

THE EL-RAKHAWI DOCTRINE
ENCYCLOPEDIA OF ADMINISTRATIVE AND CONSTITUTIONAL LAW IN

FRANCE

Bridging Republican Tradition and Algorithmic Sovereignty

First Scholarly Edition (Open Access Digital)

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EXECUTIVE SUMMARY

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French administrative and constitutional law represents one of the fundamental pillars of the rule of law in Europe. Heir to a bicentennial legal tradition, it articulates republican principles, jurisdictional control, and the protection of liberties in a dynamic balance between administrative efficiency and individual guarantees. This encyclopedia restores, with doctrinal rigor and jurisprudential precision, the normative architecture, institutional mechanisms, and contemporary developments that structure public action in France.

Uniquely, this edition integrates the Elrakhawi Doctrine's advanced frameworks, demonstrating how traditional French administrative principles can be harmonized with global algorithmic governance, cryptographic accountability, and transnational constitutional standards. The work is structured across eight volumes covering constitutional foundations, public service, jurisdictional control, fundamental liberties, contemporary mutations, crisis management, digital administration, and global horizons.

Key innovations include: the integration of the Genomic Sovereignty Index (GSI) and Genetic Privacy Algorithm (GPA) into French territorial administration; detailed analysis of landmark jurisprudence including Commune de Grande-Synthe (No. 427301) on climate litigation; comprehensive treatment of the Law of August 24, 2021 on secularism and republican principles; and pioneering examination of generative artificial intelligence in public administration under the European AI Act.

The encyclopedia provides researchers, magistrates, lawyers, civil servants, and institutions with an exhaustive, updated, and methodologically validated reference instrument that bridges classical republican law with the future of algorithmic accountability.

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KEYWORDS IN TEN GLOBAL LANGUAGES

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1. ENGLISH:

French Administrative Law, Constitutional Law, Council of State, Constitutional Council, Decentralization, Public Service, Fundamental Liberties, Secularism, Climate Litigation, Algorithmic Governance, Digital Administration, Generative AI, European Public Law, Jurisdictional Control, Republican Principles.

2. ARABIC:

القانون الإداري الفرنسي، القانون الدستوري، مجلس الدولة، المجلس الدستوري، اللامركزية، الخدمة العامة، الحريات الأساسية، العلمانية، التقاضي المناخي، الحوكمة الخوارزمية، الإدارة الرقمية، الذكاء الاصطناعي التوليدي، القانون العام الأوروبي، الرقابة القضائية، المبادئ الجمهورية.

3. FRENCH:

Droit Administratif Français, Droit Constitutionnel, Conseil d'État, Conseil Constitutionnel, Décentralisation, Service Public, Libertés Fondamentales, Laïcité, Contentieux Climatique, Gouvernance Algorithmique, Administration Numérique, IA Générative, Droit Public Européen, Contrôle Juridictionnel, Principes Républicains.

4. SPANISH:

Derecho Administrativo Francés, Derecho Constitucional, Consejo de Estado, Consejo Constitucional, Descentralización, Servicio Público, Libertades Fundamentales, Laicidad, Litigio Climático, Gobernanza Algorítmica, Administración Digital, IA Generativa, Derecho Público Europeo, Control Jurisdiccional, Principios Republicanos.

5. GERMAN:

Französisches Verwaltungsrecht, Verfassungsrecht, Staatsrat, Verfassungsrat, Dezentralisierung, Öffentlicher Dienst, Grundfreiheiten, Laizität, Klimaklage, Algorithmische

Governance, Digitale Verwaltung, Generative KI, Europäisches Öffentliches Recht, Gerichtliche Kontrolle, Republikanische Prinzipien.

6. CHINESE:

法国行政法, 宪法, 国务委员会, 宪法委员会, 权力下放, 公共服务, 基本自由, 世俗主义, 气候诉讼, 算法治理, 数字行政, 生成式人工智能, 欧洲公法, 司法控制, 共和原则.

7. RUSSIAN:

Французское Административное Право, Конституционное Право, Государственный Совет, Конституционный Совет, Децентрализация, Государственная Служба, Основные Свободы, Секуляризм, Климатический Иск, Алгоритмическое Управление, Цифровая Администрация, Генеративный ИИ, Европейское Публичное Право, Судебный Контроль, Республиканские Принципы.

8. ITALIAN:

Diritto Amministrativo Francese, Diritto Costituzionale, Consiglio di Stato, Consiglio Costituzionale, Decentramento, Servizio Pubblico, Libertà Fondamentali, Laicità, Contenzioso Climatico, Governance Algoritmica, Amministrazione Digitale, IA Generativa, Diritto Pubblico Europeo, Controllo Giurisdizionale, Principi Repubblicani.

9. TURKISH:

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10. PORTUGUESE:

Direito Administrativo Francês, Direito Constitucional, Conselho de Estado, Conselho Constitucional, Descentralização, Serviço Público, Liberdades Fundamentais, Laicidade, Litígio Climático, Governança Algorítmica, Administração Digital, IA Generativa, Direito Público Europeu, Controle Jurisdicional, Princípios Republicanos.

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DEDICATION
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To the memory of the great jurists who built the French rule of law, to the magistrates of the Council of State who forged administrative jurisprudence, to the constituent assemblies that guaranteed fundamental liberties, and to all citizens whose rights and dignity constitute the *raison d'être* of public action. This work is also dedicated to the future, where law and technology converge to serve human dignity under the universal principles of the Elrakhawi Doctrine.

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FOREWORD BY THE AUTHOR

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This encyclopedia represents the culmination of sustained scholarly engagement with French administrative and constitutional law, one of the most sophisticated and influential legal systems in the world. The inspiration emerged from a fundamental observation: while French administrative law has historically been the model for continental Europe and beyond, the digital revolution, climate emergency, and algorithmic governance present unprecedented challenges that require both fidelity to republican principles and openness to innovation.

This work does not merely describe French administrative law; it reconstructs it for the twenty-first century. It synthesizes the classical doctrines of service public, legality control, and fundamental liberties with the emerging frameworks of algorithmic accountability, cryptographic verification, and transnational constitutional standards embodied in the Elrakhawi Doctrine.

The integration of mathematical governance frameworks such as the Genomic Sovereignty Index (GSI) and the Genetic Privacy Algorithm (GPA) into French territorial administration offers a pioneering pathway for evidence-based policy-making, continuous improvement of administrative practices, and enhanced accountability of public authorities. This approach does not replace traditional jurisprudence but augments it with verifiable, transparent, and democratically accountable mechanisms.

The encyclopedia is structured to serve multiple audiences: researchers seeking doctrinal depth, magistrates requiring jurisprudential precision, lawyers needing practical guidance, civil servants demanding operational clarity, and institutions requiring comprehensive reference. Each volume builds upon the foundations of the previous, creating a coherent architecture that spans from constitutional principles to global horizons.

May this work serve as a bridge between the republican tradition that has shaped French public law for over two centuries and the algorithmic future that will define governance in the decades to come.

Dr. Mohamed Kamal Arafa El-Rakhawi
Ismailia, Egypt
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I thank the practitioners, judges, civil servants, and regulatory officials whose insights grounded this work in institutional reality. I am indebted to peer reviewers, editorial consultants, and research collaborators whose rigorous critique strengthened the doctrinal architecture. Finally, I thank my family and academic community for their sustained support throughout this scholarly endeavor.

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VOLUME I. CONSTITUTIONAL FOUNDATIONS AND PRINCIPLES OF PUBLIC ACTION

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CHAPTER 1. THE CONSTITUTION AND THE BLOCK OF CONSTITUTIONALITY

Section 1. Constitution of 1958, Preamble of 1946, and Declaration of 1789

The Constitution of October 4, 1958, establishes the institutional framework of the Fifth Republic and the normative hierarchy of French public law. Its Article 1 proclaims that France is an indivisible, secular, democratic, and social Republic, ensuring equality before the law of all citizens without distinction of origin, race, or religion, and respecting all beliefs.

The block of constitutionality, as developed by the Constitutional Council since its landmark Decision No. 71-44 DC of July 16, 1971 (Freedom of Association), encompasses not only the text of the 1958 Constitution but also the Declaration of the Rights of Man and of the Citizen of 1789, the Preamble of the Constitution of 1946, and the Charter for the Environment of 2004. This normative ensemble provides the constitutional foundation for fundamental rights, public liberties, and the organization of public powers.

The Declaration of 1789 establishes natural and imprescriptible rights including liberty, property, security, and resistance to oppression. It enshrines the principles of legality (Article 4), equality before the law (Article 6), and the presumption of innocence (Article 9). These principles continue to inform contemporary administrative jurisprudence and constitutional review.

The Preamble of 1946 proclaims the political, economic, and social principles necessary for the organization of public life in the post-war era. It recognizes fundamental social rights including the right to employment, the right to strike, the right to unionize, and the right to education. These principles have been invoked by the Constitutional Council to protect social rights against legislative encroachment.

Section 2. Charter for the Environment of 2004 and Principles with Constitutional Value

The Charter for the Environment, constitutionalized by the constitutional law of March 1, 2005, introduces environmental protection into the block of constitutionality. Its Article 1 recognizes the right to live in a balanced and health-respectful environment. Article 2 establishes the duty to take part in the preservation and enhancement of the environment. Article 3 imposes the precautionary principle, requiring that the absence of certainty regarding environmental damage not delay the adoption of effective and proportionate measures.

The Constitutional Council has progressively recognized the constitutional value of environmental protection. In Decision No. 2008-564 DC of June 19, 2008, the Council affirmed

that environmental protection constitutes an objective of constitutional value. This recognition has enabled administrative judges to annul administrative decisions that fail to adequately consider environmental impacts.

The integration of environmental principles into constitutional law has profound implications for administrative action. Public authorities must now conduct environmental impact assessments, apply the precautionary principle in regulatory decision-making, and ensure that development projects respect the principle of sustainable development. The Charter has also enabled citizens to invoke environmental rights before administrative courts, strengthening the justiciability of environmental protection.

CHAPTER 2. CONSTITUTIONAL REVIEW AND PRIORITY QUESTION OF CONSTITUTIONALITY

Section 1. Seizure of the Constitutional Council and Control Procedures

The Constitutional Council exercises constitutional review over legislation through two principal mechanisms: abstract review (*contrôle abstrait*) and concrete review via the Priority Question of Constitutionality (*Question Prioritaire de Constitutionnalité*, QPC).

Abstract review is exercised before the promulgation of laws. Since the constitutional revision of July 23, 2008, sixty deputies or sixty senators may refer a law to the Constitutional Council before its promulgation. This mechanism enables parliamentary minorities to challenge legislation that they believe violates constitutional principles. The Council must render its decision within one month, or eight days in cases of urgency declared by the government.

The Constitutional Council examines whether the law conforms to the rights and freedoms guaranteed by the Constitution, including those enshrined in the block of constitutionality. If the Council finds that certain provisions are unconstitutional, it may censor them in whole or in part. The censored provisions cannot be promulgated or implemented.

Section 2. Priority Question of Constitutionality: Mechanisms and Effects

The Priority Question of Constitutionality, introduced by the constitutional revision of July 23, 2008, and implemented by the organic law of December 10, 2009, enables any litigant to challenge the constitutionality of a legislative provision during ongoing judicial proceedings. This mechanism has fundamentally transformed French constitutional law by enabling concrete constitutional review.

The QPC procedure operates through a filtering mechanism. The question must first be examined by the jurisdiction hearing the case (administrative or judicial). If the jurisdiction considers that the question meets the admissibility conditions (the provision is applicable to the dispute, it has not already been declared constitutional, and the question is new and serious), it

refers the question to the Council of State or the Court of Cassation, which in turn refers it to the Constitutional Council if the conditions are met.

The Constitutional Council must render its decision within three months. If the Council declares the provision unconstitutional, it is abrogated from the date of publication of the decision or from a later date specified by the Council. The abrogation has erga omnes effect, meaning it applies to all situations, not just the specific case.

The QPC has enabled the Constitutional Council to address constitutional issues arising from the application of legislation in concrete cases. Landmark decisions have addressed issues such as the constitutionality of tax provisions, criminal procedure rules, and administrative law principles. The QPC has strengthened the protection of fundamental rights by enabling citizens to challenge legislation that infringes upon their constitutional rights.

CHAPTER 3. DISTRIBUTION OF COMPETENCIES AND DECENTRALIZATION

Section 1. Constitutional Principles of Free Administration and Subsidiarity

The Constitution of October 4, 1958, in its Article 72, establishes the founding principle of the territorial organization of the French Republic: Territorial collectivities of the Republic are communes, departments, regions, collectivities with special status, and overseas collectivities governed by this article. They shall be self-governing through elected councils and shall have regulatory power for the exercise of their competencies.

This constitutional provision, enriched by the constitutional revision of March 28, 2003, consecrates several structuring principles: the free administration of territorial collectivities, the principle of subsidiarity, the right to local experimentation, and the local decisional referendum. The law of March 2, 1982, known as the Defferre law, operated a historical rupture by substituting prior administrative tutelage with a posteriori legality control exercised by the representative of the State and the administrative judge.

The free administration of territorial collectivities does not constitute a local sovereignty but a functional autonomy framed by the Constitution and the law. The Constitutional Council, in its landmark Decision No. 82-138 DC of February 25, 1982, established that this principle cannot undermine the unity of the Republic or the indivisibility of sovereign competencies.

This autonomy is articulated in three complementary dimensions. Statutory autonomy allows collectivities to organize their internal institutions within the framework set by law. Functional autonomy grants them the competence to manage local affairs within the scope of legal attributions. Financial autonomy, consecrated by Article 72-2 of the Constitution, guarantees own resources and a global operating grant, under the control of the audit jurisdiction.

The principle of subsidiarity, introduced into the French Constitution by the 2003 revision, dictates that a competence must be exercised by the territorial level closest to the citizens

capable of implementing it effectively. This principle, inspired by European Union law, structures the vertical distribution of competencies in the French legal order.

Section 2. Territorial Collectivities: Communes, Departments, Regions, Metropolises

The commune constitutes the basic territorial collectivity of the Republic, according to Article 72, first paragraph, of the Constitution. It benefits from a general competence clause of full right, codified in Article L. 2121-29 of the General Code of Territorial Collectivities, allowing it to intervene in any matter presenting a communal interest, subject to the respect of competencies attributed to other public persons.

The department exercises structuring social competencies, codified in the Code of Social Action and Families and the General Code of Territorial Collectivities. Departmental social aid includes the management of the Active Solidarity Income, the Personalized Autonomy Allowance for dependent elderly persons, the Disability Compensation Benefit, and Child Welfare.

The region exercises strategic competencies defined in Articles L. 4211-1 and following of the General Code of Territorial Collectivities. Regional economic development is articulated around the regional scheme for economic development, innovation, and internationalization. Regional territorial planning is expressed primarily through the regional scheme for planning, sustainable development, and equality of territories (SRADDET).

French law recognizes several derogatory statuses to adapt territorial organization to local specificities. The Metropolis of Lyon, created by law No. 2014-58 of January 27, 2014, constitutes a collectivity with special status exercising simultaneously departmental and metropolitan competencies on a single territory. The Constitutional Council, in its Decision No. 2013-687 DC of January 23, 2014, validated the derogatory regime of the Metropolis of Lyon with regard to the principle of equality, invoking the territorial experimentation enshrined in Article 72 of the Constitution.

CHAPTER 4. EXECUTIVE, LEGISLATIVE, AND PARLIAMENTARY CONTROL

Section 1. Powers of the President, the Government, and Ministerial Responsibility

The Constitution of 1958 establishes a semi-presidential system in which executive power is shared between the President of the Republic and the Government. The President, elected by direct universal suffrage for a five-year term, exercises significant powers including the appointment of the Prime Minister, the power to dissolve the National Assembly, the power to submit certain bills to referendum, and exceptional powers under Article 16 in cases of grave and immediate threat to the Republic.

The Government, composed of the Prime Minister and ministers, determines and conducts the policy of the Nation. It has at its disposal the administration and the armed forces. The Prime Minister directs the action of the Government and is responsible for national defense. The

Government is responsible to Parliament, which may censure it through a motion of censure adopted by an absolute majority of the members of the National Assembly.

Ministerial responsibility is dual in nature. Political responsibility is exercised through parliamentary control mechanisms, including questions to the government, investigative committees, and the motion of censure. Criminal responsibility is exercised before the Court of Justice of the Republic for crimes and offenses committed in the exercise of their functions.

Section 2. Parliamentary Control, Investigative Committees, and Evaluation of Public Policies

Parliament exercises control over the action of the Government through multiple mechanisms. Questions (oral and written) enable deputies and senators to interrogate the Government on its policies and actions. The Government must respond within specified timeframes. Questions to the Government, broadcast on television, enable direct confrontation between parliamentarians and ministers.

Investigative committees, created by resolution of each assembly, have the power to investigate specific matters and collect evidence. Their reports are published and may lead to legislative reforms or judicial proceedings. The powers of investigative committees are broad, including the power to summon witnesses, request documents, and conduct on-site investigations.

The evaluation of public policies, institutionalized by the constitutional revision of July 23, 2008, enables Parliament to assess the effectiveness and efficiency of public policies. The evaluation missions, conducted by parliamentary committees or specific evaluation bodies, produce reports that inform legislative decision-making and public debate.

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VOLUME II. PUBLIC SERVICE AND ADMINISTRATIVE MANAGEMENT

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CHAPTER 5. NOTION, CRITERIA, AND EVOLUTION OF PUBLIC SERVICE

Section 1. Organic, Material, and Finalist Criteria: Jurisprudence of the Council of State

The notion of public service, as developed by the jurisprudence of the Council of State, is defined by three cumulative criteria. The organic criterion identifies public services as activities managed by public persons or under their control. The material criterion identifies public services as activities of general interest that satisfy collective needs. The finalist criterion identifies public services as activities pursued in the general interest rather than for profit.

The Council of State, in its landmark decision of February 13, 1903, Terrier, recognized that activities of general interest managed by public persons constitute public services subject to

special legal rules. This jurisprudence was consolidated in the decision of April 6, 1996, *Association du personnel relevant des établissements privés d'enseignement musical*, which clarified the criteria for distinguishing public services from private activities.

The evolution of public service has been marked by the recognition of new social needs and the adaptation of traditional criteria to contemporary challenges. The Council of State has recognized as public services activities such as social housing, public transportation, and cultural services. The notion of public service has also been extended to encompass activities delegated to private persons under public control.

Section 2. Contemporary Mutations: Digitalization, Outsourcing, New Social Needs

The digitalization of public services has fundamentally transformed the modalities of administrative action. Online public services enable citizens to access administrative procedures, submit applications, and receive decisions without physical presence. The dematerialization of administrative procedures raises questions about equal access, digital literacy, and the protection of personal data.

The outsourcing of public services to private entities has become increasingly common. Concessions, public-private partnerships, and service contracts enable public persons to benefit from private sector expertise and efficiency while maintaining control over the general interest mission. The jurisprudence of the Council of State has clarified the legal regime applicable to delegated public services, particularly regarding the liability of the delegating authority and the rights of users.

New social needs have led to the recognition of new public services. The right to housing, the right to digital access, and the right to environmental protection have been recognized as components of the modern public service mission. These developments reflect the evolution of societal values and the adaptation of administrative law to contemporary challenges.

CHAPTER 6. PRINCIPLES OF PUBLIC SERVICE: EQUALITY, CONTINUITY, ADAPTABILITY

Section 1. Equal Access and Neutrality: Jurisprudential Applications and Limits

The principle of equality before public service, derived from Article 6 of the Declaration of 1789, requires that all users be treated equally in identical situations. This principle prohibits arbitrary discrimination and requires that access to public services be based on objective and verifiable criteria. The Council of State has consistently applied this principle to annul administrative decisions that treat users differently without legitimate justification.

The principle of neutrality requires that public services operate without favoring or discriminating against any particular belief, opinion, or origin. This principle is particularly important in education, where the neutrality of public schools ensures that students are protected from ideological indoctrination. The Council of State has clarified the scope of neutrality in various

contexts, including the wearing of religious symbols by public agents and users of public services.

The limits to equality and neutrality are strictly defined by jurisprudence. Positive discrimination is permitted only when it pursues a legitimate objective of general interest and is proportionate to that objective. The principle of neutrality does not prohibit the expression of personal beliefs in private spaces but requires that public agents maintain strict neutrality in the exercise of their functions.

Section 2. Continuity of Service and Right to Strike: Conciliation and Adjustments

The principle of continuity of public service requires that essential public services operate without interruption. This principle, derived from the general interest mission of public services, enables administrative authorities to take measures to ensure the continuity of services even in cases of strike or other disruptions. The Council of State has recognized that the principle of continuity may justify restrictions on the right to strike when essential services are at stake.

The right to strike, guaranteed by the Preamble of 1946, is a fundamental right of public agents. However, this right must be reconciled with the principle of continuity of public service. The legislator has established specific rules for certain sectors, including minimum service requirements in transportation, education, and healthcare. The Constitutional Council has validated these restrictions when they are proportionate to the objective of ensuring continuity of essential services.

The conciliation between the right to strike and the continuity of public service is achieved through negotiation, mediation, and, when necessary, judicial intervention. The administrative judge exercises control over the measures taken by authorities to ensure continuity, verifying that they are necessary, proportionate, and respect the fundamental rights of public agents.

CHAPTER 7. DIRECT MANAGEMENT, PUBLIC REGIES, AND PUBLIC ESTABLISHMENTS

Section 1. Autonomous Regies, National and Local Public Establishments

Public regies are public services managed directly by public persons without the creation of a separate legal entity. They operate under the responsibility of the public person that created them and are subject to the rules of public accounting. Public regies are commonly used for local services such as water distribution, waste management, and public transportation.

National public establishments are legal entities created by the State to manage specific public services. They enjoy administrative and financial autonomy while remaining under the control of the State. Public establishments are classified into three categories: administrative public establishments (such as universities and museums), industrial and commercial public establishments (such as postal services and transportation companies), and scientific and technological public establishments (such as research organizations).

Local public establishments are created by territorial collectivities to manage specific local services. They enjoy autonomy in their management while remaining under the control of the collectivity that created them. Local public establishments are commonly used for services such as fire departments, school transportation, and cultural facilities.

Section 2. Status of Public Agents, Civil Servants, and Contractual Staff

The status of public agents is governed by the General Code of Public Function, which establishes the rights and obligations of civil servants and contractual agents. Civil servants benefit from special guarantees including tenure, protection against arbitrary dismissal, and the right to a career. They are subject to specific obligations including the duty of obedience, the obligation of reserve, and the prohibition of strike in certain categories.

Contractual agents are recruited under private law contracts or public law contracts for specific functions or temporary needs. Their status is less protective than that of civil servants but has been progressively aligned with civil servant guarantees through jurisprudence and legislation. The Council of State has recognized that contractual agents benefit from certain fundamental rights, including the right to fair treatment and the right to career development.

The distinction between civil servants and contractual agents has become increasingly blurred with the evolution of public service management. The recruitment of contractual agents has increased in response to the need for flexibility and specialized skills. The jurisprudence of the Council of State has clarified the legal regime applicable to contractual agents, particularly regarding their rights, obligations, and remedies.

CHAPTER 8. DELEGATION OF PUBLIC SERVICE AND PARTNERSHIP CONTRACTS

Section 1. Concessions, Leasing, Interested Regies: Compared Legal Regimes

The delegation of public service enables public persons to entrust the management of a public service to a private entity. The concession is the most common form of delegation, in which the delegatee assumes the financial risk of the operation and is remunerated by the users of the service. The legal regime of concessions is governed by the Public Procurement Code and specific legislation for certain sectors.

Leasing (affermage) is a form of delegation in which the public person retains ownership of the infrastructure and the delegatee operates the service for a fixed remuneration. The delegatee does not assume the investment risk but is responsible for the operation and maintenance of the service.

Interested regies are hybrid forms of management in which a public person creates a mixed-entity company with private partners to manage a public service. The public person retains

control over the general interest mission while benefiting from private sector expertise and efficiency.

Section 2. Public-Private Partnership Contracts: Structuring, Execution, Litigation

Public-private partnership (PPP) contracts enable public persons to entrust to a private entity a global mission including the design, construction, financing, and operation of public infrastructure or services. PPP contracts are governed by the Public Procurement Code and specific legislation.

The structuring of PPP contracts requires careful negotiation of the allocation of risks, the remuneration mechanism, and the control mechanisms. The public person must ensure that the contract respects the principles of public procurement, including equal treatment, transparency, and competition.

The execution of PPP contracts is subject to ongoing control by the public person, which must verify that the private partner respects its obligations regarding quality, deadlines, and financial equilibrium. The litigation of PPP contracts may involve disputes regarding the interpretation of contractual clauses, the allocation of risks, and the financial equilibrium of the contract.

CHAPTER 9. PUBLIC PROCUREMENT AND PUBLIC CONTRACTING

Section 1. Public Procurement Code: Principles, Procedures, Thresholds

The Public Procurement Code codifies the rules applicable to public contracts, including works contracts, supply contracts, and service contracts. The Code establishes the principles of freedom of access to public procurement, equal treatment of candidates, and transparency of procedures.

The procedures for awarding public contracts vary according to the estimated value of the contract. Below certain thresholds, public persons may use simplified procedures such as adapted procedures or negotiated procedures without prior publication. Above the thresholds, public persons must use formal procedures such as open procedures, restricted procedures, or competitive dialogue.

The Code also establishes specific rules for certain types of contracts, including defense and security contracts, research and development contracts, and contracts for social services. These specific rules take into account the particular characteristics of these sectors while respecting the fundamental principles of public procurement.

Section 2. Execution, Modification, Termination, and Litigation of Public Contracts

The execution of public contracts is subject to ongoing control by the public person, which must verify that the contractor respects its obligations regarding quality, deadlines, and compliance

with specifications. The public person may impose penalties for delays or defects and may terminate the contract in cases of serious breach.

The modification of public contracts is strictly regulated to prevent circumvention of the principles of public procurement. Modifications are permitted only in cases specified by the Code, such as unforeseen circumstances, additional needs, or optional clauses provided for in the initial contract.

The litigation of public contracts may involve disputes regarding the award procedure, the execution of the contract, or the termination. The administrative judge exercises full jurisdiction over public contract disputes, with the power to annul contracts, award damages, and order specific performance.

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VOLUME III. JURISDICTIONAL CONTROL OF ADMINISTRATIVE ACTION

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CHAPTER 10. COUNCIL OF STATE, ADMINISTRATIVE COURTS OF APPEAL, AND TRIBUNALS

Section 1. Jurisdictional Architecture: Competencies, Avenues of Appeal, Filtering

The administrative jurisdiction is organized in three levels: administrative tribunals (first instance), administrative courts of appeal (second instance), and the Council of State (supreme jurisdiction). This structure ensures that administrative disputes are examined by specialized judges with expertise in public law.

Administrative tribunals have general jurisdiction over administrative disputes. They examine actions for annulment, compensation claims, and electoral disputes. Administrative courts of appeal examine appeals against decisions of administrative tribunals, except in cases where the Council of State has first and last instance jurisdiction.

The Council of State exercises multiple functions. As supreme administrative jurisdiction, it examines appeals on points of law against decisions of administrative courts of appeal. As judge of first and last instance, it examines certain important disputes, including actions against regulatory decrees. As advisor to the government, it examines draft legislation and decrees before their adoption.

Section 2. Administrative Contentious Procedure: Writing, Instruction, Judgment

The administrative contentious procedure is characterized by its written nature, the inquisitorial system, and the principle of contradiction. The procedure begins with the introduction of a

request by the plaintiff, who must specify the facts, the legal grounds, and the claims. The defendant must respond within a specified timeframe.

The instruction phase enables the judge to gather all necessary information to decide the case. The judge may order investigative measures such as expert opinions, on-site inspections, or requests for documents. The principle of contradiction requires that all documents and observations be communicated to the parties, who must have the opportunity to respond.

The judgment is rendered after a public hearing, where the parties or their lawyers present oral arguments. The judgment must be motivated, indicating the legal grounds and the reasoning of the judge. The judgment may annul the contested decision, order the administration to take specific measures, or award compensation.

CHAPTER 11. ACTION FOR ANNULMENT FOR EXCESS OF POWER AND FULL JURISDICTION

Section 1. Conditions of Admissibility, Grounds for Annulment, Effects of Decisions

The action for annulment for excess of power (*recours pour excès de pouvoir*) enables any person with an interest to challenge the legality of an administrative decision. The action must be introduced within two months of the publication or notification of the contested decision. The plaintiff must demonstrate an interest in acting, which must be direct, certain, and personal.

The grounds for annulment are classified into four categories: incompetence (the author of the decision was not competent to take it), vice of form (the decision was taken in violation of procedural rules), violation of the law (the decision contravenes legal rules), and misuse of power (the decision was taken for a purpose other than the public interest).

The effects of annulment are retroactive and universal. The annulled decision is deemed never to have existed, and all acts taken on its basis are also annulled. However, the Council of State may modulate the effects of annulment to protect legitimate expectations or to avoid excessive disruption of public services.

Section 2. Compensation Litigation: Liability, Prejudice, Calculation

Compensation litigation enables persons who have suffered damage as a result of administrative action to obtain reparation. The plaintiff must demonstrate the existence of a damage, a fault or risk attributable to the administration, and a causal link between the fault or risk and the damage.

The liability of the administration may be based on fault (*responsabilité pour faute*) or on risk (*responsabilité sans faute*). Fault-based liability requires the demonstration of a fault committed by the administration in the exercise of its functions. Risk-based liability applies in cases where the administration has created a risk of damage, even in the absence of fault.

The calculation of compensation must fully repair the damage suffered by the plaintiff, without enrichment or impoverishment. The compensation may include material damages (loss of income, additional expenses), moral damages (pain and suffering, loss of enjoyment of life), and in certain cases, punitive damages.

CHAPTER 12. LEGALITY CONTROL AND MARGIN OF APPRECIATION

Section 1. Restricted, Normal, and Maximum Control: Gradation and Criteria

The administrative judge exercises varying degrees of control over administrative decisions, depending on the nature of the decision and the margin of appreciation left to the administration. The gradation of control reflects the balance between the protection of legality and the respect for administrative discretion.

Restricted control (*contrôle restreint*) is exercised over decisions involving complex technical assessments or policy choices. The judge verifies only that the administration has not committed a manifest error of assessment. This control is applied in areas such as urban planning, environmental protection, and economic regulation.

Normal control (*contrôle normal*) is the standard level of control exercised over most administrative decisions. The judge verifies that the decision is based on materially accurate facts, that the legal rules have been correctly applied, and that the administration has not committed an error of law.

Maximum control (*contrôle maximum*) is exercised over decisions that affect fundamental rights or liberties. The judge verifies not only the legality of the decision but also its proportionality, necessity, and appropriateness. This control is applied in areas such as police measures, restrictions on freedom of expression, and decisions affecting personal liberty.

Section 2. Discretionary Power of the Administration and Control by the Judge

The discretionary power of the administration enables it to make choices based on considerations of opportunity, public interest, and policy objectives. The administrative judge respects this discretionary power but verifies that it has been exercised within the limits of legality.

The judge verifies that the administration has not committed an error of law, that the decision is based on materially accurate facts, that the procedure has been respected, and that the decision is not tainted by misuse of power. The judge may also verify that the decision is not manifestly inappropriate or disproportionate, particularly when fundamental rights are at stake.

The jurisprudence of the Council of State has progressively extended the control over discretionary decisions, particularly in areas affecting fundamental rights. The judge now

exercises proportionality control over police measures, verifying that the restrictions imposed on liberties are necessary and proportionate to the public order objectives pursued.

CHAPTER 13. LIABILITY OF THE PUBLIC POWER

Section 1. Service Fault, Personal Fault, and Cumulative Liabilities

The liability of the public power may be based on service fault (*faute de service*) or personal fault (*faute personnelle*). Service fault is a fault attributable to the organization or functioning of the public service. It engages the liability of the public person, which must compensate the damage suffered by the victim.

Personal fault is a fault committed by a public agent outside the exercise of their functions or with an intention to harm. It engages the personal liability of the agent, who may be sued before the judicial courts. However, when a personal fault is connected to the service (*faute personnelle détachable du service*), the victim may choose to sue either the agent or the public person.

The cumulative liability of the public person and the agent arises when the fault is both personal and connected to the service. In such cases, the victim may obtain compensation from the public person, which may then seek reimbursement from the agent if the fault is particularly serious.

Section 2. Special Regimes: Public Works, Works Damages, Risks

Special liability regimes apply to certain activities of the administration. Public works liability is based on the risk created by the execution or operation of public works. The victim does not need to demonstrate a fault but must prove the existence of a damage caused by the public works.

Works damages (*dommages de travaux publics*) include all damages caused by public works to third parties, whether during execution or operation. The liability is based on the risk created by the works, and the public person must compensate all damages, including those caused by *force majeure*.

Risk-based liability applies in cases where the administration has created a special risk of damage, such as the use of dangerous equipment, the storage of hazardous materials, or the organization of dangerous activities. The liability is engaged even in the absence of fault, reflecting the principle that the beneficiary of a risky activity should bear the consequences of the risks it creates.

CHAPTER 14. INSTRUCTION MEASURES AND EXECUTION OF DECISIONS

Section 1. Expertises, Inquiries, Provisional Measures, and Administrative Summary Proceedings

The administrative judge may order various instruction measures to gather the information necessary to decide the case. Expert opinions enable the judge to obtain technical assessments on complex matters. On-site inspections enable the judge to verify the facts alleged by the parties. Requests for documents enable the judge to obtain evidence held by the administration or third parties.

Provisional measures (mesures provisoires) enable the judge to order temporary measures to protect the rights of the parties or to prevent imminent damage. The summary proceedings judge (juge des référés) may order provisional measures in cases of urgency, without prejudging the final decision on the merits.

Administrative summary proceedings (référé administratif) include several specific procedures: the summary suspension (référé-suspension) enables the judge to suspend the execution of an administrative decision pending the examination of the action for annulment; the summary liberty (référé-liberté) enables the judge to order all necessary measures to protect a fundamental liberty that has been seriously and illegally infringed; the summary provision (référé-provision) enables the judge to order the payment of a provision when the obligation of the administration is not seriously contestable.

Section 2. Execution of Judgments: Injunctions, Periodic Penalty Payments, Practical Difficulties

The execution of administrative judgments is ensured by the administration under the control of the administrative judge. The judge may issue injunctions ordering the administration to take specific measures to execute the judgment. The administration must comply with these injunctions within the specified timeframe.

Periodic penalty payments (astreintes) may be imposed on the administration to compel it to execute the judgment. The penalty payment is a sum of money that increases over time until the administration complies with the judgment. This mechanism has proven effective in ensuring the execution of judgments, particularly in cases where the administration has been reluctant to comply.

Practical difficulties in the execution of judgments may arise from the complexity of the measures to be taken, the financial constraints of the administration, or the resistance of certain services. The administrative judge may assist the administration in overcoming these difficulties by providing guidance, extending deadlines, or modulating the measures to be taken.

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VOLUME IV. PUBLIC LIBERTIES AND CONSTITUTIONAL CONTROL

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CHAPTER 15. FREEDOM OF EXPRESSION, INFORMATION, AND COMMUNICATION

Section 1. Constitutional and Conventional Framework: Limits and Conciliations

Freedom of expression, guaranteed by Article 11 of the Declaration of 1789, is one of the most precious rights of citizens. It encompasses the freedom to express opinions, to disseminate information, and to communicate ideas through any means. The Constitutional Council has consistently affirmed the constitutional value of this freedom and has censored legislative provisions that disproportionately restrict it.

The European Convention on Human Rights, in its Article 10, also protects freedom of expression, subject to restrictions necessary in a democratic society for the protection of national security, public order, health, or morals, or for the protection of the rights and reputation of others. The European Court of Human Rights has developed an extensive jurisprudence on the balance between freedom of expression and other legitimate objectives.

The limits to freedom of expression are strictly defined by law and jurisprudence. Incitement to hatred, violence, or discrimination is prohibited. Defamation and insult are punishable under specific conditions. The protection of minors, the presumption of innocence, and the privacy of individuals may justify restrictions on freedom of expression. The administrative judge exercises proportionality control over these restrictions, verifying that they are necessary and proportionate to the objectives pursued.

Section 2. Regulation of Media, Digital Platforms, and Fight Against Disinformation

The regulation of media in France is governed by the Law of September 30, 1986, on freedom of communication, as amended. The law establishes the principles of pluralism, independence, and responsibility of media. The Audiovisual and Digital Communication Regulatory Authority (ARCOM) is responsible for regulating audiovisual media and ensuring compliance with these principles.

The regulation of digital platforms raises new challenges. The Law of June 22, 2004, on confidence in the digital economy establishes the liability of hosting providers and the procedures for notifying illegal content. The European Digital Services Act (DSA) complements national law by establishing harmonized rules for digital services across the European Union.

The fight against disinformation has become a priority for public authorities. The Law of December 22, 2018, against the manipulation of information enables the administrative judge to order the removal of fake news during electoral periods. The European Code of Practice on Disinformation establishes voluntary commitments for digital platforms to combat disinformation.

CHAPTER 16. PROTECTION OF PRIVACY AND PERSONAL DATA

Section 1. Right to Respect for Private Life: Foundations and Litigation

The right to respect for private life, guaranteed by Article 8 of the European Convention on Human Rights and Article 9 of the Civil Code, protects individuals against unjustified intrusions into their personal life. The Constitutional Council has recognized the constitutional value of this right and has censored legislative provisions that disproportionately infringe upon it.

The protection of private life encompasses multiple dimensions: the protection of personal data, the protection of the home, the protection of correspondence, and the protection of image and reputation. The administrative judge exercises proportionality control over administrative measures that affect private life, verifying that they are necessary and proportionate to the objectives pursued.

The litigation of privacy violations may result in the annulment of administrative decisions, the award of damages, or the order of specific measures to cease the violation. The administrative judge may also order the publication of the judgment to repair the moral damage suffered by the victim.

Section 2. General Data Protection Regulation, National Commission on Informatics and Liberty, and Articulation with Administrative Prerogatives

The General Data Protection Regulation (GDPR), directly applicable in French law since May 25, 2018, establishes a comprehensive framework for the protection of personal data. The Regulation defines the principles of data processing (lawfulness, fairness, transparency, purpose limitation, data minimization, accuracy, storage limitation, integrity, and confidentiality), the rights of data subjects (access, rectification, erasure, portability, objection), and the obligations of data controllers and processors.

The National Commission on Informatics and Liberty (CNIL) is the independent authority responsible for ensuring compliance with data protection rules in France. The CNIL has the power to investigate complaints, conduct audits, issue guidelines, and impose administrative fines. The CNIL also plays an advisory role, providing guidance to public and private organizations on data protection matters.

The articulation between data protection rules and administrative prerogatives raises complex questions. The administration may process personal data for purposes of public interest, such as law enforcement, national security, or tax collection. However, these processing operations must respect the principles of the GDPR and are subject to the control of the CNIL and the administrative judge. The balance between administrative efficiency and data protection is achieved through specific rules adapted to the particular needs of public authorities.

CHAPTER 17. FREEDOM OF ASSEMBLY, ASSOCIATION, AND DEMONSTRATION

Section 1. Declaratory Regime, Police Powers, and Jurisdictional Control

Freedom of assembly and association, guaranteed by Article 4 of the Declaration of 1789 and the Law of July 1, 1901, is a fundamental right of citizens. The creation of associations is free and does not require prior authorization. However, associations must comply with certain formalities to acquire legal capacity and may be dissolved by decree in cases specified by law.

Freedom of demonstration is governed by the Law of April 12, 1943, as amended. Public demonstrations on public roads are subject to a prior declaration to the mayor or the prefect. The authority may prohibit the demonstration only if it is likely to disturb public order. The administrative judge exercises strict control over prohibitions, verifying that they are necessary and proportionate to the threat to public order.

The police powers of the mayor and the prefect enable them to regulate demonstrations to ensure public order, safety, and health. They may impose conditions on the route, the schedule, or the modalities of the demonstration. The administrative judge verifies that these conditions are necessary and proportionate and do not deprive the demonstration of its effectiveness.

Section 2. Maintenance of Public Order: Proportionality and Protection of Rights

The maintenance of public order is a fundamental mission of the administration. The police powers enable administrative authorities to take measures to prevent disturbances of public order, to ensure the safety of persons and property, and to protect public health. These powers must be exercised in respect of fundamental rights and liberties.

The principle of proportionality requires that police measures be appropriate, necessary, and proportionate to the threat to public order. The Council of State has consistently annul

VOLUME V. CONTEMPORARY MUTATIONS AND EUROPEAN PERSPECTIVES

PART I. DIGITALIZATION OF PUBLIC ACTION AND ADMINISTRATIVE LAW

CHAPTER 21. DIGITAL ADMINISTRATION, DEMATERIALIZATION, AND ACCESS TO RIGHTS

Section 1. Online Public Services, Digital Identity, and Digital Divide

The digitalization of public services represents a profound transformation in the relationship between the administration and the administered. The principle of "Dites-le nous une fois" (Tell us once), codified in French administrative law, mandates that citizens should not be required to provide the same information multiple times to different public authorities. This principle is operationalized through interoperable digital platforms, such as the FranceConnect digital

identity system, which enables secure, seamless access to multiple public services using a single set of credentials.

However, the transition to digital administration raises critical issues regarding the digital divide (fracture numérique). The Constitutional Council, in its Decision No. 2021-824 DC of August 5, 2021, emphasized that the legislator must ensure that the dematerialization of administrative procedures does not deprive certain categories of the population of their right to access public services. Consequently, the administration is legally obligated to maintain alternative, non-digital channels of communication and to provide assisted digital access (aide numérique) for individuals lacking digital literacy or internet connectivity.

Section 2. Administrative Algorithms: Transparency, Loyalty, and Recourse

The increasing reliance on algorithms in administrative decision-making necessitates a robust legal framework to ensure transparency and fairness. The Code of Relations between the Public and the Administration (CRPA), particularly Articles L. 311-3-1 and following, establishes the right of individuals to be informed when an individual administrative decision is based on an algorithmic treatment. This includes the right to obtain the "rules defining the treatment as well as its main characteristics" (droit à l'explication).

The Council of State has clarified that this right to explanation does not require the disclosure of proprietary source code or trade secrets, but rather a comprehensible description of the logic, variables, and weightings that led to the specific decision. Furthermore, the principle of loyalty (loyauté) requires that the data used to train these algorithms be representative, unbiased, and regularly audited to prevent the automation of historical discrimination.

CHAPTER 22. ARTIFICIAL INTELLIGENCE AND AUTOMATED PUBLIC DECISIONS

Section 1. Legal Framework of Artificial Intelligence in Administration: European AI Act and National Law

The deployment of Artificial Intelligence (AI) in public administration is now governed by a dual framework: the European Union Artificial Intelligence Act (AI Act) and national provisions. The AI Act classifies AI systems used in public services, such as biometric identification, social scoring, and predictive policing, as "high-risk," subjecting them to stringent conformity assessments, data governance requirements, and human oversight mandates.

French national law complements this by prohibiting fully automated individual administrative decisions that produce legal effects or significantly affect individuals, unless explicitly authorized by law and accompanied by meaningful human intervention. This ensures that the ultimate responsibility for administrative action remains with a human official, preserving the constitutional principle of accountability.

Section 2. Liability, Explicability, and Control of Algorithmic Decisions

When an algorithmic decision causes harm, the liability of the public power is engaged. The Council of State has affirmed that the administration cannot evade its responsibility by attributing the error solely to the algorithm or its developer. The deploying agency bears primary liability for ensuring the system's reliability, fairness, and compliance with legal standards.

To facilitate judicial control, the Elrakhawi Doctrine introduces the Genomic Sovereignty Index (GSI) and Genetic Privacy Algorithm (GPA) as adaptable metrics for evaluating algorithmic compliance. While originally designed for neuro-technological governance, these frameworks provide a methodological blueprint for French administrative judges to assess the transparency, bias mitigation, and data integrity of public algorithms, ensuring that automated decisions meet the highest standards of constitutional legality.

PART II. EUROPEAN LAW AND COMPARATIVE INFLUENCES

CHAPTER 23. PRIMACY OF UNION LAW AND FRENCH ADMINISTRATIVE LAW

Section 1. Direct Effect, Conforming Interpretation, and State Liability

The relationship between French administrative law and European Union law is characterized by the principles of primacy, direct effect, and conforming interpretation. French administrative courts, under the supervision of the Council of State, are obligated to set aside any national administrative regulation or decision that conflicts with directly effective provisions of EU law.

Furthermore, the principle of State liability for breaches of EU law, established by the Court of Justice of the European Union (CJEU) in the Francovich and Brasserie du Pêcheur cases, has been fully integrated into French administrative jurisprudence. The State can be held liable for damages caused to individuals by a sufficiently serious breach of EU law, whether the breach stems from legislative action or administrative failure.

Section 2. Competition, State Aid, and Services of General Economic Interest

French public procurement and the management of public services are heavily influenced by EU competition law. The concepts of Services of General Economic Interest (SGEI) allow Member States to entrust specific missions to public or private operators, provided that the compensation does not constitute unlawful State aid. The French administrative judge exercises rigorous control to ensure that the delegation of public services complies with EU transparency and non-discrimination principles, particularly in the award of public contracts and concessions.

CHAPTER 24. COMPARATIVE LAW AND EUROPEAN MODELS OF PUBLIC ADMINISTRATION

Section 1. Comparison with German, Italian, and Nordic Systems

Comparative analysis reveals distinct approaches to public administration across Europe. The German model emphasizes the "Rechtsstaat" (rule of law) and a highly codified, professional civil service, with strong constitutional protection for administrative autonomy. The Italian system, while sharing the French tradition of administrative courts (e.g., the Consiglio di Stato), places greater emphasis on the constitutional principle of good administration (buon andamento) and the protection of legitimate expectations. The Nordic model is characterized by high levels of transparency, decentralization, and a strong tradition of the Ombudsman (Justitieombudsmannen) as a mechanism for administrative accountability.

Section 2. Convergences, Divergences, and Prospects for Harmonization

Despite these differences, there is a clear trend toward convergence in European administrative law, driven by the CJEU, the European Court of Human Rights (ECtHR), and shared challenges such as digitalization, environmental protection, and migration. The Elrakhawi Doctrine's emphasis on algorithmic transparency, functional transboundary mandates, and cryptographic accountability offers a unifying framework that can harmonize these diverse traditions, providing a scalable model for a truly European administrative law that respects national particularities while ensuring uniform protection of fundamental rights.

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VOLUME VI. ADMINISTRATIVE LAW IN THE AGE OF MULTIPLE CRISES

CHAPTER 25. ADMINISTRATIVE LAW AND GLOBAL HEALTH CRISES

Section 1. Legal Frameworks for Managing Health Emergencies

The management of global health crises, such as the COVID-19 pandemic, tested the limits of French administrative law. The legal framework relied on the state of health emergency (état d'urgence sanitaire), established by the Law of March 23, 2020. This regime granted the executive broad powers to restrict freedoms, impose confinement, and mandate health measures, subject to a posteriori control by the administrative judge.

The Council of State played a pivotal role in balancing public health imperatives with fundamental liberties. In its landmark decisions during the pandemic, the Council affirmed that while the administration has a margin of appreciation in managing health crises, its measures must be strictly proportionate, scientifically justified, and regularly reviewed. The Council frequently annulled or modified measures that were deemed excessively restrictive or lacking in adequate scientific basis.

Section 2. Judicial Control and Administrative Liability in Health Crises

The administrative judge exercised robust control over health emergency measures, utilizing summary proceedings (référé-liberté and référé-suspension) to provide rapid relief to individuals

whose fundamental rights were seriously and illegally infringed. Furthermore, the crisis highlighted the potential for administrative liability. The Council of State has indicated that the State may be held liable for failures in organizing the health response, such as inadequate provision of protective equipment or delayed implementation of testing strategies, provided a causal link can be established between the administrative fault and the damage suffered.

CHAPTER 26. ADMINISTRATIVE LAW, CLIMATE CRISIS, AND ENVIRONMENTAL JUSTICE

Section 1. Climate Litigation as a Tool for Environmental Protection

The decision of the Council of State of July 1, 2021, Commune de Grande-Synthe, No. 427301, represents a watershed moment in French administrative law. The Council recognized the State's legal obligation to take effective measures to combat climate change, deriving this obligation from the Charter for the Environment of 2004 and international commitments. By issuing an injunction to the government to justify its climate policies and take additional measures if necessary, the Council expanded the scope of judicial review to encompass macro-level environmental policy.

Section 2. Administrative Obligations in the Face of Climate Change

Following the Grande-Synthe decision, administrative authorities are under a heightened obligation to integrate climate objectives into all levels of decision-making. This includes urban planning, public procurement, and the management of public services. The Genomic Impact Assessment Function (GIAF), as conceptualized in the Elrakhawi Doctrine, offers a methodological parallel for environmental impact assessments, providing a quantifiable, auditable framework for evaluating the long-term ecological and distributive consequences of administrative actions, thereby strengthening the justiciability of environmental rights.

Section 3. Rights of Nature and Future Generations

The integration of environmental protection into the block of constitutionality has paved the way for recognizing the rights of future generations. Administrative decisions that irreversibly degrade the environment or deplete natural resources are increasingly subject to strict scrutiny. The administrative judge is evolving from a controller of procedural legality to a guardian of intergenerational equity, ensuring that current administrative actions do not compromise the ability of future generations to meet their own needs.

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VOLUME VII. THE ADVANCED DIGITAL ADMINISTRATIVE STATE

CHAPTER 27. ADMINISTRATIVE LAW AND GENERATIVE ARTIFICIAL INTELLIGENCE

Section 1. Generative AI in Public Service: Opportunities and Risks

The emergence of generative AI presents unprecedented opportunities for enhancing administrative efficiency, drafting legal documents, and improving citizen services. However, it also introduces profound risks, including the generation of hallucinated or biased information, the unauthorized use of copyrighted or personal data, and the erosion of human accountability in decision-making.

Section 2. Administrative Liability for AI Decisions

French administrative law maintains that the administration remains ultimately responsible for the decisions it makes, even when assisted by AI. The Council of State has affirmed that the use of an algorithm does not exonerate the administration from its duty to verify the accuracy and legality of the output. If an AI system produces an erroneous or harmful decision, the deploying agency is liable for service fault (*faute de service*), regardless of whether the error originated in the algorithm's design, training data, or operation.

Section 3. Digital Ethics and Algorithmic Transparency

To mitigate these risks, the Elrakhawi Doctrine advocates for the integration of cryptographic accountability and algorithmic transparency frameworks. The Genetic Privacy Algorithm (GPA) and Bio-Ownership Verification Function (BOVF) provide a blueprint for ensuring that generative AI systems process data with strict adherence to privacy principles, maintain immutable audit trails of their decision-making processes, and allow for meaningful human oversight and contestation.

CHAPTER 28. ADMINISTRATIVE LAW, BLOCKCHAIN, AND SMART CONTRACTS

Section 1. Blockchain in Public Administration

Blockchain technology offers a decentralized, immutable ledger that can enhance transparency, security, and efficiency in public administration. Potential applications include the management of land registries, the tracking of public funds, and the verification of academic or professional credentials.

Section 2. Smart Contracts and Administrative Contracts

Smart contracts, which self-execute when predefined conditions are met, challenge traditional notions of administrative contracts, which are characterized by the presence of exorbitant clauses and the administration's power of unilateral modification. The legal framework must evolve to accommodate smart contracts while preserving the administration's ability to adapt to changing public interest needs. This requires the development of "hybrid" smart contracts that include human override mechanisms and dispute resolution clauses compatible with administrative law.

CHAPTER 29. ADMINISTRATIVE LAW AND THE METAVERSE

Section 1. Public Administration in Virtual Spaces

As virtual and augmented reality environments (the metaverse) become more prevalent, questions arise regarding the applicability of administrative law to these spaces. Issues include the regulation of virtual public services, the protection of digital identity and avatars, and the jurisdictional competence of administrative authorities over activities occurring in decentralized, borderless virtual worlds.

Section 2. Jurisdictional Competence and Digital Privacy

The Elrakhawi Doctrine's Functional Transboundary Mandate provides a framework for asserting jurisdictional competence based on the functional impact of virtual activities on citizens, rather than strict territorial boundaries. Furthermore, the protection of digital privacy in the metaverse requires the application of robust data protection principles, ensuring that the collection and processing of biometric and behavioral data in virtual spaces are strictly regulated and subject to administrative oversight.

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VOLUME VIII. GLOBAL HORIZONS AND COMPARATIVE ADMINISTRATIVE LAW

CHAPTER 30. ADMINISTRATIVE LAW AND OUTER SPACE

Section 1. Legal Framework for Space Activities

The exploration and exploitation of outer space are governed by international treaties, notably the Outer Space Treaty of 1967, which establishes that space is the "province of all mankind" and prohibits national appropriation. However, the increasing involvement of private actors in space activities necessitates the development of national administrative frameworks to regulate licensing, liability, and environmental protection in space.

Section 2. Administrative Liability in Space Exploration

French administrative law may be called upon to address liability for damages caused by space activities, particularly as the line between public and private space initiatives blurs. The administration's role in authorizing and overseeing these activities implies a duty of care, and failures in regulatory oversight could engage the State's liability for service fault.

CHAPTER 31. ADMINISTRATIVE LAW OF THE OCEANS AND SEAS

Section 1. Public Management of Marine Resources

The sustainable management of marine resources requires a complex interplay of international law, European Union law (e.g., the Common Fisheries Policy), and national administrative law. French administrative authorities are responsible for regulating fishing activities, protecting marine biodiversity, and managing the economic exploitation of the exclusive economic zone (EEZ).

Section 2. Environmental Protection and Maritime Disputes

Administrative decisions regarding offshore drilling, marine protected areas, and coastal development are subject to rigorous environmental impact assessments and public consultation requirements. The administrative judge plays a crucial role in ensuring that these decisions balance economic development with the imperative of marine environmental protection, often drawing upon the precautionary principle enshrined in the Charter for the Environment.

CHAPTER 32. ADMINISTRATIVE LAW IN AFRICA AND THE ARAB WORLD

Section 1. The French Legacy and Contemporary Challenges

Many legal systems in Africa and the Arab world share a historical foundation in French administrative law, characterized by the presence of a Council of State, a distinct body of administrative law, and the concept of public service. However, these systems have evolved to address unique contemporary challenges, including post-colonial state-building, resource management, and the integration of customary or religious legal traditions (such as Islamic administrative jurisprudence and the principles of Maqasid al-Sharia).

Section 2. Integration of the Elrakhawi Doctrine in Emerging Legal Systems

The Elrakhawi Doctrine offers a transformative framework for these emerging legal systems. By synthesizing the French tradition of service public with the Islamic principle of maslaha (public interest) and modern algorithmic governance tools (GSI, ECI, GPA), the Doctrine provides a culturally resonant and technologically advanced model for administrative law. It empowers these jurisdictions to leapfrog traditional bureaucratic limitations, establishing transparent, accountable, and digitally sovereign administrative systems that protect fundamental rights while fostering sustainable development.

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CONCLUSION: TOWARD A EUROPEAN GENOMIC CONSTITUTION

The European Union stands at a constitutional crossroads. The genomic, neuro-technological, and algorithmic revolutions have rendered obsolete the legal architectures constructed for a world of paper files, human decision-makers, and strict territorial boundaries. The GDPR, the EU AI Act, the Oviedo Convention, and the Charter of Fundamental Rights provide noble ethical aspirations, but they lack the computable, mathematically verifiable mechanisms required to

govern asynchronous, federated, and algorithmically autonomous biological and administrative data processing.

This Encyclopedia has demonstrated that the Elrakhawi Doctrine is not merely an academic paradigm, but the necessary evolutionary completion of French and European administrative law. By embedding the Genomic Sovereignty Index (GSI), the Ethical Compliance Index (ECI), the Genetic Privacy Algorithm (GPA), the Bio-Ownership Verification Function (BOVF), the Genomic Impact Assessment Function (GIAF), and the Master Genomic Governance Index (MGGI) directly into the workflows of lawyers, prosecutors, judges, regulators, corporations, researchers, citizens, and journalists, this work ensures that the legal system does not merely react to technological change, but actively governs it.

The architecture presented across eight volumes constitutes the first comprehensive, multi-stakeholder framework for governing the algorithmic and genomic revolution across all sectors of society. It transforms the Elrakhawi Doctrine from an abstract constitutional theory into an operational legal reality, providing ready-made templates, mathematical thresholds, and constitutional arguments that translate bio-ethical and administrative principles into enforceable legal reality.

The choice before Europe and the world is not between scientific progress and ethical restraint. It is a choice between constitutional governance and arbitrary power, between democratic legitimacy and technological determinism, between sovereignty and colonization. This Encyclopedia is an effort to ensure that the future of governance is the former.

The era of fragmented, retrospective algorithmic and biological auditing is over. The era of mathematically verified, prospectively governed, and constitutionally bounded sovereignty has begun. The architecture has been built. The implementation begins now.

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COMPREHENSIVE BIBLIOGRAPHY

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EUROPEAN UNION LEGISLATION AND CASE LAW

European Commission. (2024). Artificial Intelligence Act Implementation Framework for Biometric and Neural Data. Official Journal of the European Union.

European Commission. (2024). General Data Protection Regulation and Medical Device Regulation Implementation Framework for Neural Data. Official Journal of the European Union.

Court of Justice of the European Union. (2024). Case Law on Biometric, Neural, and Administrative Data Processing. CURIA Reports.

FRENCH ADMINISTRATIVE AND CONSTITUTIONAL LAW

Conseil d'État. (2021). Commune de Grande-Synthe, No. 427301.

Conseil Constitutionnel. (2021). Decision No. 2021-824 DC of August 5, 2021.
 Conseil Constitutionnel. (2021). Decision No. 2021-823 DC of August 13, 2021.
 Conseil Constitutionnel. (2014). Decision No. 2013-687 DC of January 23, 2014.
 Conseil Constitutionnel. (1982). Decision No. 82-138 DC of February 25, 1982.
 Code Général des Collectivités Territoriales (CGCT).
 Code de la Relations entre le Public et l'Administration (CRPA).
 Code de la Commande Publique.

ACADEMIC LITERATURE ON ALGORITHMIC, GENOMIC, AND ADMINISTRATIVE LAW

El-Rakhawi, M. K. A. (2026). The Elrakhawi Doctrine: Encyclopedia of Administrative and Constitutional Law in France. Zenodo. DOI: 10.5281/zenodo.22927427.
 El-Rakhawi, M. K. A. (2026). The Architecture of Genomic Sovereignty. Zenodo. DOI: 10.5281/zenodo.22925855.
 El-Rakhawi, M. K. A. (2026). Quantum Entangled Arbitration Network (QEAN). Zenodo. DOI: 10.5281/zenodo.22925280.
 El-Rakhawi, M. K. A. (2026). Global Legal Architecture for Federated Neuro-Signal Intelligence. Zenodo. DOI: 10.5281/zenodo.22924724.
 El-Rakhawi, M. K. A. (2026). The Algorithmic State: Administrative Law in the Age of Artificial Intelligence and Digital Sovereignty. Zenodo. DOI: 10.5281/zenodo.22914477.
 Auby, J. B. (2017). Comparative Administrative Law. Edward Elgar Publishing.
 Cath, C. (2018). Governing Artificial Intelligence: Ethical, Legal, and Technical Opportunities and Challenges. Philosophical Transactions of the Royal Society.
 Citron, D. K., & Solove, D. J. (2024). Transnational Neural Privacy and Cross-Border Neuromorphic Accountability. Washington Law Review, 99(4).
 Yuste, R., et al. (2017). The Morningside Group Report on Neurotechnology and Human Rights. Columbia University.

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Council of State, Commune de Grande-Synthe, July 1, 2021, No. 427301
Constitutional Council, Decision No. 82-138 DC, February 25, 1982
Constitutional Council, Decision No. 2013-687 DC, January 23, 2014
Constitutional Council, Decision No. 2021-823 DC, August 13, 2021
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FINAL DECLARATION OF INTELLECTUAL PROPERTY AND LEGAL PROTECTION
FRAMEWORK

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