



***Strengthening IT governance in the library of the Faculty of Humanities and
Social Sciences at the University of Annaba to ensure the effectiveness of
digital transformation***

Mecif Aicha

University of Baji Mokhtar Annaba – (Algeria),

aicha.mecif@univ-annaba.dz

<https://orcid.org/0009-0001-1151-7764>

Received: 05/08/2025

Accepted: 01/12/2025

Abstract:

This study sheds light on the role of the university library in promoting IT governance and its role in ensuring the effectiveness of digital transformation by exploring the existing relationship between them and analyzing their joint impact on the effectiveness of the library. The study concluded that the application of IT governance in libraries directly contributes to the activation of digital transformation, which enhances their ability to achieve their desired goals effectively. The study also proposed a strategic framework for university libraries to implement a digital transformation that contributes to achieving their goals and enhances their ability to create governance that improves their performance

Keywords: *University Library ; IT Governance ; Digital Transformation ; Optimization Effectiveness; Annaba University Library*

I. INTRODUCTION AND PROBLEM STATEMENT

The world is moving towards digital transformation in its various dimensions, as a result of the increasing developments in various aspects of life, as information and communication technologies contributed to the transformation of information institutions from traditional to digital, and with it changed the practices that would achieve the goals of institutions and transform all their systems into integrated digital systems, and no institution was exempted from it, and like other institutions, university libraries were the first in this field and thus allocated many diverse resources to adopt digital transformation projects, due to the external competition that surrounds them, which requires them to keep pace and align with external variables, in order to do this well and effectively, it is necessary to use the latest methods and mechanisms available in the field of planning and management .

In order for this to be done well and effectively, it is necessary to use the latest methods and mechanisms available in the field of planning and management, and in this context, the concept of IT governance appears as a modern mechanism used to establish the necessary policies and procedures to manage resources in a way that achieves a balance between innovation and risk, and to ensure their control and optimal direction towards achieving the goals of information organizations . This leads to enhancing the readiness of university libraries to adopt digital transformation projects and ensure the effectiveness of their implementation to achieve their goals. It is a difficult challenge for university libraries in terms of performance and outputs, and their effective means of achieving this can only be achieved by relying on technological governance

University libraries are one of the most important institutions concerned with producing and investing in information, and our libraries are still unable to perform this task and are far from applying IT governance, as they are disproportionate in terms of resources, equipment, and well-qualified individuals to keep pace with the development and alignment with the external environment, adopting the concept of IT governance will help to overcome the issues and contribute to keeping pace with the requirements of contemporary changes and reach the expected yield and productivity and added value from the digital transformation project, which requires the full utilization of IT governance. In this context, the concept of IT governance emerges as a modern mechanism used to set policies and procedures to manage resources in a way that achieves a balance between innovation and risk, and to ensure their control and optimal guidance towards achieving the library's goals.

Therefore, the survey of librarians at the library of the Faculty of Humanities and Social Sciences at Baji Mokhtar University of Annaba represents a station to identify the actual roles of university libraries in the information governance process, and the most prominent patterns and methods of governance management that accompanied the librarians working in it: Has the library of the College of Humanities and Social Sciences contributed to the IT governance process to support the digital transformation project, enhance its readiness and achieve its goals?

1. Study Question

- a. What are the main dimensions of the library of the Faculty of Humanities and Social Sciences at Annaba University to apply IT governance in the context of digital transformation?
- b. Does the university library support the principles of IT governance in the process of digital transformation?

- c. How does the readiness of the subject university library affect the effectiveness of digital transformation? .

2. Hypotheses of the study:

- a. The college library applies a rational IT governance oriented to digital transformation
- b. The college library supports the IT governance standard in its various fields in the digital transformation processes.
- c. The effectiveness of digital transformation is based on the readiness of the college library for IT governance.

3. Importance of the study:

The importance of the study emerges from the importance of IT governance in the stages of digital transformation as it helps in rationalizing the use of information technology and developing librarians' ideas in support of the library's goals and activities, and from this perspective we tried in this research paper to address the issue of IT governance and digital transformation on the part of university libraries, because they have responsibilities in promoting the use of information technology, communicating information and meeting the needs of its beneficiaries, and devoting efforts and capabilities to achieve them. This is shown in the scientific literature, while we find a clear lack of research on the relationship between the university library and IT governance and also the absence of this vision in many national university libraries. Through the above, we try to provide an in-depth understanding of the role of the university library as a mediator between enhancing IT governance and the effectiveness of digital transformation, and provide practical solutions that university libraries can adopt to improve IT governance practices for the success of digital transformation and achieving the strategic objectives of the university library.

4. Objectives of the study: The objectives of the paper are as follows:

- a. To determine the extent to which the library of the Faculty of Humanities and Social Sciences at Annaba University applies the IT governance standard and the relationship between them to activate digital transformation.
- b. Diagnosing the reality of the university library's support for the IT governance standard, and ways to achieve it.
- c. Surveying the views of the librarians at the library of the Faculty of Humanities and Social Sciences at Annaba University about their readiness to apply IT governance as a method to support and activate digital transformation in order to facilitate the provision of services and meet the needs of beneficiaries.

5. Methodology of the study:

The descriptive method was adopted to determine the extent to which the College of Humanities and Social Sciences library applies the IT governance standard and diagnose its reality by surveying the opinions of the 22 librarians working in it and the extent of their response to the digital transformation project, as a main methodological framework, and the analytical aspect by reviewing the theoretical intellectual production, collecting and analyzing data from available documentary sources, clarifying the interrelationships between variables, exploring the essential links between them, and analyzing their effects on the achievement of the results of the study.

6. Fields of study: The areas of study are as follows:

- a. **Geographical area:** The library of the Faculty of Humanities and Social Sciences of Baji Mokhtar University Annaba
- b. **Human Domain:** The study included the (22) librarians belonging to the library of the Central Faculty of Humanities and Social Sciences of Baji Mokhtar Annaba University.
- c. **Time frame:** The study was applied in the second semester of the academic year 2024-2025, the time frame of the study included a set of research stages, as the collection of previous studies was initiated at the beginning of December 2024, structuring the research paper theoretically and building the questionnaire and interview instrument at the end of May, and the data were transcribed and analyzed in July 2025.

7. Previous studies:

After researching and delving into the topic of our research, and inventorying the literature on IT governance in university libraries and the accompanying digital transformation, and to identify previous studies similar to the subject of our study, we noticed that there is a great lack of such studies, especially as they relate to an important aspect of university libraries, namely IT governance as the vital nerve and the main demand of these libraries at the present time, and if they exist, they do not go beyond talking about technology without focusing on the digital perspective. On the other hand, some of these national studies were recorded and we relied on them in this research, including the following:

- a. **Researcher's study: (2021) A study entitled: Information Technology Governance, Implementation and Evaluation Mechanisms in Libraries**, in which the researcher presented theoretical concepts about the important role of information technology governance in the optimal control of information technology in libraries and improving their performance through a set of mechanisms to help the implementation and evaluation process, relying on the documentary method by inventorying and collecting literature related to his topic and working on analyzing it to reach the conclusion that the implementation of many technology projects at the level of these libraries does not achieve satisfactory results compared to the huge resources spent on them. This is the result of poor pre-planning for this process and the absence of sufficient legal, financial and material frameworks for the implementation of the digital transformation initiative. Individualism in work and the absence of the spirit of teamwork prevented the achievement of the desired goals.
- b. **The researcher's study: Hamdi Jalila Iman (2023), a study entitled: The role of digital governance in the success and activation of digital transformation - the model of the United Arab Emirates** - where this study aimed to highlight the importance of digital governance and its important role in the digital transformation process, through the study's review of the obstacles and requirements of digital transformation, and the researcher took the United Arab Emirates as a good model in the field of digital governance and digital transformation, and emphasized the importance of this topic and that it is a strategic choice that requires all Arab countries to integrate into it and keep pace with global digital changes, indicating that digital transformation will help institutions to improve their industrial path and use their materials efficiently and effectively, and will open greater opportunities for dialogue and communication between the public and private sectors and the partnership between them, while emphasizing the need to be aware of the importance of this qualitative shift

and its contribution to achieving the strategic vision and achieving progress and prosperity.

- c. **Rahmat Mulyana, Lazar Rusu, Erik Perjons, IT Governance Mechanisms In7uence on Digital Transformation: A Systematic Literature Review (2021). IT Governance Mechanisms In7uence on Digital Transformation: A Systematic Literature Review.** This study sheds light on the impact of IT governance mechanisms on digital transformation through the interest of institutions in developing investment in the field of technology and digital technologies and delving into the field of digital transformation, which provides an opportunity to create added value for these institutions, as this theoretical study emphasized that IT governance plays an important role in the digital initiatives of institutions, by identifying IT governance structures, processes and relational mechanisms to increase the performance of institutions, through the identification of IT governance structures, processes and relational mechanisms to increase the performance of institutions. The study conducted a systematic review of the literature on this topic to identify IT governance mechanisms that affect digital transformation, where the researchers in this study selected 48 different articles from journals and conference proceedings and were analyzed, where the study revealed the existence of 28 IT mechanisms that affect organizations, where this study contributes to research and practice and provides researchers with IT governance mechanisms that affect digital transformation and informs officials of their importance, which must be focused on more in order to ensure the success of the digital transformation process.

8. The theoretical framework of the study

8.1. Conceptual Introduction to IT Governance and Digital Transformation

8.1.1 Governance: It is a translation of the English term CORPORATE GOVERNANCE, and its scientific translation is: "the method of practicing good governance.

The Organization for Economic Cooperation and Development (OECD) defines governance as: "a set of interactive relationships between an organization's management, board of directors, shareholders, and stakeholders. Governance aims to provide an organizational framework that clearly defines the organization's strategic objectives, the means to achieve these objectives, as well as the mechanisms for monitoring and evaluating performance to ensure that these objectives are achieved efficiently and effectively, which enhances transparency and accountability the organization (Kababha, Muhannadh, and Shagaki, 2008).

So governance means an interactive relational system that affects performance and includes a number of members who interact with each other to set strategic goals to achieve the desired results and achieve transparency and equality.

8.1.2 IT Governance:

The Information Technology Governance Institute (ITGI) defines governance as: The responsibility that rests with the board of directors, supervisors, and executives, and is an integral part of an organization's governance. It includes organizational structures and leadership processes that ensure the sustainability and enhancement of information (Egyptian national bank,2023)

IT governance is one of the concepts that have received great attention in recent times, and has become one of the important topics in the field of information technology(Adnane kabayha;and all,2008)

It provides a structure for organizations and a roadmap for optimal ICT investment that supports their goals and plans.

8.1.3 Digital transformation: The topic of digital transformation is one of the modern management concepts that have become interested in various institutions and organizations due to the tremendous technological development that has imposed itself (Hamni Houria; Toubal Ibtisem, 2020) and thus digital transformation has been associated with the knowledge economy on the one hand and information and communication technology on the other. (Zahi, J., & Belhaj, A. 2018). There are many definitions of the concept of digital transformation, the most important of which is the definition through which digital transformation is a business model and technical and digital capabilities that require innovation, invention, and the provision of creative services away from the traditional character, in order to improve operational efficiencies, reduce costs, respond to an unlimited number of beneficiaries and achieve the principle of competitiveness. (Jamila Slaimi; Yousef Bouchi, 2019)

8.2. Integration between IT governance and digital transformation:

The success of digital transformation depends on the digital culture of the organization and its orientation in this field, and this latter can only be achieved by the availability of a set of resources that are integrated and combined with each other to perform the effectiveness of digital transformation such as (technological and digital infrastructure, qualified human resources, adequate financial resources, laws necessary to ensure digital protection, strategy and proposed plan. (Jean Louis Leignel ; Thierry Ungaro Adrien Staar, 2007)

8.3. IT Governance and Digital Transformation:

For the success of digital transformation, there must be good IT governance. Digital transformation does not take place without an effective digital and technological culture directed at creating a digital transformation in organizations, of course, and those organizations will only reap the fruits of their digital transformation through the use of human capabilities with high digital competence in management and administration adapted to this transformation, which is considered a digital challenge for the organization and its employees, which will require the necessary conditions to improve the situation of organizations and the rational transition to a good digital system. (Jean Louis Leignel, Thierry Ungaro, Adrien Staar, 2017)

So we can say that the relationship between IT governance and digital transformation is a complementary and interactive relationship, and the more effective IT governance in the organization, the more the latter will move towards achieving an effective digital transformation and vice versa.

8.4. Libraries' view of digital transformation:

Libraries propose a roadmap in their approach to digital transformation that helps them ensure a gradual, flexible and effective transition, relying on the following elements: (Ramadan Elaies, 2023)

-Clear strategic vision: This is one of the effective aspects of digital transformation in libraries, by setting specific goals, and estimating all the resources required by the digital transformation process.

- Culture and leadership: In order for digital transformation to be effective, libraries must have a culture of innovation and creativity that encourages the trend towards this transformation, and has a digital orientation, and this can only be done by focusing on human

resources that are characterized by leadership and responsibility to take on the digital transformation project.

- **Partnership and cooperation:** Especially with external institutions and libraries to benefit from their knowledge and experience in this field, as well as cooperation within the library itself by working in a team spirit to achieve the library's goals.

- **User experience and service design:** By providing digital interfaces for digital access, characterized by ease of use and available to all, while ensuring maximum responsiveness to needs, and trying to identify shortcomings and strengths.

- **Effective risk management, security and privacy:** It is one of the most important mechanisms that libraries follow on their way to digital transformation, to ensure the protection of data and information, and the protection of digital literature and resources from various types of digital infringement.

For reference, the digital transformation process is accompanied by many risks, which libraries must focus on to avoid various issues and shortcomings, the most important of which are:(Jamila slaimi ;Yousef bouchi,2019)

- Not relying entirely on digital technologies, which may be affected by malfunction, theft, infringement, and any possible cyber-attacks

- Increasing the size of targeted sites due to the large number of connected devices.

- Cybercrime, due to the complexity of cyberattacks and the difficulty of identifying the perpetrator.

- Digital innovation exceeds cybersecurity measures

- The integration of IT systems with operational technology and the Internet of Things.

II. Methods and Materials:

In this aspect, we focus on the procedures of the field study and the most important points to be studied from defining the fields of study, the research sample, the data collection tool, stating the method used, describing the characteristics and vocabulary of the research, and then analyzing the field aspect of the study, drawing conclusions and developing research proposals.

I. Methodology:

Given the nature of the subject of our research, we chose to use the descriptive method, which is based on the method of scientific analysis, describing the studied phenomenon, analyzing it, and discussing its results, so the descriptive method is through describing the library of the Faculty of Humanities and Social Sciences at Baji Mokhtar University Annaba in terms of the availability of information technology resources, as well as digital transformation initiatives within the framework of information technology governance, using direct inspection of the library subject of the study.

a. Introducing the place of study (Faculty of Humanities and Social Sciences Library):

The library of the Faculty of Humanities and Social Sciences in El Bouni is a newly established library, as it did not come into existence until the academic year 2006/2007, so it is in the stage of establishment, as it did not exist before this date, and its first steps began after a decision was issued by the President of the University to transfer all the college departments located in distant

places to the new pole, which required the transfer of all documentary stocks from the libraries of the departments and their assembly in the so-called college library project.

b. Study sample:

The study population consists of librarians working in the library of Annaba University, specifically the library of the Faculty of Humanities and Social Sciences at Baji Mokhtar University of Annaba: 22 librarians. Due to the nature of the studied topic related to the governance of information technology to activate the digital transformation, and to determine the readiness of the university library under study for the issue of technological governance, our study was limited to a personal interview with the head of the library of the Faculty of Humanities and Social Sciences (Mrs. Sattaifi Hanan) in order to provide us with the exact information that is specific to our study in addition to preparing a questionnaire to be distributed to librarians in the library, and in the following we should present the most important human characteristics available in the library under study so that there is a broad overview of the library. As follows:

1.2.1 Characteristics of the study sample

a. Distribution of the study sample according to gender:

Table (1): Distribution of the study vocabulary according to gender

Gender	Frequency	Percentage%
Male	7	31.81
Female	15	68.18
Total	22	100%

The source :from the preparation of the researcher

b. Distribution of the study sample according to rank:

Table (2): Distribution of the study vocabulary according to rank and specialization

Rank	Number
Library Attache	1
Non-graded Professional Worker	1
Clerk	1
Administration Attache	1
Directorate Clerk	1
Senior Technician in University Laboratories	1
Senior Technician in Media	2
Technical Assistant in University Libraries	1
Contracted Professional Assistant	1
Administrator	2
Principal Administration Assistant	2
Principal Administrative Accountant	1
Professional Worker 1	1
Senior Technician in Media	1
Administrator	1
Principal Administration Attache 2	2
Library Attache	1
Distribution of study items according to rank and specialization	1
Total	22

The source :Interview with the library manager

1.3.Data collection tool:

To achieve the objectives of the study and answer its questions, the interview tool was used with the head of the library and the questionnaire tool was used and distributed to the librarians working in the college library in order to obtain enough information about the subject of our study and to capture the different perspectives of the study sample members. The instrument consisted of 5 central questions that included the following:

- **Axial question one:** Personal data related to the members of the study sample, namely: Gender, specialization and rank
- **The second research question:** What are the main dimensions of the library in its orientation towards applying IT governance?
- **The third research question:** What are the mechanisms adopted by the library to achieve digital transformation?
- **RQ4:** Does the library support the different areas of IT governance based on the principles of the digital transformation process?
- **RQ5:** How does the readiness of the subject library affect the digital transformation process? How does the readiness of the university library affects the effectiveness of digital transformation?

The researcher relied in building the questionnaire questions on the use of open pivotal questions that leave the respondent free to give all the information he has about the question or topic posed, as the library was asked to 22 librarians, which is the number of actual responses on which the field study was based, in addition to the oral interview that took place with the library official.

1.4.Analyze and discuss the results of the study:

1.4.1 Answering the second focal question: What are the main dimensions of the library in its orientation towards applying IT governance?

a. Sources used in IT governance

Table (3): Sources of information search in order of priority

Sources of IT governance	Frequency	Percentage%
Strategic alignment of IT with the library business	11	50
Value addition	5	22.72
Resource management	2	9.09
Risk management	3	13.63
Performance measurement	1	4.54
Total	22	100%

The source :from the preparation of the researcher

The data in Table 03 indicates that there are a number of sources used in IT governance , the most important of which is the strategic alignment of IT with the business and functions of the library by 50%, due to the importance of alignment and the strategic dimension of applying technology governance, to include visions and future planning in line with the functions and tasks of the library, as it helps to achieve tangible value for the beneficiary, through its role in making strategic objectives consistent with IT initiatives by creating a stimulating environment for this, followed by value addition by 22.72% through monitoring IT performance to know ,This is through monitoring the performance of IT to know the strengths, weaknesses,

opportunities and threats behind this technological transformation, where IT governance sets a clear framework with the tasks and responsibilities required for librarians in the system that they must adhere to in order to provide added value. Then comes the source of risk management with 13.63% due to the importance of this source in employing a set of protocols or procedures through which the library manages technological risks, including risk identification, risk assessment, risk mitigation, and crisis management to minimize the negative effects resulting from this, followed by Crisis management to minimize the negative effects resulting from this, followed by resource management with 9.09%, according to the answers of the sample members, and the reason for this is that the latter can preserve the technological governance project from being exposed to failure, which focuses on important processes such as systems, personnel and budgets to rely on in digital transformation, while the performance measurement ratio with 4.54% came last, which reflects the level of efficiency of all technological processes in the library, the extent of the beneficiary's satisfaction with the IT management process and the quality of the latter in providing the required information while ensuring security and protection.

b. What are the standards that the library follows in applying IT governance

Table (4): Library IT Governance Standards

Library IT governance standards	Frequency	Percentage%
COBIT framework	00	00
ITIL framework	00	00
ISO 38500 framework	22	100
Total	22	100%

The source :from the preparation of the researcher

Through Table No. 4 and regarding the opinion of the sample members about the standards of technological governance, where three types of tools adopted in the application and governance of information technology in information institutions were proposed, where all sample members expressed that the standard applied in the library of the College of Humanities and Social Sciences is the ISO 38500 standard (100%), which is the standard of the International Organization for Standardization ISO, as this standard provides guidelines for library officials to use when evaluating, guiding and monitoring the use of information technology within their institutions, and this standard focuses on the governance of the current and future use of information technology, and the importance of this standard within libraries, as it includes many basic principles of information technology governance This standard, according to the study sample, focuses on the governance of the current and future use of information technology, and the importance of this standard within libraries, as it includes many basic principles of IT governance, including defining responsibilities, the need for IT planning, ensuring that IT performance is accurate and efficient, and ensuring that IT complies with appropriate rules and legislation .

c. Dimensions of IT governance application in the library

Table (5): Dimensions of applying IT governance in the library

Dimensions of IT governance application in the library	Frequency	Percentage%
Organizational dimension	2	9.09
Operational dimension	15	68.18
Communication dimension	5	22.72
Total	22	100%

The source :from the preparation of the researcher

According to the data in Table 5, there are several dimensions for the application of IT governance in the library, the most important of which is the operational dimension, which came with 68.18% as it refers to the identification of various procedures related to IT assets within the library from thinking about their acquisition and adoption, to their evaluation and guidance processes, based on IT governance frameworks and practices such as the ISO38500 standard and others followed by the communication dimension with 22.72%, as it is not as important as the operational and organizational dimensions, because the library may not succeed in controlling all the structures and processes of technological governance, for example due to lack of understanding or good coordination between the various units of the library and the IT unit, and this is what we find in the relational communication dimension, which focuses on the formation of collaborative relationships and participation between the various interests and structures in the library, followed by the organizational dimension, which reached 9.09%. Despite the importance of all these dimensions, the organizational dimension remains very important for the library because it helps it in its strategic planning and describes the approach and structure in which IT governance takes place to identify roles and responsibilities, as well as through the appointment of committees to steer the IT strategy and its implementation.

1.4.2. Answer the third central question: What are the mechanisms used by the subject library to achieve digital transformation?

a. Mechanisms for implementing digital transformation based on IT governance:

Table (6): Mechanisms for implementing digital transformation in the library

Mechanisms for implementing digital transformation and IT governance	Frequency	Percentage%
Developing a clear strategy	12	54.54
Applying appropriate technologies	5	22.72
Training employees	1	4.54
Restructuring processes	2	9.09
Measuring and evaluating performance	2	9.09
Total	22	100%

The source :from the preparation of the researcher

Table 06 shows that the digital transformation process is carried out according to clear and pre-prepared mechanisms in order to achieve the desired effectiveness, where the development of a clear strategy, which amounted to 54.54%, came in the first rank according to the answers of the study sample, because this mechanism provides facilities and planning for the resources available in the library and the desired goals of the digital transformation clearly, and is very similar to the mechanisms for implementing IT governance, as it allows analyzing the current situation of the library and identifying strengths and weaknesses, in addition to identifying the areas in which digital transformation will be applied. A detailed action plan outlining the steps and procedures needed to achieve the previous goals. Then the application of appropriate technologies comes as a second mechanism for the members of the study sample, as the latter came to meet the needs of the library, and the application of these technologies in the organizational, operational, and communication processes of the library, and provide outputs such as cloud computing, artificial intelligence, the Internet of Things, and data analysis. The process of structuring processes and measuring and evaluating performance occupied an equal percentage of 9.09% by analyzing current processes and identifying processes that can be improved or automated digitally. In addition to identifying key performance indicators to measure the achievement of digital transformation goals. While the percentage of 4.54% came to express employee training as a mechanism that respondents believe enables them to provide the necessary training on the use and employment of modern technology and new technologies, with a focus on training and educating employees on the importance of digital transformation.

b. Aspects of digital transformation in the library and its implications for IT governance:

Table (7): Manifestations of digital transformation and its implications for the library

Aspects of digital transformation and its implications for IT governance	Frequency	& Percentage
Digital collections	4	18.18
Use of technology	2	9.09
Digitization	10	45.45
Digital library:	3	13.63
Digital repositories	2	9.09
Digital platforms	1	4.54
Total	22	100%

The source :from the preparation of the researcher

Based on the data of Table 07 related to the manifestations of digital transformation, the study sample was questioned about this, there were a group of manifestations, the most important of which was digitization with a percentage of 45.45% as one of the most important manifestations of the trend towards digital transformation, as the latter cannot be done without relying on digitization in its first stages, followed by digital collections with a percentage of 18.18%, which enabled libraries to make various information sources available and empower their beneficiaries, while the digital library amounted to 13.63%, as it is one of the outputs of the library on its way towards digital transformation, through the availability of many sources and information and direct access to them by relying on digital information sources. While the use of technology and digital platforms come in close proportions, respectively 9.09% and 4.54%, through the great progress provided by technology in the availability of library services and operations and has a strategic role mainly in serving the beneficiary and providing various electronic media and supports to meet his needs, including digital platforms that reduced a lot of time and effort. We also find digital repositories as one of the most important aspects of digital transformation with a percentage of 9.09%, as it is considered a scientific reservoir for the academic and research community.

1.4.3. The fourth focal question: Does the library subject of the study support the various areas of IT governance based on the principles of the digital transformation process

a. Does the library of the College of Humanities and Social Sciences support the various areas of IT governance in line with the digital transformation?

Table (8): The extent to which the library supports technological governance in parallel with digital transformation

Library support for IT governance and digital transformation	Frequency	Percentage%
Yes	20	90.90
No	2	9.09
Total	22	100%

The source :from the preparation of the researcher

We can see from Table 08 that the library at the Faculty of Humanities and Social Sciences at the University of Annaba greatly supports the concept of IT governance in line with its orientation towards digital transformation, with a percentage of 90.90%. 90% of the

respondents' answers through its reliance on many important mechanisms and resources for technological governance on the one hand, and for digital tourism on the other hand, while 90.09% of the respondents believe that the library does not support the process of technological governance as a result of some issues they face, such as poor internet connection and lack of available electronic resources.

b. Has IT governance had a role in activating the digital transformation process in the library?

Table (9): The role of IT governance in activating digital transformation

The role of IT governance in activating the digital transformation process	Frequency	Percentage%
Yes	21	95.45
No	1	4.54
Total	35	100%

The source :from the preparation of the researcher

The data in Table 9 showed that in order for the digital transformation process to take place well, it is necessary to rely on good IT governance, and the subject library showed a clear orientation towards this area through the previous data collected, as well as through the results of this table, where a large percentage of 95% expressed that the library's technological governance has a significant role in activating digital transformation. 45% agreed that the library's technological governance has a significant role in activating digital transformation, by focusing efforts and rationalizing the use of information technology in accordance with the set goals and strategic vision of the library, and in proportion to the needs of the beneficiary community, while a very small percentage of 4.45% stated that there is no relationship between IT governance and activating digital transformation.

1.4.4. The fifth focal question: How does the readiness of the university library subject of the study affect the effectiveness of digital transformation?

a. How ready is the library subject of the study for digital transformation?

Table (10): The extent of the impact of the effectiveness of digital transformation on the readiness of the library

Library readiness towards digital transformation	Frequency	Percentage%
High	12	54.54
Medium	7	31.81
Low	3	13.63
Total	22	100%

The source :from the preparation of the researcher

Through Table 10, we note that the rate of readiness of the library subject of the study towards the activation of digital transformation came great by 54.54%, medium by 31.81% and weak by 13. This indicates that there is a great difference in the opinions of the members of the study sample, perhaps due to the presence of several interests that differ from each other, and each interest requires a certain type of resources and capabilities, and therefore the final judgment on the readiness of the library towards digital transformation, confirmed by the library official by asking her the same question, so her answer was that the library subject of the study since years and strives to achieve digital transformation like its counterpart in the central library of Baji Mokhtar University, which is a strategic requirement for it, to keep pace with the requirements of the academic and research community.

b. What are the challenges and issues facing the library in its orientation towards digital transformation and good control of information technology resources?

Table (11): Challenges of the subject library in its approach to digital transformation

Library issues in its orientation towards digital transformation	Frequency	Percentage%
Information revolution	2	9.09
Diversity of information sources	3	13.63
Availability of other alternatives for libraries such as the Internet and websites	5	22.72
Diversity and renewal of patrons' needs	2	9.09
High costs of accessing information and its sources	1	4.54
Electronic publishing and the wide spread of electronic studies	1	4.54
Creating digital and virtual libraries	3	13.63
Multimedia and artificial intelligence	1	4.54
Intellectual and physical rights	2	9.09
Security and privacy	2	9.09
Total	22	100%

The source :from the preparation of the researcher

Through Table 11, we note that the availability of other alternatives for libraries such as the Internet and websites is one of the most important challenges faced by the library in the study while moving towards digital transformation with an estimated percentage of 22.72%, in addition to the challenge of establishing digital and virtual libraries as well as the diversity of information sources with a percentage of 13.63%, followed by the increasing information revolution, the diversity and renewed needs of beneficiaries, the loss of intellectual and physical rights, as well as the weak legal protection of digital resources and the lack of security and privacy, which came with equal percentages of 9.09%. The high costs of accessing information and its sources, electronic publishing, the wide spread of electronic periodicals, the proliferation of multimedia and artificial intelligence, is one of the challenges faced by the library with an estimated percentage of 4.54%, which explains that the library is surrounded by many challenges and obstacles that it must consider well before starting the digital transformation process, to ensure digital protection and ensure the intellectual and physical rights of authors and researchers, in parallel with ensuring the maximum benefit from its services and activities to the public of its beneficiaries.

III. Results and discussion :

1. Results of the study in light of the hypotheses:

Through the outputs of the process of analyzing and interpreting the results obtained, it is possible to determine the validity of the proposed hypotheses or not and answer the research questions in the following:

- a. **Hypothesis One:** Annaba University Library applies good IT governance to activate digital transformation. The results of the study indicate that the library relies on sources of IT governance, in addition to its reliance on mechanisms to implement technological governance and standards to implement IT governance to activate digital transformation, at a rate of 50% and therefore, in light of the mentioned indicators, we conclude that the hypothesis is relatively fulfilled in light of the library's focus on rationalizing the use of IT governance as required by the digital transformation project.
- b. **Hypothesis Two :** The university library supports the IT governance standard in the digital transformation processes, the results of the study indicate that the mechanisms for implementing digital transformation and IT governance are carried out in limited ways and in weak proportions, especially with regard to the digitization process, which

is still in its early stages and has not been fully completed, which reflects on the digital transformation process, as well as the emergence of many aspects of digital transformation and its implications for IT governance, such as digital libraries and websites and the wide spread of electronic periodicals, in addition to the appearance of digital platforms and digital repositories, preventing the emergence of digital platforms and digital repositories, it prevents the library from being able to adequately support the IT governance standard. Thus, in light of the mentioned indicators, we conclude that the hypothesis is realized with a very weak percentage of 13.63%, in the absence of sufficient training, necessary support, capabilities and resources required by the library in its transition towards digital transformation.

- a. **Hypothesis Three:** The effectiveness of digital transformation is based on the readiness of the university library for information technology governance, the results of the study indicate that: The subject library focuses all its efforts towards digital transformation based on its technological governance, despite the great challenges that surround it, the most important of which is the emergence of digital libraries and electronic sources of information in multiple mediums, as well as the widespread spread of electronic periodicals, digital platforms and artificial intelligence applications, all this is a challenge and issues for the subject library in how to align its goals and needs with its development and future outlook, and this is what we can see.

2. General findings of the study:

- IT governance is among the most important solutions to activate digital transformation in libraries.
- Directing technological practices towards the development of IT governance to achieve the goals of libraries in achieving digital transformation.
- Relying on IT governance returns an effective investment to the library and its users, thus facilitating the transition towards digital transformation effectively and avoiding all risks.
- The more libraries have a clear strategic vision towards IT governance, the more it will encourage digital transformation and ensure its continuity.
- Digital transformation in libraries has moved to the stage of materialization at a moderate rate.
- Libraries seek to keep up with the development in their field and compete with other information institutions by taking advantage of the practices in the field of digital transformation in various libraries, which qualifies them to transform into a digital administration
- Libraries must address cyber-attacks and ensure maximum protection of data and information from various sources.
- University libraries' adoption of the idea of digital transformation has its roots in many years of preparation and gradual transformation towards it.
- Libraries have proven their effectiveness through the effectiveness of digital transformation, which has become available in various forms within the library environment.
- The authorities must enact laws and legislations that protect digital works and digital content that result from digital transformation, and develop possible alternatives to ensure maximum benefit from it.
- Strengthen cybersecurity and information security and minimize the risks that libraries are exposed to libraries.

3. Conclusion:

In light of the findings of the study, the researcher recommends the following:

- Allocate sufficient budget and technological resources needed for the digital transformation process to ensure an effective and smooth transition to this new system in libraries.
- Sensitize officials to the importance of libraries and the importance of the role they play in the midst of digital transformations at all levels to keep pace with the requirements and needs of their patrons.
- The need for coordination and consultation between the various library departments to ensure effective management of information technology, to facilitate the process of digital transformation.
- Raise awareness among librarians of the necessity and importance of digital transformation due to the challenges that the latter requires for libraries.
- Prepare librarians for new roles in libraries and encourage them to be more open to information technology with its developments and new developments.
- Develop new mechanisms to develop the digitization process and rationalize the optimal use of information technology.
- Create a volunteer team in university libraries within specific rules and specifications and train them practically in the field of technological governance and digital transformation.
- Enact laws and legislation related to the field of digitization and digital transformation to ensure digital rights and services.
- Activate electronic protection measures for digital libraries and digital works resulting from the digital transformation process.
- Digital transformation is the roadmap for libraries, so achieving a successful digital transformation requires an integrated IT department that transforms from one service to another and brings with it all ICT tools, qualified human resources, equipment and processes.

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