The Impact Of Using 5G Technology In The Development Of Information Technology Applications

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Abstract

our study aims To apply 5G technology in the fields of information technology, where the study includes the application of 5G technology in information technology applications and artificial intelligence applications, where an algorithm is created to determine the extent of development taking place in developing programs over the Internet and managing them remotely and controlling them as a result of the speed of 5G technology, which is equivalent to hundreds of times from previous technologies (4G / 3G / 2G) Heading over the advantages and disadvantages of using 5G technology, through the use of the algorithm, the extent of development is evaluated and the use of this evaluation in developing other areas of technology to create a technological environment that can be controlled remotely that carries out all electronic governance activities as well as multiple areas of life.

Keywords: 5G technology, ISO 20000, Information and Communication Technology, Ministry of Education.

Chapter I: the general framework of the research

1-1. Introduction:

5G technology represents the next generation of Internet communication networks, as it will provide high frequencies and very high speed, and it will be more reliable, fast and in less time, and it will be hundreds of times faster than previous technologies. For artificial intelligence, cloud computing, and the speed of performance of technological programs and database programs, so our study aims to study the advantages and disadvantages of technology resulting from the use of 5G technology using the ISO20000 system in order to create a secure technological environment that is controlled remotely and performs all electronic governance activities as well as multiple areas of life.

1.2. Research problem :

The problem is to search for the negatives of using 5G technology and find appropriate solutions through the application of the ISO20000 system to create a safe technological environment for information technology applications as well as the use of technology in the areas of daily life.

1.3. Research importance:

The importance of the research is to benefit from the positives of 5G technology as well as to find appropriate solutions to the potential negatives through the application of the ISO20000 system to create a safe technological environment for information technology applications as well as the use of technology in the areas of daily life.

1.4. Research goals:

The researcher seeks to achieve the following goals:-

- Support and development (5G technology).
- The use of the information technology management system (ISO 20000) in the evaluation of 5G technology.
- Finding suitable solutions Possible negatives.

1.5. Research hypothesis:

The research hypothesis aims to develop and support 5G technology through the use of the latest international quality management systems (ISO20000 Information Technology Management System).

1.6. Research limits:

The current research is determined for ministry of education within the years 2021/2022.

Chapter II: Research methodology

2.1. Program research

The research depends on the analytical system and the information technology management system (ISO20000) to achieve the goals through office and applied studies.

1- Theoretical aspect:

Studying topics related to 5G technology, information technology topics and the international quality management system (ISO20000 IT management system).

2- The practical aspect:

The international quality management system (ISO20000 Information Technology Management System) was chosen to study the pros and cons of 5G technology and improve it to provide a continuous and expanding technological environment to collect the infrastructure and internal and external services of information technology for the benefit of employees and customers, as well as this environment is advanced and secure, operations are implemented with high speed and reliability, higher and in less time and overcome on the potential negatives.

where an algorithm is created to determine the extent of development taking place in developing programs over the Internet and managing them remotely and controlling them.

Chapter III : Research Procedures

3.1. Theoretical Framework of Research:

Information technology is considered as a set of tools, methodologies, processes, and equipment that are used to collect, process and store information. Examples of these tools are: coding, programming, storage, retrieval, analysis, systems monitoring, and data transformation.

Information technology also includes: office automation, communications [1]. Information technology is the tool through which information can be stored and processed within the system, in addition to its inclusion of everything related to computers, networks, software, websites, databases, and wired and wireless communications, and in order to highlight the importance of linking technology 5G application of information technology, studying the pros and cons, and deducing the importance of this technology to control modern life and control the world and make it a science of speed, development and building, and for the application of this study, it is necessary to rely on the system ISO/IEC 20000, system (information technology management)[2], as this system consists of five stages, which is the process of analysis ((Analysis) The Design Process, the Development Process, the Implementation Process, and the Development Process To evaluate (Evaluation) ,to design an algorithm for evaluating the extent of development and the extent to which this technology is used in technological applications, and to benefit from this evaluation to develop other technological areas to create a technological environment that can be controlled remotely that carries out all e-governance activities as well as areas of life. The study is concerned with the negative aspects of applying technology to life and health.

3.2. The stages of applying the information technology management system ISO/IEC 20000 to study the impact of the application of 5G technology on information technology applications.

The international quality management system systems originated for the first time in Japan in the Great Industrial Revolution and Japan was a pioneer in the development of these systems and then used later in multiple countries such as the United States and the United Kingdom and became of great importance in order to produce the best and improve the reality of work We work together to produce a product (Izadi , Kashef, & Stadt, 1996)[3].

As continuous improvement processes and the application of the best technological standards are considered engineering and business success in order to enable the organization to plan efficiently and effectively, design, analyze and improve activities and provide the best services to customers (Schönthaler, Vossen, Oberweis, & Karle, 2010)[4].

Organizations take up to two years to obtain the ISO/IEC 20000 information technology management system, and this depends on their level of development, progress and quality. Service providers are subject to examination every 3 years and annual monitoring to ensure that the ISO/IEC 20000 system conformity is maintained. Therefore, it is necessary to adhere to all levels and provide the best services.

In our study, ISO/IEC 20000, the first recognized international standard for IT service management, will be implemented. This standard has been published in two phases: ISO/IEC 20000-1 sets out requirements for the development and implementation of an IT management system[5]; and ISO/IEC 20000-2[6], which sets out best practices for managing these services.

The standard describes how to implement managed IT services in support of business objectives. Both parts of the standard were revised to support the Information Technology Infrastructure Library (ITIL) with the aim of increasing capacity and performance. The application of the standard ISO/IEC 20000-1 and ISO/IEC 20000-2 [7] in the pros and cons of 5G technology for information technology applications (electronic governance) has an effective role in speed and completion of work in the least time, cost and speed, which has positive support for the employee and the customer (Verlander, 2012, p.xvi)[8].
Figure (1) shows the sequence of the service management system.

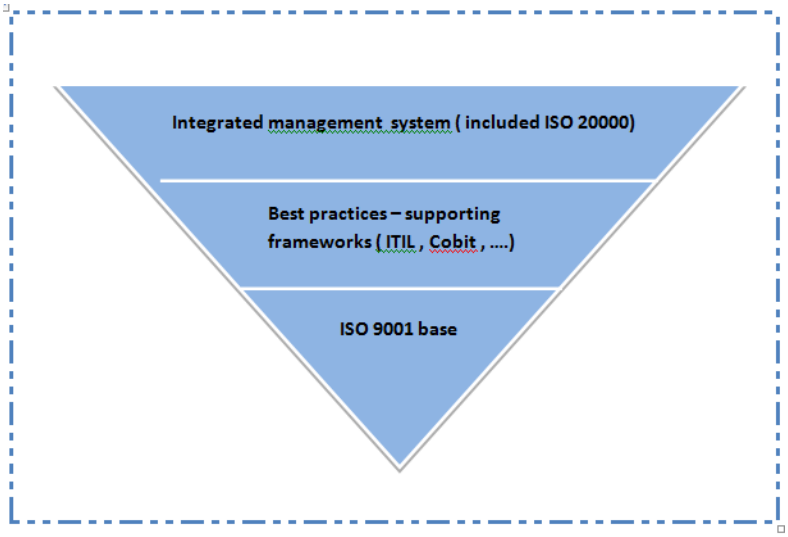


Figure (1) Implementation of a service management system

3.3. The stages of work of the algorithm for evaluating the progress in the application of 5G technology:

The algorithm evaluates the impact of the application of 5G technology on information technology applications and studies the pros and cons. Through the use of the algorithm, the extent of the progress achieved is evaluated and the use of this evaluation in developing other technological areas to create a technological environment that can be controlled remotely that carries out all the activities of electronic governance as well as areas of life[9]. Multiple steps where the algorithm works include the following stages: -

1- 5G technology: Where 5G technology is known, it is a mobile technology that can develop that takes care of multiple new functions that have been created to meet all the needs and enormous demands of communication and the application of the modern technological age thanks to the tremendous speed and reliability that it possesses and is characterized by several capabilities in conjunction with the applications of information technology is produced a modern and advanced generation of Applications[10] .

2 - Information technology applications proposed in the study: Some programs were taken in the study, but the study will be expanded and include other areas. Among these programs are

electronic governance applications, how to prepare a detailed database that includes (data storage - meetings - management and remote control - artificial intelligence -Cloud Computing) [11].

3- ISO/IEC 20000 information technology management system:

At this stage, work begins with the implementation of the stages of the ISO20000 system, which includes a comprehensive study of the impact of applying 5G technology in information technology applications, where the following five stages begin (Business.com, 2018; Ibisworld, (2018)[12]: -

A- The analysis stage: begins by analyzing the problem and finding appropriate solutions, as well as studying the impact of applying 5G technology in information technology applications accurately, knowing the pros and cons, developing improvements, and benefiting from this study by developing programs or other technologies that contribute to the development of the information technology era.

B- The design stage: At this stage, a computational program is created that calculates the effect of the desire obtained from the application of 5G technology in the programs mentioned in paragraph (2) and the use of computational techniques and statistical programs to calculate these results with high accuracy and reliability.

C: The development stage: the necessary equipment is prepared, the results of the analysis are printed, the questionnaires are distributed in order to enter them into the designed computational program, and to make use of these results in the evaluation process.

D- The implementation stage: In this stage, the above steps are implemented in order to enter them into the computational program, analyze them, print the results, write the pros and cons, and treat them with advanced programs.

E: The evaluation stage: In this stage, an internal evaluation and an external evaluation, together with the evaluation performed through the computational program, are carried out in order to conclude accurate, high-precision and reliable results that contribute to the success of the study.

4- Mathematical technology to calculate the extent of development in IT applications:

At this stage, the results achieved by the ISO20000 system, which were collected through questionnaires and the completed study, are entered as the program analyzes these results for approval.

5- Study results and improvement:

At this stage, the results achieved are approved through the ISO20000 system, as well as the computational program, and the study is applied in the reality of work(Jäntti & Cater-Steel, p. 192, 2017)[13].

6- Potential problems:

At this stage, in the event that there are potential negatives in the application of 5G technology, they are health negatives or negatives in the extent of network coverage and its proximity to cities, they are addressed in the ISO20000 system [14]and the analyst analyzes and discusses them with experts to reach solutions that contribute to the technological development and in the event that there are no problems or obstacles it ends Work of the algorithm The algorithm will be developed more broadly and scientifically .

Figure (2) shows the form of the algorithm for evaluating the extent of 5G technology to benefit from this evaluation in developing other technological fields that contribute to the technological era, human development and the shift to the generation of digital artificial intelligence.

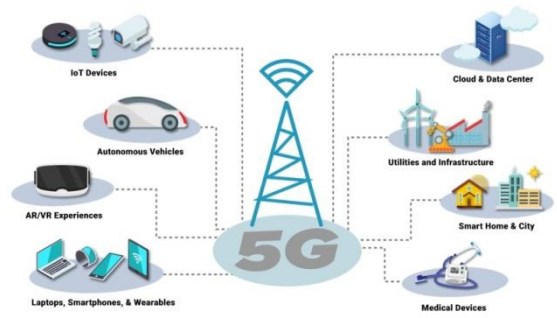
The initial preparation of this algorithm will be developed in detail with the mathematical parameters and the design of a detailed evaluation program, as well as the preparation of a detailed study of the ISO20000system, as well as the work of the tables and matrices necessary for the evaluation of 5G technology work, as well as its inclusion in other advanced technical areas.

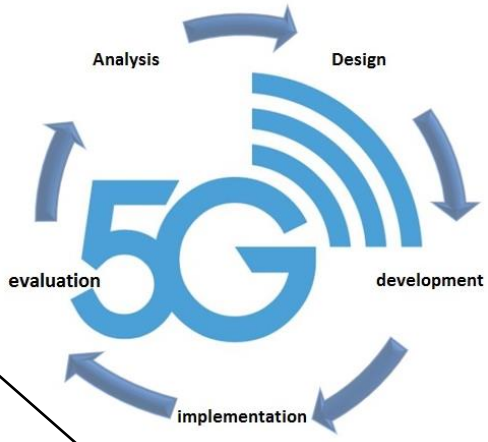
Table No. (1) shows the Advantages and Disadvantages of 5G technology.

Health risks: Where health risks lie in harming human health in a direct way and cause more harm than previous technologies that were less harmful and 5G technology has negative effects.

Because the wavelength is somewhat short, and it is difficult for this network to penetrate trees, tall buildings, etc., the solution is by planting many other networks, and humans will be surrounded by them causing diseases, according to numerous studies conducted in this regard.

Security risks: The network will be penetrated through anything connected to it, and this technology will be the basic Internet in life, and the options for penetration will be wider compared to the fourth generation networks.





-Development of wave insulators that are harmless to health
-Develop complex software and firewalls to prevent intrusions and block potential attacks..

Figure (2) 5G technology evaluation algorithm and its impact on IT applications.

Disadvantages of 5G technology	Advantages of 5G technology
Health risks: Where health risks lie in harming human health in a direct way and cause more harm than previous technologies that were less harmful and 5G technology has negative effects. Because the wavelength is somewhat short, and it is difficult for this network to penetrate trees, tall buildings, etc., the solution is by planting many other networks, and humans will be surrounded by them causing diseases, according to numerous studies conducted in this regard. **Security risks:** The network will be penetrated through anything connected to it, and this technology will be the basic Internet in life, and the options for penetration will be wider compared to the fourth generation networks.	the speed Fast internet connection remote control (remote surgeries) Run multiple services simultaneously Battery friendly devices Very low response time Network options on demand Self-driving cars and robots smart cities Artificial intelligence and cloud computing

Table (1) Advantages and Disadvantages of 5G technology.

To find solutions to the negative health and security risks, they are represented by the following solutions:
-Development of wave insulators that are harmless to health
-Develop complex software and firewalls to prevent intrusions and block potential attacks (PwC, 2016)[15].

This algorithm explains the way to organize software (electronic governance programs) or any other program and by applying the global and technological quality management system and through questionnaires or the opinions of thinkers (collective work) the data is analyzed in one of the statistical programs and the outputs are deduced and developed to benefit from them in the development of 5G technology as well as the development of quality systems Global and technological, as well as addressing the negatives and finding appropriate solutions for the continuous development of building advanced technological organizations and institutions that keep pace with global and technological development.

Figure No. (3) shows the development of wireless mobile phone technologies and possible future breakthrough development of this technology.

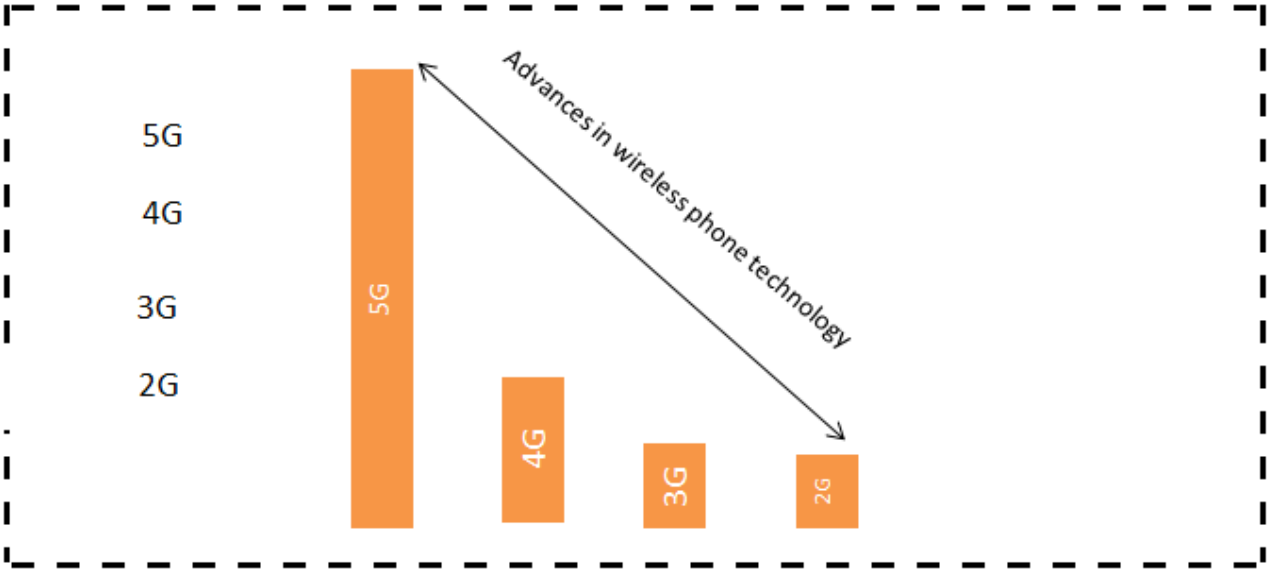


Figure (3) Advances in wireless phone technology.

chapter IV :Conclusions and future work:

4.1. Conclusions:

The most important conclusions from the application of 5G technology to some technological applications with the use of the ISO20000 information technology management system were:
1- Preparing an algorithm for developing 5G technology applications on some application programs has a significant positive impact in developing the positives and finding and addressing the negatives.

2- The use of the global and technological quality management system has the benefit of organizing the algorithm as well as analyzing data according to a technological sequential system that begins with analyzing the problem and ends with finding solutions, evaluating and supporting them on an ongoing basis.

3- The application of the ISO20000 information technology management system in institutions and its link to 5G technology is a unique experience to draw conclusions and activate the role of management and technological information systems.

4.2. Future work:

In the light of the findings reached by the researcher recommends the following: -

1 - The researcher recommends using the development algorithm that occurred in the application of 5G technology to technological applications and finding and addressing the negatives.

2- The researcher recommends the use of the information technology management system ISO20000 in the Ministry of Education for its effective role in organizing technological processes and for its effective technical outputs.

3- The researcher recommends applying the electronic governance and storage system in the cloud computing system and a link with 5G technology and activating the role of artificial intelligence in government institutions in the Ministry of Education.

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