

Digital Management in the Era of Digital Transformation in Algeria: A Legal Approach

الإدارة الرقمية في عصر التحول الرقمي في الجزائر: مقاربة قانونية □

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Abstract:

This study aims to define the concept of digital management from the perspective of digital law, considering it as a modern approach in management science. Through this approach, the government seeks to develop the digital management of public and private institutions, enabling them to improve their performance-taking place in both public management and business administration. This is done by the proper and secure use of technologies in the era of the knowledge economy. Its content is also highlighted through reliance on the descriptive-analytical approach, examining the various legal challenges these institutions may face when using digital technologies, in light of the government's efforts to implement a national policy for digital transformation.

The results indicate that the implementation of digital management has been delayed in Algeria, both in terms of the development plans for institutions and the digital transformation strategies adopted by the government. This management approach cannot succeed without the participation of all stakeholders in the field. Furthermore, the increasing violations and breaches hindering the proper use of digital technology in these institutions require the intervention of digital law to protect them and help them keep pace with the new demands imposed by the knowledge economy.

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Keywords: Digital Management, Digital Law, Teleworking, Digital Transformation, Legal Approach

ملخص:

تهدف هذه الدراسة إلى تحديد مفهوم الإدارة الرقمية من زاوية ميدان القانون الرقمي، باعتبارها أسلوب حديث في علم الإدارة، تسعى من خلالها الحكومة لتطوير التسيير الرقمي للإدارات والمؤسسات الاقتصادية العمومية والخاصة، وتمكينها من تحسين أدائها والتكيف مع التغيرات المستمرة التي يشهدها عالم التسيير العمومي وإدارة الأعمال، وذلك بالاستخدام السليم والأمن لوسائل التكنولوجيات الحديثة للمعلوماتية. ومن خلال توظيف المنهج الوصفي التحليلي، حولنا إبراز مختلف التحديات والمخاطر القانونية التي قد تواجه هذه المؤسسات عند استخدامها في ميدان التسيير للتكنولوجيات الرقمية الحديثة، وسبل الحماية المقررة لها في ظل الجهود المبذولة من الدولة لاعتماد سياسة وطنية للتحول الرقمي.

تشير النتائج إلى أن تطبيق الإدارة الرقمية عرف تأخرًا في الجزائر في خطط تطوير المؤسسات واستراتيجية الحكومة للتحول الرقمي. ولا يمكن أن تتجح هذه الطريقة في الإدارة الرقمية دون مشاركة جميع الفاعلين في هذا المجال. كما أن الخروقات والتجاوزات المتزايدة التي تعرقل حسن توظيف التكنولوجيا الرقمية في هذه المؤسسات، تستدعي تدخل القانون الرقمي لحمايتها ومساعدتها على مواكبة المتطلبات الجديدة التي يفرضها عالم الاقتصاد المعرفي.

الكلمات المفتاحية: الإدارة الرقمية، القانون الرقمي، العمل عن بُعد،

□ التحول الرقمي، مقارنة قانونية.

Introduction □

At the beginning of this century, the digital revolution overturned all governance techniques and methods traditionally used by private sector managers and leaders of public institutions to manage their organizations. These actors have been compelled to adapt their strategies to the new technological demands of the market or public service.

Management itself, as a discipline, lies at the heart of this digital transformation, and as such, it is now required to undergo its own digitalization in order to keep pace with the ongoing shifts in its environment. Because of this profound change, a new concept has

emerged "Digital Management" which has disrupted traditional management methods in these legal entities by relying on digital technologies that enable managers to integrate them into all aspects of their organizational activities.

Furthermore, the emergence of the COVID-19 pandemic provided both public and private legal entities with a new opportunity to work and collaborate remotely, relying on digital tools and techniques, thus accelerating the evolution of digital management methods.

The primary challenge for management in the digital era in Algeria lies in the legal dimension, which is central to the global strategies of public authorities and institutions governed by public law (governmental bodies), as well as to the development plans of economic operators (businesses) involved in the digital transformation process. In this globalized and competitive world, economic enterprises and public organizations that provide services to citizens are being driven to incorporate new management methods into their strategies methods based on digital technologies in order to ensure their long-term sustainability. To achieve this, managers are integrating digital tools and systems, aligned with the latest techniques in digital management, into their development strategies.

Moreover, the rise of digitalization and the use of new work methods, such as teleworking, across all fields and sectors, is introducing new approaches to management. This is prompting companies and some public institutions to change their managerial cultures, enabling their managers to take greater initiative and enjoy more collaborative freedom across all levels of management. This shift helps organizations integrate into the national digital development strategy initiated by the public authorities.

To adapt to this environment, a new concept has emerged in the digital era: a team leadership technique that promotes collective intelligence and remote collaboration. This modern form of management utilizes digital tools to facilitate communication activities via the Internet. It presents specific characteristics that differ significantly from traditional management approaches, relying instead on new forms of interactivity and information exchange through secure networks.

The idea that motivated us to explore this topic is to shed light on digital management as a new form of governance in the age of digitalization and telework. At the same time, this leads us to define the scope of this new management model by setting the following research objectives:

-To seek a clear definition of Digital Management and explore how it can influence and be influenced by closely related disciplines;

Based on these objectives, the following research question arises:

To what extent does digital management meet the development needs of businesses and public service institutions, as well as the new challenges of the digital economy in Algeria?

To address and deconstruct this central issue, several sub-questions must be raised as follows:

-Do the new methods of digital management truly play a pivotal and influential role in the way legal organizations are managed?

-To what extent can the law respond to the new requirements of digital management?

-What challenges must Algerian authorities overcome to establish a favorable environment for digital management within public sector institutions in the era of digital transformation?

To answer these questions, we have adopted a methodological approach based on analyzing digital management through the lens of law, and assessing its impact on the way organizations are managed in the digital transformation era.

In this study, we aim to clarify the core research problem and provide answers to the above questions, drawing on the available documentation and according to a plan, we deemed appropriate, structured into two main chapters:

The first chapter will be devoted to the concept of digital management and its impact on business life. This chapter will be divided into two sections. The first section will focus on defining the notion of digital management and its relationship with related disciplines. The second section will illustrate the impact of digital management on business operations in the digital era.

The second chapter will explore the legal perspective on digital management and the digital transformation strategy in Algeria. This chapter will also be divided into two sections. The first section will examine how the law views and interacts with digital management. The second section will outline the reform process and digitalization efforts underway in Algeria.

Chapter One: The Concept of Digital Management and Its Impact on Business Life

In this chapter, we aim to provide a precise definition of digital management and explore the relationship between this emerging discipline and related fields, such as digital rights, digital law, and the law of new information and communication technologies (ICTs). We will then analyze the impact of this discipline on business life.

Section1: Definition of Digital Management and Its Relationship with Other Disciplines

In this section, we will first attempt to provide a clear definition of digital management, and then examine how it can influence, and in turn be influenced by, neighboring disciplines.

1. Definition of Digital Management:

With the advent of digital technologies, the traditional management model based on command and control has gradually become less relevant. Indeed, information systems, rather than creating opacity, began to offer greater transparency, making it more natural to reorganize the processes of productive organizations (Badinet, 2020, p. 19). Digital organizations have adopted agile methods that allow for better quality project management in an increasingly complex environment.

Digital management has emerged as the key to implementing this new digital organization. It has become the new governance model for businesses, breaking away from traditional management techniques. It relies on digital tools to improve business performance and enhance communication among team members. This new organizational management model is now essential, especially due to the rise of remote work, which has introduced new challenges for managers such as participatory and online collaborative management (Zara, 2020, p. 69).

Digital management can therefore be defined as the implementation of a work organization based on a set of techniques and methods using new functionalities offered by digital technology. It relies on various communication channels to facilitate online collaboration among work teams, using secure digital tools.

2. Digital Management and Related Legal Disciplines

Debates among experts about the relationship between digital management and other disciplines such as digital rights, digital law, ICT law, or digital transformation raise questions about the intersections between these fields and their influence on managerial practices. To clarify this, we will define each of these related disciplines and distinguish them from digital management (Marino, 2009, p. 57).

A- Digital Rights:

Digital rights primarily encompass the fundamental human rights in the digital era, particularly those concerning our access to and use of technology, as well as the protection of these rights in the online environment (Michaul, 2025, p.328). They mainly aim to protect privacy, which is threatened by the digital collection of personal data, and to safeguard intellectual property (Netter, 2017, p. 92). These digital rights mirror the offline human rights, but are adapted to the digital context.

Digital Rights Management (DRM) or technical protection measures are designed to control the use of digital works through encryption. These systems can apply to any digital support physical or broadcast and serve multiple functions:

- Restrict access to content based on geographic zones (e.g., DVD regions);
- Limit access to specific devices (e.g., smartphone or tablet versions);
- Restrict use to a specific manufacturer or seller (to block competition);
- Disable certain playback functions (e.g., fast-forwarding through advertisements);
- Digitally identify works and devices (to trace unauthorized copies and prevent system modification, such as blocking OS changes on devices) (Marino, op. cit., p. 29).

B- Digital Law:

Digital law emerged at the end of the 20th century to govern the practices and potential abuses associated with new digital technologies. It is a branch of law covering new technologies, including information law, e-commerce law, and telecommunications law (Etham, 2005, p.268).

This field regulates the legal and regulatory frameworks of digital platforms, addresses cyber fraud, protects personal data, and governs issues like cybersecurity, connection data, and artificial intelligence Bertrand, (Cassar,2020, p.96).Digital law also promotes the availability of public data (Open Data). The evolution of this law has significantly affected many professions, including those in the legal field, especially with the rise of LegalTech-technology companies offering legal services, which challenge traditional practices in favor of greater efficiency (Docquir, 2018, p. 47).

The legal field increasingly needs to establish trust with business managers and public institution leaders. For this relationship to thrive, LegalTech must align with digital progress, which can only happen through cooperation and shared ethical standards. Establishing a code of ethics inspired by traditional legal professions ensures compliance with laws and norms while building trust with legal actors (Forest, 2018, p. 36).

C. Law of New Information and Communication Technologies: (ICT Law)

ICT law covers a broad spectrum of legal areas related to digital technology. Its scope is not strictly defined, but it broadly includes information law, internet law, e-commerce law, and digital law.

This specialized legal field applies to all activities involving digital tools and contributes to the development of digital management and remote work. In practice, ICT law raises two major challenges:

1. The need to reassess the unique legal status of software and its societal impact in the context of the digital revolution;
2. The legal constraints that impact how digital works especially software are preserved and presented (Fillipi, 2007, p. 79).

ICT law is a cross-disciplinary field that intersects with numerous traditional legal domains, such as:

- Intellectual Property Law: including trademarks (e.g., domain name disputes), copyright (e.g., music on YouTube), and patents;
- Contract Law: covering IT contracts, web services, online sales, software licenses, and terms and conditions;
- Competition Law: addressing unfair competition, monopolistic practices (e.g., Google ad services or Microsoft OS dominance);
- Personality Rights Protection: including defamation or misuse of personal image online;
- Personal Data Protection: including GDPR compliance, cookie regulations, and global data protection measures;
- Criminal Law and Cybercrime: addressing digital offenses such as network intrusion, data theft, online defamation, identity theft, and hacking (Releveau, 2022, p. 68).

Section 2: The Impact of Digital Management on the Life of the Company

In this section, we will present the state of the art regarding the use of digital tools in managing company activities and their contribution to the company's performance. To do so, we will discuss the impact and contribution of digital management on corporate governance. Then, we will address the challenges faced by company managers in adapting this new mode of management to the demands and needs of the market.

1-Digital Management as a New Model of Corporate Governance :

Thanks to digital transformation, digital management has emerged. It is a discipline that integrates, into the way a company is managed, the use of digital tools, software, and systems in the daily functioning of the company at all levels. This offers the company interesting advantages.

With digital management, it is easier to highlight the company's interactions; this form of digital management of its activities gives the company a reputation and a personality that is more accessible online, which attracts greater public interest through digital channels (Prost, 2014, p.32). It is certain that when a company employs a digital marketing strategy, this will help strengthen its market position and consequently consolidate an advantageous positioning, bringing more visibility to its partners, which is key to continuing to succeed in the market.

New management methods imposed by the digital challenge are emerging daily. They create a collaborative dynamic between companies and their clients and enable a constructive dialogue among them and the information system actors. An orientation map is proposed to diagnose the relationship between processes and relational technologies within the organization (Chaubat, 2017, p.57). It allows the development of a roadmap essential for innovation and the transition to digital. This roadmap helps to establish jointly arbitrated and piloted action plans. To do so, it is necessary to ensure genuine information governance, involving multiple actors, multi-skilled and multi-disciplinary teams that successfully engage in the digital company.

2- Challenges for the Company Manager in the Digital Age:

The company manager is at the heart of digital transformation since they are considered the unifying element of the organization's strategy. They thus play a crucial role in implementing, adopting, and moderating the new practices that arise. A new era opens up for company managers, especially with the adoption of remote work during the health crisis. This situation gave rise to digital management as a technique for monitoring and evaluating the remote work of the organization's employees.

That is why the manager's old supervision methods must adapt to this new virtual relationship with workers and their supervisors, excluding factors such as time and distance (Konul, 2022, p.33). To succeed in this approach, the manager must maintain a good level of information sharing, monitoring, and appreciation of the remote work performed by employees far from the company's premises. To achieve these objectives, the manager must be supported by a competent team and equipped with tools suited to these new needs.

On the other hand, the contribution of digital technology to company management comes at a cost: it requires hiring experts in law and information and communication technologies, acquiring the right digital tools, and all of this can represent a significant budget for the company (Prost & Lekhal, 2014, p.48).

Chapter 2: Digital Management Viewed Through Law and the Strategy of Digital Transformation in Algeria

In this second chapter, we will discuss the legal responses to digital management practices according to the norms that oblige the State to legally protect technical measures safeguarding software works. However, legal practices tend to evolve alongside digital language. Then, we will present the role of digital management within the national digital transformation strategy.

Section1: The Legal Perspective on Digital Management and Remote Work

In this section, we will demonstrate the legal perception as a discipline that meets the expectations of digital management, particularly in preventing multiple risks and legal conflicts that arise before courts and concern management failures within companies. Then, we will analyze the legal status of remote work in Algeria and the legislator's stance on remote work relationships.

1- The Legal Perspective on Digital Management

The legal perception of digital management in the company must integrate two main dimensions:

- The first is upstream and relates to the role of the legal expert in diagnosing problems and breaches related to remote work relationships and the use of digital tools, anticipating failures in the collection and dissemination of digital data, and informing company managers about risks affecting system security (Geible 2021, p.79)
- The second dimension is downstream and concerns managing disputes related to digital matters. To this end, the law offers company leaders the opportunity to master the legal stakes of digital management, particularly the knowledge of laws and regulations related to personal data, electronic commerce, and open data (Gerorg, 2022, p.147).

Moreover, the legal departments in companies must master the special regimes applicable to this new management mode linked to various legal issues introduced by the digital revolution. For this, the legal expert must be open to the complexity of technological innovations cited in digital law or more precisely in the legal and regulatory framework relating to this discipline to energize and secure the company's digital activities (Bouzidi, 2025, p.38). The law can also be a tool for managing digital security within the company, since the introduction of new technologies generates risks that economic agents must also manage through legal means to avoid legal liability for their management actions (Ilan, 2001, p.26).

It is important to note that in Algeria, although numerous legislative or regulatory texts refer to the introduction of new technologies in various disciplines, none explicitly define digital management *stricto sensu*. Nevertheless, during the health crisis, the legislator clearly expressed a positive willingness to promote and encourage digital-based management techniques to foster economic development in both society and businesses.

Finally, the legal world must place its trust in company managers and public institution leaders in the digital age. To strengthen this trust, the Algerian legislator should pay more attention to this innovative and ever-changing digital management field. It should also develop a Charter of Ethics for the online legal market (Toulotte, 2006, p.92), similar to the ethical and deontological charters of certain legal professions, to reassure managers and leaders of companies and public institutions and establish a relationship of trust with the legal world (Walsh, 2022, p.42).

2- The Algerian Legal Perspective on Remote Work

During the Covid-19 pandemic, most companies and public institutions turned to remote work to ensure the smooth functioning and continuity of their activities. This health crisis even disrupted management methods in these organizations, giving rise to a new management approach favored by the pandemic (Caushi,2024,p.296). However, remote work is not yet regulated under Algerian law, as no legal provision clearly defines the notion or modalities of this type of work. The labor relations code, dating back to April 1990, refers to home-based work, which should not be confused with remote work (Baruch, 2002, p.61). It is Decree 97-474 of 1997, which establishes the specific regime of labor relations concerning home workers, that assimilates the home worker to an employee of the employer organization with all the rights and obligations known to them (Blood, 2021, p.169).

Nevertheless, this legal vacuum concerning remote work can be filled by amendments to employment contracts materialized by the free agreement of the parties involved in the work relationship regarding the arrangement of working time and work mode to meet health imperatives during the pandemic (sladek, 2022, p.93). To cope with the latter, the Algerian government promulgated regulatory texts encouraging remote work, notably Decree 20-69 of March 21, 2020, related to prevention and fight against the spread of Covid-19, which in Article 9 provides that public institutions and administrations can take any measures encouraging remote work in compliance with laws and regulations in force. However, the promulgation of this text was purely sanitary and intended to meet isolation conditions to prevent the spread of the Covid-19 virus (Rebki, 2008, p.64).

Section 2: The Reform Process to Promote Digitalization in Algeria

The prosperity of the national economy inevitably depends on the development of digital technology in all management methods and all commercial and service sectors. However, this approach must be carried out alongside the digital transformations occurring in various economic enterprises and public service institutions (Boumédiène, 2024, p.272). To achieve this goal, the Algerian government dedicated a national plan to digital development in 2022. Along similar lines, the Ministry of Higher Education and Scientific Research established an ambitious strategy for the use of digital technology in university institutions.

1- The National Strategy for Digital Transformation:

The creation of the Ministry of Digitization and Statistics in 2019 reflects the strong will of the Algerian state to make digital transformation the foundation of state service institutions as well as a profound reform of the state. To realize this ambitious vision, the Algerian government established in 2022 a comprehensive, multi-dimensional strategy, particularly concerning the organization of institutions, electronic certification, system certification, and technological monitoring (Benarab, 2022, p.119).

The guiding principles of this national strategy are largely linked to digital transformation and digital development across all administrations and institutions in economic and service sectors. It notably covers the following topics:

-Developing a national digital transformation strategy:

This strategy is inspired by the 25th commitment of the President of the Republic, aiming to generalize the use of information and communication technologies (ICT), especially in administrative institutions offering public services to citizens. The elements of this strategy were developed in consultation with all sectors directly or indirectly involved in the digital environment, with the goal of promoting digital citizenship (Khalan,2024, <http://elwatan.dz>) .

-Implementation of the national certification scheme:

This involves establishing electronic certification authorities, namely the electronic certification authority, the economic electronic certification authority, and the governmental electronic certification authority (Cresus,2025, <http://www.cresus.dz>).

-Strengthening digital security:

Digital security is a major challenge for the country's development. For this reason, the government emphasized inter-sectoral coordination, the development of digital systems, and the protection of citizens from threats related to the use of these systems.

-Improving the digital ecosystem:

This approach is part of the digital transformation process, primarily focused on developing a genuine economy that serves citizens, public institutions, and private enterprises (Kahlane, 2022, p.3).

2- The Higher Education Sector's Strategy for Digital Development:

In addition to the issues addressed by the government regarding the national digital transformation strategy, the Ministry of Higher Education and Scientific Research established a comprehensive strategy for digital use in the sector. This was done by developing a framework for the digital master plan (SND). This approach reflects several challenges, including:

- Training teachers to master new digital tools.
- Developing infrastructure related to digital technology.
- Digitizing online courses.
- Developing digital culture and digital ethics within the university community (Derrar,2023, [http://:www.elwatan.dz](http://www.elwatan.dz)).
- Improving administration to effectively manage activities and projects in university institutions (Zayoun, 2023, [http://:weforum.org/publication/](http://weforum.org/publication/)).

After launching the strategic plan for the development and adoption of information and communication technologies in 2008, the Ministry of Higher Education and Scientific Research began to reap the benefits of reforms initiated in the digitization of administrative and pedagogical management of university institutions. This followed notable progress in implementing some actions related to the use of online courses and distance learning. This vision of supporting digital transformation in teaching, scientific research, and governance of institutions under the sector experienced a qualitative leap starting in 2022.

CONCLUSION :

The concept of digital management represents a vast and promising field of current and future research, rich and interesting given the continuous emergence of technological innovations. Many research questions remain to be explored to enrich existing studies in this discipline and help companies and administrative institutions fully benefit from the opportunities offered by digital technology.

In conclusion, we note that digital management is considered a new collaborative work organization method that proved its effectiveness during the health crisis. It has now become a strategic element for the technological development of public and private organizations. For this new technique to develop further, managers in these organizations must increase their efforts to engage more in the digitization process of communication tools and telework to remain competitive in the digital age.

We also observe that today, the digital transformation of public institutions is beginning to take shape, thanks to the intersectorial strategies initiated by the Algerian government, which aims in the near future to consolidate digital management techniques in the service and higher education sectors. All this involves creating numerous databases or information systems in these institutions. However, it must also be acknowledged that this enthusiasm of public authorities for digital transformation must be accompanied by a shared will among all actors in public and private law to succeed in this challenge.

To address the various shortcomings mentioned in our subject and to respond to the questions raised in the introduction, we conclude with the following results:

- The concept of digital management continues to grow following the development of management techniques and remote work methods.
- The application of digital management has experienced significant delays in Algeria, whether in company development plans or in government-led digital transformation strategies.
- This digital mode of management cannot succeed without the involvement of all actors in this environment.
- The implementation of this management technique in practice cannot be realized without equipping public and private law organizations with appropriate technological tools and training the actors (managers, legal experts, etc.) who will be capable in the future of meeting the demands of digital technology and the transformations brought by digitalization.

Finally, we propose the following recommendations:

- At the legal level:
 - Create specific laws that clearly define the concepts of digital management, telework, personal data protection, and cybersecurity.
 - Adopt a clear and adaptive legal framework to regulate emerging technologies such as AI, block chain, cloud computing, and connected devices.
 - Establish a clear and comprehensive legal framework
 - Integrate international standards to harmonize local legislation with global norms.
 - Implement strict regulations on the collection, processing, and storage of data to ensure the confidentiality and security of information belonging to citizens and businesses.

-Introduce deterrent sanctions in case of violations of data protection rules.

- At the level of digital governance:

-Invest heavily in modernizing internet networks to ensure wide and reliable access across the country.

-Generalize the use of e-government platforms to simplify citizens' access to administrative services.

-Launch national awareness campaigns on the use of digital tools and cybersecurity best practices.

-Establish a favorable ecosystem for startups through incubators, funding opportunities, and tax incentives.

-Implement a national cybersecurity strategy, including the protection of critical infrastructure and the training of experts in digital security.

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