

Digital transformation in organizations: Maturity determinants and failure risks

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Abstract---This research paper aims to provide an analysis of the phenomenon of digital transformation within organizations by clarifying its concept, strategic importance, and the determinants of maturity on which it is based. It also examines the risks that may lead to the failure of digital transformation projects, with a particular focus on the reality of Algerian institutions. The study adopts a descriptive analytical approach based on a review of recent literature as well as national and international reports related to digitization, in order to assess the readiness of organizations organizationally, technically, and humanly to adapt to the requirements of digital transformation. The results indicate that digital transformation is not merely the adoption of modern technologies; rather, it represents a shift in business models and the way value is delivered to users. It requires an agile organizational environment, advanced information infrastructure, and a workforce equipped with strong digital skills. The study also reveals that Algerian institutions, despite their adoption of a national digitization strategy, continue to face several challenges, most notably limited infrastructure, weak governance, lack of digital competencies, resistance to change, and administrative system deficiencies. Moreover, several risks threatening digital transformation were identified, including strategic risks such as loss of competitiveness and missed investment opportunities, as well as operational risks such as system failures or data loss due to cyberattacks. The study concludes that successful digital transformation projects require a comprehensive approach that combines infrastructure modernization, digital governance development, and human capital enhancement, ensuring an effective transition toward more flexible and innovative organizational models.

Keywords---Digital transformation, digital maturity, strategic risks, digital infrastructure, Algerian institutions.

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Introduction

The contemporary world is witnessing a rapid wave of digital transformations driven by technological advances in cloud computing, artificial intelligence, big data, and high-efficiency connectivity. These technologies have revolutionized the business environment, as organizations can no longer remain competitive without adopting comprehensive digital transformation strategies aligned with modern requirements. Digital transformation has therefore emerged as one of the most important drivers capable of reshaping organizational processes, improving performance, and enhancing service quality.

However, despite its importance, digital transformation efforts often face obstacles related to infrastructure limitations, weak institutional readiness, or the absence of a clear strategic vision making the success of digitization projects uncertain. Accordingly, the central problem of this study is framed in the following question: What is the level of organizational readiness for digital transformation? What are the key determinants of its maturity, as well as the risks that may lead to its failure, particularly within Algerian institutions?

Based on this problem, the study examines several hypotheses, including that digital transformation maturity does not emerge from a single factor but rather from the interaction of organizational, technical, and human elements; that Algerian institutions, due to their structural and organizational characteristics, face strategic and operational risks that may hinder successful digital transformation projects; and that developing information infrastructure and strengthening digital governance mechanisms can help limit these risks and improve digital maturity levels.

The study aims to achieve several scientific and practical objectives, including clarifying the concept of digital transformation and its multiple dimensions, presenting its maturity determinants within organizations, analyzing key risks that might hinder digital transformation success, and providing an applied reading of the digitization situation in Algerian institutions. It also seeks to formulate recommendations that may assist decision-makers and managers in developing more effective policies to ensure successful digital transformation.

The significance of this study appears both theoretically by enriching the existing literature on digital transformation and maturity models and practically, by identifying strengths and weaknesses in the digital experiences of Algerian institutions. This allows for a clearer understanding of digital readiness and supports the enhancement of organizational competitiveness in a work environment increasingly dependent on technology.

To achieve its objectives, the study adopts a descriptive-analytical approach as the most suitable approach for examining complex organizational phenomena. It analyzes key concepts of digital technologies, reviews relevant literature on digital maturity and digital transformation risks, and employs a conceptual analytical model based on three main dimensions: organizational determinants, technical determinants, and human determinants. These dimensions help explain how such factors interact to shape the ability of institutions to effectively adopt digitization.

The study relies on a set of previous studies that addressed digital transformation in terms of concept, organizational readiness, and analysis of success and failure factors in digitization projects, helping build a comprehensive knowledge framework for understanding the phenomenon more accurately. It also clarifies essential terms related to the topic such as digital transformation, digital maturity, digital risks, and e-governance to ensure conceptual consistency and facilitate the interpretation of findings.

Thus, this study provides a scientific foundation for a deeper understanding of digital transformation in Algerian institutions, highlighting the challenges that must be addressed effectively in order to ensure successful digitization in the future.

Chapter One: Digital Transformation

Digital transformation has become one of the fundamental pillars upon which modern institutions rely to improve performance and enhance service quality. This transformation is not limited to the technological aspect alone; it also includes redesigning work processes and service delivery methods to align with modern user needs.

First: Definition of Digital Transformation

Digital transformation has been defined as a new business model that relies on using digital technology to innovate new products and services, in addition to developing new methods for their delivery with a focus on meeting the needs of customers and users.¹

It is also defined as a comprehensive project that encompasses all institutions and government sectors and aims to convert essential services provided to individuals and companies from traditional forms to smart electronic forms, using the latest advanced technologies.²

Digital transformation is further viewed as the process of integrating digital technology into the business environment, leading to fundamental changes in how value is delivered to the end user. It also represents a cultural shift within organizations that requires continuous adaptation and development.³

In summary, digital transformation is not simply the adoption of technology; it is a comprehensive strategy aimed at restructuring business and service delivery to meet user expectations and enhance organizational efficiency.

Second: The National Strategy for Digital Transformation

The national strategy for digital transformation falls within the broader orientations of the Algerian state aimed at modernizing administrative work, improving public service quality, and strengthening the competitiveness of the national economy by integrating ICT technologies across sectors. This approach aligns with the commitments of the Presidency of the Republic to expand interconnection between institutions and generalize the use of digitalization in administrations that provide direct services to citizens, along with improving economic governance.

In recent years, public administrations have achieved significant progress in digital services, with **454 digital public services** already available online and **178 additional services** still undergoing digitization. This reflects a clear commitment to accelerating and generalizing digital transformation across key institutions and high-demand services.

This strategy is based on a participatory approach that brings together administrations, training and research institutions, universities, experts, startups, and economic operators, aiming to develop a comprehensive vision that enhances public governance through digitization and supports a digital environment that serves both the economy and the citizen.

The main pillars of this strategy include:

- Creating a conducive environment for digital transformation, including legislative frameworks and digital infrastructure.
- Strengthening e-governance and accelerating administrative digitization.
- Developing an innovative economic system that supports startups and digital projects.
- Promoting digital citizenship through spreading digital culture and facilitating interaction with public services.

¹ Jamila Slaimi, Digital Transformation between Necessity and Risks, Journal of Legal and Political Sciences, Vol. 10, No. 02, 2019, p. 947.

² Mohamed Hassan Mandoura, The Effect of Digital Transformation on Public Institutions' Transactions to Improve Institutional Services in Syria, Syrian International Academy for Training and Development, Syria, 2021, p. 12.

³ Ilham Yahiaoui, Sara Qarabsi, Digital Marketing: How to Implement Digital Transformation in Marketing, Journal of Economic Development, Vol. 04, No. 02, 2019, p. 215.

Digital transformation in Algeria is based on several modern technologies, most notably:

1. Internet of Things (IoT)

It enables the collection and processing of data from interconnected devices, improving operational efficiency and decision-making processes.

2. Artificial Intelligence (AI)

One of the most advanced tools, used for tasks requiring rapid data analysis or machine learning, which enhances accuracy and performance⁴

3. Robotic Process Automation (RPA)

Contributes to automating operations and transactions, reducing human error, and increasing productivity through “digital workforces” embedded in software systems.

4. Cloud Computing

Provides flexible and cost-effective computing resources while improving data storage and management capabilities.

5. Fifth-Generation Technology (5G)

A core component of modern digital infrastructure, offering higher data transfer rates and lower latency, enabling developments in health, smart transport, and

E-learning.

6. Big Data

Institutions now deal with massive volumes of data that must be analyzed to support daily operations and strategic decision-making. Investing in big data analytics has become essential for maintaining competitiveness.

7. Cybersecurity

The backbone of successful digital transformation, ensuring the protection of systems and data from cyberattacks and unauthorized access. It includes technical and organizational procedures to maintain privacy and service continuity.⁵

It is evident that the national strategy for digital transformation is not merely a project for administrative modernization but a key pillar for transforming the economy and society. With the ongoing evolution of digital technologies and the growing need for more effective and transparent public services, commitment to this strategy is essential for achieving sustainable development in Algeria and building a knowledge- and innovation-based economy.

Third: E-Government Projects

E-government has become one of the most important gateways for achieving comprehensive digital transformation, due to its role in improving administrative efficiency, reducing bureaucracy, enhancing transparency, and raising the quality of services provided to citizens. This shift stems from the urgent need to move away from traditional, complex, and time-consuming procedures toward digital solutions that enable fast, low-cost access to services.

Algeria has adopted the e-government project as a key component of public administration modernization, good governance, and the development of a knowledge-based economy.

E-government is defined as the transition from traditional administrative service delivery which relied on paperwork, lengthy procedures, and direct contact to digital service delivery using ICT, enabling interaction through the internet. This transition enhances service quality, reduces human and financial costs, and limits direct contact, thus reducing administrative corruption and raising public trust.

In this context, the Algerian government, through the Ministry of Post and ICT, launched a large-scale national project known as "**E-Algeria 2008–2013**". It is considered one of the largest national

⁴Abdelilah Shouthri, Mariem Bounihi, The Role of the National Strategy for Digital Transformation in Achieving the Dimensions of Sustainable Development in Algeria "Vision 2030", *Al-Maaref Journal*, Vol. 18, No. 01, University Center Mersli Abdallah – Tipaza, Economic Geography and International Trade Laboratory, Algeria, 2023, pp. 410–414.

⁵ Abdelilah Shouthri, Mariem Bounihi, The Role of the National Strategy for Digital Transformation in Achieving the Dimensions of Sustainable Development in Algeria "Vision 2030", *Ibid.*, pp. 410–411.

digitization projects due to the number of participating institutions, targeted sectors, and strategic pillars.

The program was developed with contributions from public institutions, government administrations, economic operators, universities, research centers, and professional associations. More than **300 experts** participated over six months to design a unified national vision for digital governance.⁶

The program included **thirteen strategic pillars**, summarized as follows:

- Accelerating ICT usage in public administrations to improve performance and reduce bureaucracy.
- Enhancing the use of digital technologies in economic enterprises to boost productivity and competitiveness.
- Providing mechanisms that facilitate citizens' access to digital tools such as computers and internet services.
- Supporting a knowledge-based economy through technology integration and innovation.
- Expanding high-speed communication infrastructure nationwide.
- Developing human capacities through targeted training programs.
- Encouraging innovation by supporting incubators, startups, and research centers.
- Updating the legal and regulatory framework to align with digital requirements, including data protection.
- Improving internal communication systems within administrations to facilitate efficient data exchange.
- Promoting international cooperation and benefiting from global e-government experiences.
- Establishing monitoring and evaluation mechanisms to assess program progress.
- Re-engineering administrative procedures to fit modern digital requirements.
- Securing financial resources to ensure project implementation and sustainability.⁷

Analysis of the E-Algeria 2008–2013 program reveals that the Algerian government adopted a comprehensive approach to reform the administrative, technical, and economic environment toward building an integrated e-government model. Despite the challenges, the program represents a foundational step for later digital transformation strategies, making its evaluation essential for understanding Algeria's ongoing digitalization process.

Chapter Two: Maturity Determinants

Organizational maturity of institutions is considered one of the fundamental factors for the success of digital transformation processes, as it is directly influenced by the internal relationships between administrative leadership and employees, as well as by how work is organized and human resources are directed. A mature organizational environment contributes to developing cooperation and collective commitment and creates a solid foundation for achieving the institution's strategic objectives. Therefore, maturity is not limited to technical or structural aspects; it also includes the human, cultural, and organizational dimension, which is a key factor in the success of digital transformation and the sustainability of its results.

First: Organizational Determinants

The relationships between the administrative leader or direct supervisor and employees play a crucial role in highlighting collective effectiveness and achieving desired results. Having a leader capable of guiding the team cohesively allows employees to feel a sense of belonging and commitment toward the institution's goals and motivates them to work collaboratively to achieve shared objectives. This

⁶ Naima Khatir, The Reality of E-Government in Algeria "Between Ambition and Challenges", Journal of Forum for Economic Studies and Research, University of Algiers 03, Algeria, 2017, pp. 60–61.

⁷ Naima Khatir, The Reality of E-Government in Algeria "Between Ambition and Challenges", Ibid., pp. 61–62.

relationship reflects on the level of job satisfaction among individuals, whether concerning material, social, or psychological needs aligned with the institution's organizational goals.

Administrative leadership is not merely a routine managerial function; rather, it represents a vital strategic process that contributes to organizing and directing human efforts within the unit, defining roles and responsibilities, and facilitating decision-making in a participatory manner. An effective administrative leader works to strengthen bonds among subordinates and encourages them to participate with their initiatives and ideas, which enhances commitment and belonging to the institution and contributes to achieving productive teamwork.

Additionally, supporting human relations within the work environment and providing opportunities for expressing opinions and participating in decision-making are key determinants that enhance organizational maturity. Positive interaction between the leader and the team, and the ability to manage differences and resolve conflicts, helps build a cohesive work environment capable of facing challenges and achieving the institution's strategic objectives.⁸

Through studying organizational relationships within institutions, it becomes clear that organizational maturity cannot be measured solely through formal structures or written procedures; it heavily depends on the quality of human interaction between leadership, management, and employees. The ability to build relationships based on trust and mutual respect, and enabling employees to participate effectively, represents a crucial element in enhancing institutional performance efficiency and is considered one of the most prominent factors that ensure the success of any digital transformation or institutional development process.

Second: Technical Determinants

Technical determinants play a central role in evaluating the maturity of institutions and their ability to adopt digital transformation effectively. Technology is not merely an auxiliary tool; it represents a strategic foundation through which operational performance can be improved, productivity increased, and competitive advantages provided to the organization. The quality of digital infrastructure and the availability of modern technology are critical factors in the institution's ability to adapt to the rapidly changing work environment. Therefore, in-depth study of technical determinants helps understand strengths and weaknesses in institutions and identify areas that need development to support the digital transformation strategy.

1- Availability of Modern Technology

Several studies have confirmed that modern technology is a strategic pillar for any organization seeking to improve its performance and enhance its competitive ability. It affects all organizational and functional areas within the institution, from daily operations to products and target markets. The main roles played by modern technology in institutions can be summarized as follows:⁹

Radical Changes: Technology redesigns the organization's structure and core activities, including products and services, delivery methods, and markets, reflecting its broad application across various work areas.

Responding to Environmental Requirements: Technology pushes institutions to continuously adapt to internal and external environmental changes, making the adoption of modern technology essential to avoid global lag and address emerging challenges in the information age.

⁸ Ben Amara Abdelhafid, The Role of Administrative Leadership in Activating Labor Relations: A Field Study at SONELGAZ Unit in Tipaza, Journal of Studies in Humanities and Social Sciences, Vol. 25, No. 01, University of Abu Al-Qasim Saadallah, Algeria, 2025, p. 13

⁹ Yousra Mohamed Hussein, Information Technology and Its Impact on Improving Hotel Service Performance, Journal of Management and Economics, Algeria, 2010, p. 326.

Achieving Strategic Objectives: Technology helps enhance the integration of processes, increase efficiency, and reduce operational costs by automating many activities, ensuring overall institutional performance improvement.

Competitive Advantage: Technology enables institutions to gain strategic advantages that allow them to outperform competitors by providing innovative services or products more efficiently.

2- Quality of Information Infrastructure

Digital infrastructure is the backbone of successful digital transformation within any institution. In the context of modernizing Algerian public administration, statistics show that the use of payroll software, as well as accounting and financial software, reached approximately 75%, but remains limited against the requirements of advanced e-governance. Information networks form the basic foundation for connecting various administrative departments, where central administrations are linked via local area networks (LAN), including 53% connected to a wide area network (WAN). Additionally, 81% of administrations have network-equipped rooms, while 15% rely on advanced internal communication networks used by ministries such as Justice, Finance, Energy, Public Works, Higher Education, and Scientific Research to implement remote video conferencing systems.¹⁰

Regarding Internet connectivity, the use of ADSL is limited to 42% of ministries, while 53% rely on dedicated lines to ensure external connectivity. Practically, 58% of government websites available online are static and not updated according to new developments. Concerning email, 69% of ministries use their own servers to exchange information among various agencies.¹¹

3- Components of Digital Environment Infrastructure

The components of digital infrastructure include several key elements that support institutions' digital transformation capabilities:

Information and Communication Technologies (ICT): ICT infrastructure is the main factor in a country's ability to transition to a digital economy, including the density of fixed and mobile telephone lines, the spread of computers, and Internet usage.

Education and Human Resource Development: Digital transformation requires competent human resources capable of using technology effectively, including creative and technical skills, through curriculum development and promoting lifelong learning programs.

Good Governance: Based on strong legal frameworks and economic policies, including policies aimed at facilitating technology access, reducing customs duties on technology products, and enhancing small and medium-sized enterprises' competitive abilities.

Research and Innovation: Involves cooperation with academic institutions and research organizations to adopt new knowledge and adapt it to local needs. Financing: Includes financial resources necessary to deploy modern technologies, develop educational programs, and support digital transformation projects to ensure sustainability.¹²

Third: Human Determinants

Human determinants are among the most important factors controlling the level of digital transformation maturity within institutions. The success of any digital project does not rely solely on technical infrastructure but requires qualified human resources capable of using technology efficiently, embracing change, and being aware of modern digital environment requirements. Digital transformation is as much a cultural process as a technical one, making the human element central to ensuring continuity of development and achieving strategic objectives. Therefore, analyzing human determinants helps assess the workforce's ability to adapt to new technologies and their readiness to participate effectively in internal digital change programs.

¹⁰ Qarini Farès, *The Reality of ICT Infrastructure in Algeria*, Eliza Journal of Research and Studies, Vol. 04, No. 01, University of Algiers 3, Algeria, 2019, p. 56.

¹¹ Qarini Farès, *The Reality of ICT Infrastructure in Algeria*, Ibid., p. 56.

¹² Hanich Salah Eddine, Al-Bay Mohamed, *Requirements for Building Capacities and Educational Skills in a Changing Digital Environment*, Scientific Journal, Vol. 05, University of Shahid Hamma Lakhdar, El Oued, Algeria, 2020, pp. 81–82.

1- Employees Digital Skills

Modern institutions, especially those relying on digital models, are experiencing significant expansion in the use of advanced digital technologies, such as social media, big data analytics, cloud applications, and mobile solutions. This development has increased demand for a wide range of digital skills, considered essential for improving performance and innovating new work methods. Studies indicate a noticeable rise in the need for specialized digital skills between 2018 and 2025, with coding and cybersecurity skills increasing by 29%, followed by computer control skills by 18%, robotics by 11%, and 3D and 4D printing and modeling skills by 10%, along with skills related to AI, the Internet, communication devices, and technology deployment below 10%.¹³

Consequently, some traditional skills have seen declining demand due to automation and increased reliance on intelligent systems. Demand for skills related to new product production decreased by 12%, and computer production skills by 5%. These data show that digital transformation reshapes not only the technology used but also the labor market structure, creating new jobs while reducing others, requiring institutions to re-skill human resources to keep pace with these changes.

2- Employees Acceptance of Digital Change

Employee acceptance of change is a critical challenge facing institutions during digital transformation programs. Resistance, whether explicit or implicit, can hinder the success of any digital project regardless of robust infrastructure. This challenge requires a multi-dimensional approach, including developing clear policies to support human resources, creating incentive mechanisms to increase employee engagement, and designing competitive pay packages for digital roles requiring specialized skills that are difficult to replace. Additionally, clear career paths for employees with digital skills should be established to enhance promotion opportunities and encourage skill development within the public sector.¹⁴

As shown, human determinants are essential in evaluating institutions' readiness for digital transformation. No technical infrastructure can achieve its objectives without qualified human resources capable of utilizing it effectively. Digital skills, employees willingness to change, and an organizational culture supportive of innovation are all critical factors in reaching high levels of digital maturity. Institutions must continuously invest in training employees, developing a transformation culture, and enabling human resources to play an active role in the digital journey to ensure successful transformation and sustainable performance.

Chapter Three: Risks of Failure (Applied to Algerian Institutions)

First :

Strategic

Risks

1- Loss of Competitiveness:

Competitiveness is one of the most important indicators that determine the success and continuity of an institution, especially in markets characterized by rapid change and increasing competitive pressure. The main issue in strategies of excellence is the institution's ability to maintain its distinguished position in the eyes of stakeholders over the long term. However, this distinction is threatened if the institution fails to manage a set of strategic risks that weaken its competitive strength and limit its ability to maintain superiority.

Since Algerian institutions operate in an environment witnessing the entry of new competitors, expansion of foreign companies, and rapid technological development, the risk of losing excellence becomes more severe, especially in sectors requiring digital skills, high organizational capabilities, and

¹³ Worad Fouad, Zawi Ahmed Sadiq, Behavioral and Digital Skills and Their Importance in Emerging New Business Models in Advanced Economies with Reference to Algeria: An Analytical Study, *Dafater Boudex Journal*, Vol. 12, No. 01, University of Ain Temouchent, Belhadj Bouchouib, Algeria, 2023, pp. 272–273.

¹⁴ Hiba Abdel Fattah, Developing Digital Skills of Public Administration Employees in Algeria as a Key Requirement for the Success of Digital Transformation and AI Integration, *Scientific Journal, Administrative Development Laboratory for the Advancement of Algerian Economic Institutions*, University of Ghardaia, Algeria, 2025, p. 11.

continuous investment in innovation. The main risks that may erode competitiveness can be summarized as follows:

a- Imitation: Imitation is one of the most prominent threats facing institutions, as competing companies may attempt to replicate the advantages the institution possesses, whether resources, skills, production means, or organizational methods, gradually causing a loss of uniqueness. Therefore, institutions must establish barriers to prevent or hinder imitation, whether through protecting innovations, developing hard-to-access resources, or building an internal organizational culture that is difficult to replicate. Literature indicates that resources and capabilities underlying competitive advantage require continuous protection to avoid being cloned by competitors.¹⁵

b- Resource Imitation: Resources are fundamental elements that grant the institution a competitive advantage, and thus their ease of replication by competitors represents a significant threat. The more available, non-rare, or unprotected the resources are, the higher the chances that competitors can obtain the same elements the institution relies on for its superiority. The resource-based strategic approach confirms that an institution can only maintain a sustainable advantage if it possesses resources with unique characteristics, difficult to imitate or replace, and the absence of these conditions makes the advantage quickly vanish.¹⁶

c- Capability Imitation: Although resources may be imitable, organizational capabilities are much harder to replicate because they are linked to cumulative experiences, internal work methods, interpersonal interactions, and decision-making processes, which are often complex and invisible to external stakeholders. Developing these capabilities takes time, making replication by competitors complicated. However, an institution may still lose its distinction if it neglects developing or maintaining these capabilities.¹⁷

d- Inertia: Inertia represents an obstacle that may prevent the institution from adapting to competitive changes. Some institutions may continue with the same administrative and organizational methods despite technological and market changes, leading to gradual efficiency decline and inability to respond quickly to more flexible competitors. This is evident in many Algerian institutions suffering from slow decision-making, complex procedures, and difficulty adopting technological change.

e- Competitors Capabilities: Institutions are also at risk of losing their distinction when competitors possess advanced capabilities that allow them to imitate or surpass the advantages relied upon by the institution. These capabilities may include substantial financial resources, highly skilled human capital, advanced technological expertise, or faster innovation. In the Algerian context, these risks are especially pronounced with the expansion of foreign companies introducing modern technologies, increasing pressure on local institutions to continuously develop their resources and capabilities.¹⁸

Strategic risks related to losing competitiveness are not merely theoretical possibilities; they are real threats facing Algerian institutions during economic and digital transformation. Delays in resource development, weak innovation protection, or slow adaptation to changes all increase the likelihood of losing market position. Effective responses to these risks are essential for maintaining and sustaining excellence.

2- Lagging Behind Local and International Competitors:

Lagging behind competitors represents a major challenge for Algerian institutions, especially in a context of rapidly accelerating global economic and technological changes. This lag is linked to a set of structural and organizational factors that have created a real crisis at the local management level, directly affecting the pace of modernization, quality of services, and institutional responsiveness to competitive demands. The main causes of this lag include:

¹⁵ Hayat Qamri, Strategic Risks Threatening the Loss of Competitive Advantages and Mechanisms to Preserve Them, *Journal of Industrial Economy (Khazartak)*, Vol. 09, No. 02, University of Batna 1, Algeria, 2019, pp. 132–133.

¹⁶ Hayat Qamri, Strategic Risks Threatening the Loss of Competitive Advantages and Mechanisms to Preserve Them, *Ibid.*, p. 133.

¹⁷ Jones Garrett, Charles Hill, *Strategic Management: An Integrated Approach*, Translated by Mohamed Rifai Rifa'i and others, 4th Edition, Mars Publishing and Distribution, Riyadh, 1999, p. 220.

¹⁸ Hayat Qamri, Strategic Risks Threatening the Loss of Competitive Advantages and Mechanisms to Preserve Them, *Ibid.*, pp. 134–135.

a- Widespread Corruption: Corruption in its various forms is among the most dangerous practices threatening effective local management, as it directly affects decision-making transparency, institutional credibility, and resource efficiency. Like many developing countries, Algeria suffers from multiple forms of corruption within local structures, especially at the municipal and provincial levels. The expansion of this phenomenon is due to multiple social, economic, and administrative factors, including:¹⁹

- The pursuit of personal gains, as greed for positions and money motivates illegal practices such as bribery, embezzlement of public funds, or favoring suspicious deals for local interest networks.
- Weak transparency and accountability; despite clear laws such as Law No. 06/01 dated 20/02/2006 on prevention and combat of corruption, their implementation remains limited compared to actual practices. The gap between legal texts and reality renders oversight ineffective and allows continued violations.

These practices have led to declining citizen trust and weakened local institutions' capacity to implement effective development projects.

b- Traditional Administration: Despite successive reforms aimed at modernizing local administration, a traditional approach still characterizes a large part of its activity, evident in persistent bureaucracy, lengthy procedures, numerous documents, and limited digital use. This results in:

- Slow public service delivery.
- Increased costs due to wasted time and administrative errors.
- Continued gap between administration and citizens, hindering governance principles.

Developing electronic offices, simplifying procedures, and expanding digitization have become urgent to improve service quality and boost local government performance.²⁰

c- Weak Local Participation: Local participation involves citizens, associations, and economic and social actors in decision-making, crucial for realistic problem diagnosis and proposing solutions that meet actual needs. However, Algerian institutions suffer from:

- Limited mechanisms for citizen contribution to decisions.
- Weak representation of local actors in elected councils.
- Absence of effective dialogue between administration and civil society.

Due to the lack of this participatory dimension, many development programs fail as they lack collective vision and effective local involvement.

d- Blocked Local Councils: Many local popular councils face organizational deadlocks due to conflicts among members or between elected officials and administration. Instead of being spaces for developmental decisions, these councils sometimes become arenas for personal or political interests, resulting in:

- Delays in approving development programs.
- Paralysis in implementing local projects.
- Declining citizen trust in elected bodies.

This structural crisis has rendered some councils incapable of fulfilling their real role in planning and development.²¹

e- Lack of Competence and Weak Local Leadership: Leadership is crucial for successful local governance, linking citizen needs to the administration's capacity to meet them. Some local leaders lack:

- Administrative and technical skills.
- Ability to make effective decisions.
- Comprehensive knowledge of local specifics.

¹⁹ Malal Mokhtaria, Local Management Crisis and Its Impact on Local Development in Algeria, *Sawt Al-Qanun Journal*, Vol. 08, No. 02, Management and Institutional Performance Evaluation Laboratory "Itmam", University of Saida, 2022, p. 197.

²⁰ Milad Miftah Al-Harrathi, *Local Administration Organizations and Their Relationship to Participatory Democracy*, 1st Edition, Dar Al-Kitab Al-Jami'i, UAE, 2015, p. 215.

²¹ Moussa Louzi, *Administrative Development*, Wael Publishing House, Oman, 2002, p. 185.

- Initiative and innovation spirit.

The absence of continuous training for elected officials negatively affects performance, making some development policies ineffective and unrealistic.

f- Weak Ethical Commitment: Professional ethics play a central role in administrative success, forming the basis for discipline, transparency, and justice. However, many issues in local communities stem from:

- Absence of ethical conscience among some officials.
- Declining values of honesty, responsibility, and diligence.
- Mixing public interest with personal interests.

The lack of an ethical dimension leads to project failures, widespread corruption, and deterioration of the administration's image among citizens.²²

3- Loss of Investment Opportunities: Local institutions lose many investment opportunities due to factors affecting decision quality and speed, including:

- Lack of accurate information, negatively impacting economic analysis and project selection effectiveness.
- Time pressure, leading to poorly considered decisions.
- Difficulty in reaching collective agreements when multiple perspectives exist.
- Ambiguity in problem definition due to its multiple aspects, complicating the establishment of clear decision evaluation criteria.

These factors weaken Algerian institutions' ability to attract investments or seize opportunities in a timely manner.

Second: Operational Risks

Operational risks are among the main challenges facing modern institutions, especially those heavily relying on information systems and technological infrastructure in daily management. The significance of these risks increases due to heavy dependence on data flows and service continuity, making any downtime, damage, or cyberattack a direct threat to achieving operational and strategic goals. The main operational risks include:²³

1- Activity Interruption Due to System Failures:

Interruptions caused by technical failures or cyberattacks are among the most dangerous operational risks, potentially leading to complete operational paralysis, service disruption, and reputational damage. These failures often result from technical and security causes, including:

a- Network Server Overload: Network or central server attacks occur when attackers send a large number of unnecessary or invalid requests within a short period, overloading the server beyond its capacity. The server, being central to the network, has a limited capacity to process requests, and exceeding this leads to temporary or complete shutdown. These attacks aim to deny service rather than breach the system, directly affecting institutional activity continuity.²⁴

b- Mail Server Attacks: Many institutions face attacks targeting mail servers, where attackers use the institution's email server to send massive spam or unsolicited messages to numerous addresses while hiding their identity. This overloads email boxes and disrupts mail server operations, preventing the institution from sending or receiving official communications, threatening daily administrative or commercial operations.

c- Bot Virus: The Bot virus is widely used in server attacks. It spreads silently across thousands of connected devices, causing no direct harm, but upon receiving an attacker's signal, it directs all infected devices to a target server, causing it to crash due to excessive load. These attacks fall under Distributed

²² Mohamed Rafiq Al-Tayeb, Introduction to Management: Fundamentals, Functions, Techniques: Management, Organization, and Enterprise, Diwan University Press, Algeria, n.d., p. 325.

²³ Saida Bourdima, Quantitative Methods and Their Role in Investment Decision Making, Al-Haqiqa Journal, No. 25, University of Adrar, Algeria, 2020, pp. 123–124.

²⁴ André Vaucamps, CISCO: Router Security and Network Traffic Controls, ED ENI, 2010, p. 14.

Denial of Service (DDoS), aiming to stop service rather than destroy data. Their impact is especially severe on institutions providing direct digital services, where even short downtime leads to financial losses and customer trust erosion.²⁵

2- Data Loss or Corruption:

Data is a primary resource for modern institutions, and its loss or corruption is a major threat to continuity. Causes include:

a- Computer Viruses: Viruses directly affect computers and information systems, potentially deleting sensitive files, disabling core software, or installing additional malicious software. The impact extends beyond technical aspects to organizational and economic dimensions, potentially causing financial losses and reducing public trust. Viruses vary in operation, concealment ability, and adaptability to evade antivirus detection.²⁶

b- Computer Worms: Worms are malicious software that propagate independently without human intervention, spreading automatically among networked devices. While not always directly harmful, their rapid, uncontrolled spread consumes system and network resources, slowing or even completely halting systems in some cases.²⁷

Conclusion

The study's results show that digital transformation is a key factor in improving organizational performance and competitiveness in a fast-evolving business environment. Success in implementing digital projects is directly linked to the integration of digital maturity determinants, whether organizational, technical, or human.

At the organizational level, the study highlighted the importance of effective leadership, clear governance, and a supportive institutional culture fostering change and innovation. Technically, an advanced information infrastructure and modern technologies, such as artificial intelligence, big data, and cloud computing, were crucial for developing institutional readiness for digital transformation. On the human side, the study emphasized the necessity for employees to possess digital skills and adaptability to continuous changes in the digital work environment.

The study also revealed that Algerian institutions, despite national strategies for digital transformation, still face significant challenges that may hinder sustainable success, including limited infrastructure, weak digital competencies, resistance to change, and administrative bureaucracy, alongside strategic and operational risks like loss of competitiveness, missed investment opportunities, system downtime, or data loss due to cyberattacks.

These findings confirm that digital transformation is not merely the adoption of modern technologies but a comprehensive process requiring an integrated organizational environment and clear strategic vision to avoid failure and ensure desired benefits.

Based on these results, the study provides practical recommendations to enhance the success of digital transformation in Algerian institutions: strengthening digital infrastructure by developing networks, providing modern technical solutions, ensuring system maintenance and continuity, developing human capital through specialized training programs, encouraging acquisition of advanced digital skills, enhancing employee readiness for digital change, reinforcing digital governance mechanisms, establishing clear risk management policies, improving internal control to reduce administrative corruption and bureaucratic impact on digital projects, and promoting innovation and scientific

²⁵ Filali Asma, Business Continuity/Resumption Plan: An Imperative for Protecting Information Systems During Crises, Journal of Legal and Economic Research, Vol. 04, No. 01, University of Abu Bakr Belkaid – Tlemcen, Algeria, 2021, p. 91.

²⁶ Khalid bin Suleiman Al-Ghathbar, Engineer Mohamed bin Abdullah Al-Qahtani, Information Security in Simple Language, 1st Edition, King Fahd National Library, Riyadh, 2009, pp. 65–66.

²⁷ Kenneth Laudon & Jane Laudon, Management of Information Systems, 9th Edition, Pearson, France, 2006, p. 352.

research through partnerships among academic, governmental, and private institutions to develop innovative digital solutions addressing societal and economic needs.

For future research, the study opens the door to more detailed field studies assessing the effectiveness of digital transformation strategies across various institutions, analyzing the impact of digital maturity on institutional and economic performance, and expanding the study to develop advanced digital maturity measurement models linked to operational and strategic indicators to ensure performance improvement and sustainable digital policy guidance.

References

Books:

- [1] Jones Garrett, Charles Hill, *Strategic Management: An Integrated Approach*, Translated by Mohamed Rifai Rifa'i et al., 4th Edition, Mars Publishing and Distribution, Riyadh, 1999.
- [2] Khalid bin Suleiman Al-Ghathbar, Engineer Mohamed bin Abdullah Al-Qahtani, *Information Security in Simple Language*, 1st Edition, King Fahd National Library, Riyadh, 2009, pp. 65–66.
- [3] Mohamed Hassan Mandoura, *The Effect of Digital Transformation on Public Institutions' Transactions to Improve Institutional Services in Syria*, Syrian International Academy for Training and Development, Syria, 2021.
- [4] Mohamed Rafiq Al-Tayeb, *Introduction to Management: Fundamentals, Functions, Techniques: Management, Organization, and Enterprise*, Diwan University Press, Algeria, n.d.
- [5] Milad Miftah Al-Harrathi, *Local Administration Organizations and Their Relationship to Participatory Democracy*, 1st Edition, Dar Al-Kitab Al-Jami'i, UAE, 2015.

Journals / Scientific Articles:

- [1] Ilham Yahiaoui, Sara Qarabsi, *Digital Marketing: How to Implement Digital Transformation in Marketing*, *Journal of Economic Development*, Vol. 04, No. 02, 2019, p. 215.
- [2] Ben Amara Abdelhafid, *The Role of Administrative Leadership in Activating Labor Relations: A Field Study at SONELGAZ Unit in Tipaza*, *Journal of Studies in Humanities and Social Sciences*, Vol. 25, No. 01, University of Abu Al-Qasim Saadallah, Algeria, 2025.
- [3] Jamila Slaimi, *Digital Transformation between Necessity and Risks*, *Journal of Legal and Political Sciences*, Vol. 10, No. 02, 2019.
- [4] Hanich Salah Eddine, Al-Bay Mohamed, *Requirements for Building Capacities and Educational Skills in a Changing Digital Environment*, *Scientific Journal*, Vol. 05, University of Shahid Hamma Lakhdar, El Oued, Algeria, 2020.
- [5] Hayat Qamri, *Strategic Risks Threatening the Loss of Competitive Advantages and Mechanisms to Preserve Them*, *Journal of Industrial Economy (Khazartak)*, Vol. 09, No. 02, University of Batna 1, Algeria, 2019.
- [6] Saida Bourdima, *Quantitative Methods and Their Role in Investment Decision Making*, *Al-Haqiqa Journal*, No. 25, University of Adrar, Algeria, 2020.
- [7] Abdelilah Shouthri, Mariem Bounihi, *The Role of the National Strategy for Digital Transformation in Achieving the Dimensions of Sustainable Development in Algeria "Vision 2030"*, *Al-Maaref Journal*, Vol. 18, No. 01, University Center Mersli Abdallah – Tipaza, Economic Geography and International Trade Laboratory, Algeria, 2023.
- [8] Filali Asma, *Business Continuity/Resumption Plan: An Imperative for Protecting Information Systems During Crises*, *Journal of Legal and Economic Research*, Vol. 04, No. 01, University of Abu Bakr Belkaid – Tlemcen, Algeria, 2021.
- [9] Qarini Farès, *The Reality of ICT Infrastructure in Algeria*, *Eliza Journal of Research and Studies*, Vol. 04, No. 01, University of Algiers 3, Algeria, 2019.
- [10] Malal Mokhtaria, *Local Management Crisis and Its Impact on Local Development in Algeria*, *Sawt Al-Qanun Journal*, Vol. 08, No. 02, Management and Institutional Performance Evaluation Laboratory "Itmam", University of Saida, 2022.

- [11] Naima Khatir, The Reality of E-Government in Algeria "Between Ambition and Challenges" Journal of Forum for Economic Studies and Research, University of Algiers 03, Algeria, 2017.
- [12] Hiba Abdel Fattah, Developing Digital Skills of Public Administration Employees in Algeria as a Key Requirement for the Success of Digital Transformation and AI Integration, Scientific Journal, Administrative Development Laboratory for the Advancement of Algerian Economic Institutions, University of Ghardaia, Algeria, 2025.
- [13] Worad Fouad, Zawi Ahmed Sadiq, Behavioral and Digital Skills and Their Importance in Emerging New Business Models in Advanced Economies with Reference to Algeria: An Analytical Study, Dafater Boudex Journal, Vol. 12, No. 01, University of Ain Temouchent, Belhadj Bouchouib, Algeria, 2023.
- [14] Yousra Mohamed Hussein, Information Technology and Its Impact on Improving Hotel Service Performance, Journal of Management and Economics, Algeria, 2010