

# The Impact of Modern Technology on Institutional Performance: Case Study of Sudanese Oil Companies in the State of Khartoum (Sudan)

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## Abstract:

The study aimed to know the impact of modern technology on Sudanese oil companies located in Khartoum State. 100 questionnaires were distributed, and 95 of them were retrieved. The descriptive-analytical approach was used. The study concluded that there is a positive relationship between the use of modern technology and the improvement of the performance level in companies. The study recommends conducting training courses for supervisors and workers, and training them to develop their skills in practicing work with the presence of modern technology.

**Keywords:** networks, software, information security, communication, performance

## 1. Introduction

The world today is witnessing major changes since the last two decades of the last century that go far beyond what the world witnessed in past periods, as today's institutions are going through cultural, economic, social, and technological changes resulting from the limitations of globalization and technological and informational development, which has led to the necessity of seeking to restore balance in the performance of institutions. its workers, and work to increase the quality of service and improve performance. It is of great importance in the management of institutions. This is why writers and researchers in the field of management and institution have begun to increasingly focus and pay attention. Therefore, improving the performance of the institution is considered a complex problem in light of technologies, changing markets, and globalization in everything. At present, the success of the institution is linked to its ability to Optimal exploitation of capabilities, skills, and experiences and the creation of new knowledge to be used in innovation for methods that meet needs and achieve goals. Technology is considered one of the modern approaches that help improve institutional performance, and the development of institutions requires careful examination and analysis of the policies and practices followed in terms of planning, implementation, leadership, human and material resources, and the institutional culture of institutions. It also appears extremely important through the information and data it provides about the institution's performance and the extent to which its goals are achieved. decreed, and the means necessary to achieve it; It also provides administrators with the opportunity to

present the strengths and weaknesses of various administrative functions, and to reconsider established programs and policies (Al-Tahir, 2021). Modern technology aims to enhance the ability of institutions to be able to keep pace with the requirements of globalization, comprehensive quality, competitiveness, and improve performance and improve productivity, as a necessary and important input to gain the confidence of beneficiaries and users of the public services provided by institutions. Doing business efficiently and effectively in institutions in general, and business institutions in particular, is of great importance, which is responsible for the largest part of the process of sustainable and comprehensive development of societies, and working to achieve its goals of providing the best services, community service, partnership with the private sector, and maintaining its position and continuity. In light of the challenges of a constantly evolving society (El-Tahir; Sunniyah 2013).

Modern technology is responsible for identifying the strengths, weaknesses, and risks of the institution because it is responsible for organizing and presenting large amounts of information that helps understand and manage the environment surrounding the institution. There are several studies that have been discussed in this field, including the study of Saud bin Tamah Al-Anini (1995), which concluded that the problem of office and administrative complexities is considered in this era a global problem that almost no human society, developed or developing, is devoid of, regardless of their systems and trends. It is also one of the main causes of administrative backwardness and the low efficiency of administrative bodies, especially in developing countries. Many advanced applications have emerged in the field of technology, including electronic management applications that contribute to accelerating business implementation. The major developments in the fields of communications, internal networks, and extranets played a major role in developing office work on a very large scale, as well as the most complete developments regarding mobile phones and their interconnection with the Internet, all of which created a very major revolution in the field of information technology and had a major impact on it. These transformations have demonstrated the necessity of introducing modern technology into the institution's activity as a form of renewal and modernization, which particularly affects the communication process that helps adapt to the new economy that is built on supporting communication with the internal and external environment. (El-Tahir, Ishtiaq, 2015).

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### 1.1. Research Problematic

The problem of the study appears through our awareness of the importance of the level of modern technology in improving institutional performance, which is one of the important topics because of its direct relationship to the behavior of employees, in order to obtain quality in doing business within the institution, which achieves satisfaction and excellence for the institution and ensures its continuity in the desired manner. The employees of Sudanese institutions in particular are considered one of the most important elements capable of bringing about change and development, keeping pace with developments and modern changes, and activating the best skills for effective institutional performance. Therefore, modern administrations seek to activate institutional performance and improve their activities, and this requires them to carry out their work and practice it in the presence of modern technology that helps improve Institutional performance within the institution. The link between modern technology and institutional performance did not receive sufficient attention from researchers, as the researcher noticed during his work, his participation in activities and workshops held by national bodies, and previous studies, that the planning process and formulation of strategic plans are still developed separately from indicators and standards of institutional performance, which indicates To a weakness in understanding the importance and effects of modern technology on institutional performance. Hence the research problem arises in knowing the relationship between modern technology and institutional performance. Hence, the problem of this study is determined in trying to identify the effectiveness of modern technology in improving institutional performance, in order to work on improving it through the development

proposals that this study will reach from its sample. Specifically, the study attempted to answer the following questions:

1. What is the degree and level of modern technology in the institutions from the point of view of the sample studied?
2. What is the level of institutional performance in general?
3. What is the level of relationship between modern technology and the dimensions of institutional performance?

### 1.2. Research Aims

The research aims to:

- ✓ Knowing the level of modern technology in the institution from the point of view of the sample studied
- ✓ Knowing the level of institutional performance in the institution from the point of view of the sample studied
- ✓ Knowing the level of relationship between modern technology and institutional performance.

### 1.3. Research hypothesis

There is a positive, statistically significant relationship between modern technology (electronic business, networks, information security, equipment and devices, software, communications) and institutional performance.

### 1.4. Previous studies

Khaled Mustafa Barakat (2023): The study aimed to test the impact of information technology on the institutional performance of public bodies, through a field study conducted on a sample of 162 respondents who work in a number of public service bodies. The study found that information technology contributed to improving the institutional performance of public bodies.

Mbarki Saleh, Khairaldin Jomaa (2022): The study aimed to demonstrate the impact of the use of information technology in improving the performance of institutions from the perspective of the balanced scorecard at the Sonelgaz Foundation in Biskra. The study concluded that there is a statistically significant effect of the use of information technology in improving the performance of institutions from a financial perspective. The internal operations perspective and the growth and learning perspective, in contrast to the customer perspective.

Alaa Al-Akash, Nahed Al-Eid (2020): The study aimed to know the role of using digital technology in evaluating institutional performance and the suitability of electronic use in the field of evaluation, according to the smart evaluation method at the Basmat Amal Foundation for Cancer Care in the Gaza Strip. The comprehensive inventory method was used, and The most important experimental results are that there is a role and importance for the use of technology in smart digital assessment in terms of accuracy, quality and speed in obtaining information, in addition to low cost. It turned out that the institution has an average intelligence of 58.1%, and the percentages of technology intelligence standards were 69.2%, organizational communication 65.3%.

Mothana et al (2019): The aim of this study is to explore the impact of information technology on organizational performance. The study used descriptive design using a questionnaire developed and distributed to the study sample which consisted of 262 employees working in Jordanian public entities. Results of the current study revealed that information technology and its dimensions have been moderately implemented in the studied organizations. Furthermore, the results revealed that there are relationships among information technology dimensions as well as between information technology dimensions and organizational performance at the significance level (0.05).

Fadila Fani (2018): The study aimed to determine the impact of information and communication technology on institutional performance. The study concluded that there is a clear positive impact of the uses of modern information and communication technologies in raising the level of performance in the banks studied.

### 1.5. Comment on previous studies

Previous studies focused on service institutions in Arab countries, relied on specific dimensions of information technology, and used different approaches, some of which were experimental and some were case studies. The current study was in industrial companies in Sudan and focused on most dimensions of modern technology, and used the descriptive and analytical approach. The researcher benefited from previous studies in choosing the dimensions of the study, designing the study problem, and choosing the appropriate approach for the study, in addition to designing the questionnaire.

We conclude from a review of previous studies that a limited number of studies have addressed the relationship between modern technology and institutional performance.

According to the researcher's comment on previous studies and the phenomena they raised related to his questions, it was possible to identify the research gap as follows:

1. The level of institutional performance of the companies under study varies as a result of the variation and difference in technologies and the type of structures that these companies follow. Thus, the need arises to enable the Sudanese government to interpret the behavior and motives of companies operating in the oil field and the orientations of their decision makers towards choosing technology and evaluating their performance.
2. The current study deals with the impact of modern technology (as an independent variable) and its various dimensions on institutional performance (as a dependent variable).

In light of the research gap that the researcher observed during previous studies, and with regard to the data collected through the exploratory study of the companies under study, the exploratory study reached a number of results, which can be presented as follows:

First: With regard to modern technology for companies, the following was revealed:

□ Limited awareness among officials in some companies subject to the study of the concept of modern technology, its various dimensions, and the extent of its contribution to developing institutional performance.

□ The technologies used by the companies under study differ. Some of them use technology by focusing on innovation and huge spending on research and development, and some of them use technology by focusing on the market by satisfying the needs and desires of customers and providing high-quality products at reasonable prices.

□ Officials' differing opinions about the relationship of modern technology that their companies follow in choosing the appropriate structure to enter the local market.

□ Many officials in the companies subject to the study stressed the necessity of adopting a specific type of technology in the organization to ensure its effectiveness in achieving goals and the level of outstanding performance.

Second: With regard to the institutional performance of the companies under study, the following was revealed:

□ The inadequacy and weakness of some officials' understanding of the concept of institutional performance.

□ Different institutional performance measures used in the companies under study.

□ One of the main obstacles in developing and improving institutional performance in some companies is the failure to adopt a clear and specific standard for measuring performance.

□ There is a difference in the opinions of company officials about the company's overall level of performance compared to competitors, depending on the level of technology used.

From the above, it is clear that there is a noticeable difference in the level of institutional performance in the oil companies operating in Sudan. This is due to the difference in the level of institutional performance in these companies as a result of the differences and differences in the levels and modernity of the technology adopted by these companies, in addition to the difference in the levels of workers in these companies.

The previously mentioned shortcomings indicate an increased need to reach relationships that enrich the theoretical and conceptual basis and increase the explanatory capacity in the relationship between technology and institutional performance of oil companies operating in Sudan.

## **2. Literature review**

### **2.1. modern technology**

#### **2.1.1. The concept of modern technology**

The modern era is witnessing technical developments in the fields of all their uses, whether in the field of devices, machines or equipment, which has prompted the management sector to adopt these and other technologies to automate its administrative work in a way that serves the institution or the beneficiaries of its services. This research will address the concept of technology and focus on the work of... Secretarial and office management and its reliance on communications because it brought about a real revolution in the expansion of the use of these technologies. Writers and scholars have differed in defining the precise meaning and broader concept of technology, and it was defined by Muhammad Nour and his colleagues who believe that technology means a group of technical means and tools that help in carrying out functions (Burhan et al., 1988, 63). Technology is the actions or procedures that individuals carry out regarding something, using or without mechanical means, devices, and tools, in order to bring about some change in this thing (Perry, 1967, 194-208). Technology means the use of useful means resulting from the application of scientific knowledge in various fields of life, and includes the material human product such as means of transportation, communications, computers, the Internet, databases...etc. (Makawi, 2005,).

#### **2.1.2. Dimensions of modern technology**

##### **A. Communications**

Communications have become an integral part of individuals' daily activities, as they are used to transfer information and data in various forms. The technical development that the world is witnessing now has become clear in the field of communications and the transmission of information through various communication channels used to send and retrieve information, including copper wires, optical fibers, coaxial cables, the use of shortwave communication devices, microwave waves, communication satellites, and digital wireless devices. . These circles played a fundamental role in developing the transfer and flow of information (Al-Labban, 2000, 109).

##### **B. Information security**

Information security is linked to several basic elements, the most important of which are the devices, equipment, and media used, software, programs, applications, data in circulation, and the human resources dealing with automated systems. Therefore, the process of securing information must include all elements such as: securing the computer location, organizing the work cycle, allocating tasks, and resisting computer viruses. This is in

addition to securing information across networks and terminals at several levels, through the use of systems to secure and protect against hacking into information networks. This is done in two ways: either by completely preventing the hacking, which is considered one of the difficult things to implement, or by allowing the hacking to discover and identify the hackers. (Muslim, 2014, 94)

### **C. Information networks**

The diversity of information sources in an infinite number of devices, including various information documentation centers. This diversity requires a kind of coordination based on national and global planning for the various systems and networks, with attention to linking information centers with each other. Information networks consist of main elements, the most important of which is its institutional structure. (Abdul Hamid, 1995, 155)

### **D. Devices and equipment**

Data entry devices, operating devices, information output devices, in addition to means of preservation (Ghoneim, 2014, 102).

### **E. Software**

It includes all the system's instructions for processing data, and the most important of these resources are system software, application software, and data procedures. (Raymond, 2000):

### **F. business**

It includes all the activities and work of the establishment - and is not limited to buying and selling operations - cooperating with other businesses and exchanging information with them, serving clients and customers, business management, employee management, financial affairs, production, marketing, etc. (Alaa, 2018).

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## **2.2. Institutional performance**

### **2.2.1. The concept of institutional performance**

As for (Yacoub, 2020), he explained that institutional performance is the institution's ability to benefit from its internal financial, institutional, human, and technological resources, and to work to achieve the interaction between these resources and the institution's external environment in order to achieve its goals adequately. Efficiency and effectiveness. (Suwais; Al-Qubaj, 2021), and performance is considered Institutional is one of the basic administrative processes through which institutions can be developed and advanced. In addition, this process includes a process of careful examination and analysis of the policies and practices followed in terms of planning, implementation, leadership, human and material resources, and the institutional culture of institutions. It also appears to be extremely important through the availability of information and data. About the institution's performance, the extent to which its set goals are achieved, and the means necessary to achieve them; It also provides administrators with the opportunity to present the strengths and weaknesses of various administrative functions, and to reconsider established programs and policies. (Abdul Mohsen, 2002). It is a necessary and important input to gaining the trust of beneficiaries and users of public services provided by institutions. (Al-Naimi, 2007).

### **2.2.2. Definition of institutional performance**

While Abdul Hadi (2017) believes that institutional performance is the result of the processes and efforts undertaken by the institution, which is represented by its ability to invest its resources, in light of interaction with both the internal environment and the external environment, to accomplish the required tasks efficiently, to achieve its desired goals. Al-Shantaf and Qafah (2019) explained institutional performance as an integrated system for completing the tasks and work of administrative units in light of their interaction with the internal and external environment, in a way that doubles their ability to complete their work to achieve their long-term goals. Institutional performance is also defined as an

integrated process between the roles played by individuals and institutional roles within the institution, and the extent of its success in creating an appropriate strategy for the human resource that contributes to achieving distinguished institutional performance, overcoming all complexities in institutional procedures and overcoming the complexities of the external environment to stand alone and distinguish itself from other similar institutions. (Rick, 2018), (Stephane & Elisabetta, 2017), (Stanley & Konstantinos, 2016).

### 2.2.3. The importance of institutional performance

The concept of institutional performance is one of the most modern and important topics in the field of public administration of institutions, especially in light of global challenges and the increasing intensity of competition to provide high-quality service to beneficiaries. Therefore, excellence has become one of the goals that many institutions seek to achieve in a changing and accelerating competitive environment that depends on precision. Flexibility and innovation. Indeed, distinguished and creative institutions are the only ones capable of achieving success, progress and excellence. This requires administrative units to exert intensive efforts towards greater excellence and uniqueness in their institutional performance. (Buckman, 2004). The importance of institutional performance stems from the stability and continuity of work, and it maintains the accumulation of experiences, experiences and information, and is not affected by changing leaders. Institutional performance ensures that leadership is not alone in making decisions related to the institution, and institutional performance contributes to administrative stability, through following a set of work systems, ( Policies, rules, procedures, and systems) work to achieve goals and by available means consistent with the vision and mission of the institution. Institutional performance also ensures the commitment of employees in the institution to the system of values and principles around which their performance, behavior, and functional and human relations revolve. (Al-Dajani, 2010; Al-Masa'id, 2006; Al-Nuaimi, 2007) ). Institutional performance is considered one of the basic and important processes, as it is the final product of the sum of the institution's activities, as it plays an important role in the process of developing and upgrading institutions in addition to their stability. Institutional performance is a means of achieving the desired goals within the institution, and an indicator of the degree to which the institution achieves its vision and mission. Institutional performance also expresses On the level of success of employees and the institution's management in carrying out the job tasks assigned to them, and the degree of implementation of these tasks, it also contributes to identifying the potential energies and capabilities of the institution's workers (Mounir, 2020). Al-Kharsha et al., 2013 also showed the importance of institutional performance in collecting the necessary information to confront problems and obstacles, in addition to making appropriate decisions regarding its human resource, and working to develop its performance to be able to raise the level of performance in the institution, in addition to providing the necessary capabilities and skills for institutional leaders and managers. In knowing the role they must play and knowing the importance of achieving outstanding institutional performance, working to provide a suitable environment for individuals within the institution, and applying modern technologies in order to increase the effectiveness and efficiency of the institution and activating its role in raising the performance of individuals and groups, in addition to improving work performance in the institution, Because performance is one of the necessities of development and administrative development to raise the level of individuals' performance in it, in addition to activating team spirit and improving the level of services provided in it. Outstanding institutional performance has clear importance in improving mechanisms for solving complex institutional problems, addressing the technical issues that institutions suffer from, to create an environment conducive to creativity and innovation, and spreading an institutional culture that stimulates the use of all available knowledge, to increase the effectiveness of institutions to enable them to achieve their goals and the goals of the individuals in them.

The importance of institutional work is highlighted by the previous definitions in that it moves work from individual to collective, from spontaneity to planning, from ambiguity to clarity, from limited resources to their pluralism, from limited influence to broad influence, and from customary status to legal legitimacy (Al-Adlouni, 2002). , 21).

#### **2.2.4. Factors affecting institutional performance**

There are many foundations and factors that act as a driving force to determine the path of strategic performance within the institution, and among these factors are the political factor and the suitability of the policy to the institution's activities and work, the extent of the existence of policies governing business within the institution, the economic and the impact of economic resources, the local economy, unemployment, employment, regional and global. On the institution and the extent of its impact on the practice of production, activity, work, and services; Social and linking the needs of society, the institution, public behavior, the lifestyle of individuals, and human and societal relations. And technological through technical and technical progress and their availability to support the excellence of performance and work of the institution; And the environmental related to the institution's field of work, its geographical location, environmental pollution, and the local community's behaviors towards the environment; The legal framework includes the existence of a constitution that regulates the affairs of the state, its legislation and laws, and the civil rights of citizens (Al-Abdi and Boujelal, 2016).

#### **2.2.5. Standards for measuring institutional performance**

A standard can be defined as a quantitative or qualitative variable that provides a simple and reliable basis for evaluating performance. Given the diversity of objectives of public bodies, and the multiplicity of beneficiaries and stakeholders, it is difficult to measure the institutional performance of these bodies based on a single standard. Rather, it is necessary to use a number of standards that reflect performance. In its various dimensions, there are many opinions and classifications regarding the number and quality of institutional performance standards. In this context, some see the possibility of measuring institutional performance using two basic criteria: operational performance and financial performance (Paul, A. & Anantharaman, R., p1251). There are those who rely in measuring the institutional performance of public organizations on three main criteria, which are (Boland, T. & Fowler, A., p426): Cost which focuses on the organization's resources or inputs, efficiency which is concerned with the relationship between the organization's outputs and inputs, and effectiveness which is concerned with the results resulting from Organization outputs.

#### **2.2.6. The relationship between technology and institutional performance**

Technology includes all the methods through which an organization can create value to its stakeholders. Technology includes human knowledge, work methods, physical equipment, communications and electronics, and various work and processing systems that are used in implementing the organization's business activities. (Ziyara, 2009, p. 40)

Hence, the emergence of information technology has created new opportunities for managers of business organizations to find areas for use in business strategies, as it can be used at three levels to improve the competitive position of the organization, namely increasing production and competitiveness. The use of advanced technology has clear implications in all industrial sectors, as modern technology has enabled organizations to coordinate all operations, resources, and businesses to reach the best service and products for customers, comprehensive coverage of all markets, more flexibility in reaching customers, and achieving higher business value. In light of intense competition, globalization has become one of the factors influencing the expansion and development of the global economy and openness to local markets. Technological and global trends have increased the risks and ambiguity for entrepreneurial organizations, as predicting markets, rapid changes, and



intense competition have increased the difficulty of predicting how to Achieving growth. The relationship lies in how to build flexibility in strategy, competence in competition, effectiveness in modern technology, and building a new structure and culture for the organization (Hassan, 2008, p. 56).

### **2.2.7. The challenges facing modern business organizations and ways to overcome them in order to ensure survival and continuity**

In our current era, the size of the challenges facing business organizations has increased, and modern organizations have taken upon themselves a new campaign that stems from the intersection with the new knowledge-based economy, and it has become obligatory for them to adopt new ideas and undertake the process of re-engineering many of their activities and work to be more responsive to the organizations of the knowledge era. Because hiding behind past success no longer benefits business leaders. The new knowledge revolution and the growth of knowledge markets changed the directions of their thinking and placed them within a framework to ask themselves: Are they able to grow? Can the knowledge available to them contribute to ensuring their survival and continuity? This is because knowledge is the commodity that determines the future directions of the businesses they practice and because their organizations must be built on the basis of knowledge. Indeed, modern organizations need renewed technology in large business organizations through which they can enhance new ideas that lead to the continuous production of new products. (Al-Amiri, 2007) , p. 46).

## **3. Analysis of data**

### **3.1. Study population and sample**

The study population consists of (a sample of petroleum companies), numbering three companies. The study sample was selected from the study population using the non-probability sampling method.

### **3.2. Sample response rate**

Data were collected from the field through a questionnaire directed to a sample of employees and administrators. A questionnaire was distributed. The researcher was able to obtain (95) questionnaires out of the total number of questionnaires distributed at a rate of (100%), but (5) questionnaires at a rate of (5%) were not returned.

### **3.3. Reliability analysis**

Consistency analysis is used to find the internal consistency of the data and it ranges from (0 to 1). The value of (Cro-Nbach's alpha) was calculated to find the internal consistency of the data. If the values of the C-N-Bach alpha coefficient are closer to (1), the internal consistency of the variables is considered large, and to take A decision on the required Cronbach's alpha value depends on the purpose of the research. In the early stages of basic research, Nunnally (1993) indicates that a reliability of 0.50-0.60 is sufficient, and that increasing credibility no more than 0.80 may be excessive. However, (Hair et al, 2019) suggested that the Cr-Nobach alpha value should be more than 0.70. However, Cr-Nubach alphas of 0.50 and above are also considered acceptable in the literature (Bowling, 2014). ., Table No. (1) shows the results of the Cronbach's alpha test after conducting exploratory factor analysis.

Table 1. Cronbach's alpha reliability coefficient for questionnaire statements (sample size: 95)

Variable type	Variables	Number of phrases	Cronbach's alpha
Independent	Electronic business	4	.854

variable	networks	6	.881
	Information Security	2	.746
	Equipment and devices	4	.738
	Software	11	.931
	Telecommunications	6	.901
Dependent variable	Institutional performance	8	.855

Source: Prepared by researchers from field study data (2023)

### 3.4. Averages and standard deviations for the study variables

Table (2) below shows the means and standard deviations for all study variables. We find that the standard deviation for all variables is closer to one, and this indicates homogeneity between the sample members' answers to all statements of the variables.

Table 2. Arithmetic means and standard deviations for the study variables

	Std. Deviation	Mean	Relative importance
Electronic business	.53494	1.6058	68%
networks	.56185	1.5713	69%
Information Security	.56825	1.4003	72%
Equipment and devices	.70208	2.0422	59%
Software	.58112	1.6873	66%
Telecommunications	.54466	1.4023	72%
Institutional performance	.55424	1.7208	66%
	.53494	1.6058	68%

Source: Prepared by researchers from field study data (2023)

### 3.5. Person Correlation Analysis

Correlation analysis was used between the variables of the study in order to identify the correlation between the independent variables, the dependent variable, and the mediator. The closer the degree of correlation is to the correct one, this means that the relationship is strong between the two variables, and the lower the degree of correlation is from the correct one, the weaker the relationship between the two variables, and it may be The relationship is direct or inverse. In general, the relationship is considered weak if the value of the correlation coefficient is less than (0.30), and it can be considered moderate if the value of the correlation coefficient ranges between (0.30 - 0.70). However, if the value of the correlation is more than (0.70), the relationship is considered strong between the two variables.

Table 3. Analysis of correlations between study variables Correlations: (Group number 1 - Default model)

			Estimate
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Information Security	<-->	Electronic_business	.775
Equipment and devices	<-->	Electronic_business	.591
Equipment and devices	<-->	Information Security	.571
Networks	<-->	Telecommunications	.598
Software	<-->	networks	.679
Software	<-->	Telecommunications	.713
Information Security	<-->	Institutional performance	.476
Electronic_business	<-->	Institutional performance	.534
Equipment and devices	<-->	Institutional performance	.295
networks	<-->	Institutional performance	.475
Telecommunications	<-->	Institutional performance	.800
Software	<-->	Institutional performance	.633
networks	<-->	Information Security	.748
Telecommunications	<-->	Information Security	.545
Software	<-->	Information Security	.559
networks	<-->	Electronic_business	.739
Telecommunications	<-->	Electronic_business	.681
Software	<-->	Electronic_business	.741
networks	<-->	Equipment and devices	.725
Telecommunications	<-->	Equipment and devices	.467
Software	<-->	Equipment and devices	.601

Source: Prepared by researchers from field study data (2023)

### 3.6. Testing hypotheses

There is a correlation between the dimensions of modern technology and the dimensions of office business practices

Table 4. There is a relationship between the dimensions of modern technology and the dimensions of office work practices

Hypothesis	Correlation coefficient	Significance level
A correlation between electronic business and institutional performance	0.87	0.01
A correlation between information security and institutional performance	0.79	0.01
A correlation between equipment, devices and institutional performance	0.68	0.01
A correlation between networks and institutional performance	0.76	0.01
A correlation between software and institutional performance	0.78	0.01
A correlation between communications and institutional performance	0.77	0.01

Source: Prepared by researchers from field study data (2023)

## 4. Results and Discussion

#### 4.1. Results

- 1- What is the degree and level of modern technology in the surveyed companies from the point of view of the sample studied?

The degree of modern technologies in the surveyed companies is 68%, which is equivalent to an average level in terms of modern technology in the surveyed companies according to the sample's point of view.

- 2- What is the level of institutional performance in general?

The level of institutional performance is generally considered an average level, according to the sample's point of view, with a rate of 66%.

- 3- What is the level of relationship between modern technology and the dimensions of institutional performance?

We notice from the table that the correlation coefficient between the dimensions of modern technology and institutional performance was estimated at (0.83) at a relationship and it is significant at the level of significance (0.01). We also note that the correlation coefficients between the dimensions of modern technology and institutional performance ranged between 0.69 and 0.83 and were at Significance level (0.01). We find that there is a strong correlation between electronic business and institutional performance estimated at 0.83, which is significant at (0.01). We also find that there is a strong correlation between information security and institutional performance estimated at 0.78, which is significant at Significance level (0.01), and there is medium correlation between equipment and devices and institutional performance estimated at 0.69, which is significant at the significance level (0.01). We also find that there is a strong correlation between networks and institutional performance estimated at 0.75, which is significant at the significance level (0.01), and there is also a relationship between software and institutional performance estimated at 0.79, which is significant at the significance level (0.01), and this proves the existence of a strong correlation between the dimensions of modern technology and institutional performance.

#### 4.2. The discussion

From the above, we conclude that there is a direct relationship between the dimensions of modern technology and institutional performance. This means that as the level of modern technology increases, the level of institutional performance increases with it, and vice versa. This proves the existence of a strong direct relationship, and also shows the great importance of the dimensions of modern technology in the institution and its contribution to achieving the effectiveness of business practices. This result is consistent with the study of the impact of smart office automation on the performance of executive offices: a case study of Aldar Consulting Company (Al-Taher, 2021), which concluded that the use of smart systems leads to the creation of a creative work environment, and this is an indication that successfully enhancing the business practices of employees is due to... To the level of modern technology practice, given that the factors for the success and superiority of office work lie below the level of modern technology and that an increase in the level of technology in the institution leads to an increase and strengthening of office business practices.

The results of our research are consistent with the findings of a study conducted on the impact of the use of modern office technology on the efficiency of the performance of the executive secretariat (Al-Tahir, Ishtiaq, 2015), which concluded that there is a relationship with positive statistical significance between the use of modern office technology on the efficiency of the performance of the executive secretariat, and that These relationships were all positive.

Our results are also consistent with the study of the role of technology and information systems in the field of secretarial work and office management (Sulaiman, 2010), which

found a statistically significant correlation at the level of (0.05) between technology and information systems in the field of secretarial work and office management. This is almost the same result reached by the study of the use of modern communication technology in the Algerian economic institution (Boulaouidat, 2008), which concluded that there is a direct relationship between the use of modern communication technology and improving the level of performance of the institution studied.

We attribute this result to the level of technology prevailing in the modern company, and this is what we noticed during our research, as we concluded through our research that the more the official adopts modern technology and adheres to it, the higher the level of institutional performance, and this is what was observed in most officials and in their practice of business.

## 5. Conclusion

### 5.1. General conclusion

1. A significant correlation between The results of the research showed the existence of a significant business and institutional performance, as the results indicated the -variable e-the sub strength of the relationship between them, which confirms that companies seek and the institutional business in order to improve-try to invest what they have in e .performance of companies
2. The results indicated that the information security variable showed a positive result with institutional performance. This confirms that the companies studied activated .ers and training them to gain experiencethis variable by raising the skills of work
3. The impact of devices and equipment on institutional performance was strong, and .thus there is a logical justification for accepting the main research hypotheses
4. can lead to a radical change in It became clear that communication networks at work institutional performance, as demonstrated by the results of the relationship and .impact between them
5. .The relationship between software and institutional performance is strong
6. tic mean and standard deviation for The results showed high values of the arithme each of the questions related to hardware, software, and information technology communication networks, which indicates that they have a significant impact on .organizational performance
7. n showed that it was slightly around the The results of the arithmetic mea hypothesized mean or less than it, but the level of use of information technology did not satisfy the ambition, as despite the presence of communication networks, the experience and skill of ,devices and equipment, and the accuracy of databases .the workers was weak and did not meet the required level
8. The result of the relationship between communication and institutional performance was high and had a strong impact, which means that investing in this relationship .influence will lead to raising organizational performance and its excellence and
9. It was found that the level of the communication networks variable was lower than the hypothesized mean, but it nonetheless had an impact on the level of .nceorganizational performa

### 5.2. Recommendations

In light of the conclusions reached, the researcher presents his recommendations, which include the following

1. Urging the surveyed companies to develop the skills and expertise of their logies that the world of technology, employees in using modern devices and techno .markets, and products are witnessing today
2. Considering modern technology and the ability to use and manage it as the minimum for employing the skills required or nominated to work in the researched .company

3. a cognitive model to evaluate organizational performance through the Formulating .use of information technology
4. s employees, providing them with 'Effective investment of the company opportunities to accomplish their job tasks and increasing their awareness of the .value of their work and their sense of progress and success
5. The senior management develops the organizational structure in a way that leads to benefiting from existing information technology for all levels of organizational .structures
6. that links the goals of employees, companies, and the goals of Creating a climate .society in a way that leads to the highest possible performance
7. Urging the surveyed companies to pay attention to modern technology and its ing their work towards the systems, as most countries today are gradually shift computer and its programs for the purpose of investing time and increasing .performance
8. Urging the researched companies on the importance of applying modern technology mance and thus achieving and the extent of its impact on raising institutional perfor profits in addition to 'employee and customer satisfaction and increasing companies .enhancing their market position

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