the incorrectness of the first hypothesis of the study, according to which it is expected that the effectiveness of the control methods used in higher education institutions according to the requirements of the era of digital

transformation will be moderate, as the results proved that the effectiveness of the control methods used was high.

9. The first requirement necessary to develop the control methods to be more in line with the requirements of the era of digital transformation was represented in training the members of the administrative and teaching staff of the college to deal with modern technological technologies. And in the third place is the requirement for a strong and effective communication network to deliver instructions and directives on the control methods to all departments and units quickly and clearly, and in the last place came the requirement to rely on electronic reports for all college activities completely.
10. The results of the study demonstrated the achievement of its fifth objective, which is to identify the difficulties that prevent the development of the Control methods used in higher education institutions to be more effective in the era of digital transformation. The lack of the physical capabilities necessary for a complete digital transformation. And in the second place was the difficulty related to the inability of some members of the administrative and teaching staff of the college to deal with modern technologies that are commensurate with the requirements of the era of digitization. Confidentiality of data and information in the age of digitization.
11. The first suggestion for overcoming the difficulties that prevent the application of Control methods that are in line with the requirements of the era of digital transformation is to spread the culture of digital transformation to overcome the resistance of some members of the administrative and teaching staff of the college to change and transformation to the age of digitization. In the second place came the suggestion to organize training courses for employees In the college, from the administrative and academic body to deal with modern technologies that fit the requirements of the age of digitization. In the third place came the suggestion for a clear strategic vision to move towards the era of digitization in various administrative functions, including

the Control function. The last rank was for the suggestion for setting regulations and procedures that preserve security and confidentiality. Data and information in the age of digitization.

12. The results of the study confirmed the achievement of the second objective of the study, which is to determine the relationship between the control methods used in higher education institutions and the indicators of the effectiveness of those methods in the era of digital transformation. The Control methods used in higher education institutions and the effectiveness of those methods to the requirements of the era of digital transformation.
13. The results of the study confirmed the achievement of the third objective of the study, which is to determine the relationship between the effectiveness of the control methods used in higher education institutions and the requirements for developing those methods to be more effective in the era of digital transformation. Higher education and the requirements for developing those methods to be more effective in the era of digital transformation
14. The results of the study confirmed the achievement of its fourth goal, which is to determine the relationship between some demographic variables and the effectiveness of the Control methods used in higher education institutions in the era of digital transformation. digital", which was represented in this study in the variables of occupation, age, and qualification.
15. The results of the study confirmed the validity of its fifth hypothesis, which states that "there is a significant relationship between some demographic variables and the difficulties that prevent the development of the Control methods used in higher education institutions to be more effective in the era of digital transformation".

Study recommendations

In light of the results of the current study and the findings of previous studies, a set of recommendations were made for the development of Control methods in higher education institutions

- 1- The necessity of having a clear strategy in educational institutions for digital transformation to keep pace with the rapid and successive developments witnessed by the Fourth Industrial Revolution and to rely on modern technologies in the administrative process in general and in the Control process. In particular
- 2- The various administrative processes and methods must be monitored and evaluated periodically to find out the methods and procedures that need change and development to the requirements of digital transformation in society
- 3- Financial allocations should be made available for the modernization of equipment and services necessary for digital transformation in educational institutions.
- 4- Human cadres must be prepared, aware of the requirements of the control process in the era of digital transformation, and able to achieve them
- 5- The necessity of making the necessary administrative decisions to adopt electronic methods as a main tool in the control process according to a specific time plan commensurate with the capabilities of the institutions on the one hand and the directions of the state on the other hand.
- 6- More studies and analytical research should be conducted to determine the material and human needs necessary to adopt modern technology and techniques in all stages of the control process by identifying the strengths, weaknesses, opportunities, and threats that are related to the control process to be more effective and compatible with the era of digital transformation.

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