



Artificial intelligence and organizational transition boards of directors: Toward enhanced and high-performance governance

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ABSTRACT

The rapid development of artificial intelligence raises fundamental questions regarding the governance of corporations. Drawing on a comparative legal methodology — examining Moroccan law (Law No. 17-95, as amended by Law No. 20-19) alongside the French, European (AI Act), American (Delaware), British, and German legal systems — this article analyzes the conditions under which AI can be

integrated as a decision-support tool within boards of directors, as well as the resulting legal consequences. The first part demonstrates that AI constitutes a real lever for improving governance by reducing information asymmetries, strengthening risk oversight, and automating administrative tasks, while remaining legally incapable of replacing the sovereign deliberation of directors. The second part establishes that the use of AI intensifies the fiduciary duties of diligence and disclosure incumbent upon directors, that algorithmic opacity constitutes a major legal obstacle to the

adoption of AI in governance, and that Moroccan law is insufficiently equipped to regulate these uses, necessitating urgent legislative reform. The article concludes by proposing the model of the “augmented board of directors,” in which AI acts as a powerful analytical tool under mandatory human supervision, preserving the irreducible primacy of human judgment.

Keywords: Artificial intelligence; Corporate governance; Board of directors; Fiduciary duty; Algorithmic transparency; Executive liability; AI Act.

Introduction

The emergence of artificial intelligence in the field of corporate governance represents one of the most profound changes in corporate law in several decades. Since the seminal work of Berle and Means on the separation of ownership and control in the modern corporation, legal doctrine and financial theory have continually examined the conditions under which the board of directors can effectively fulfill its mission of oversight and strategic direction.

Within the framework of agency theory, developed by *Jensen* and *Meckling* as early as 1976, the board of directors is viewed as the central institutional mechanism for reducing agency costs resulting from information asymmetries between shareholders and management.

By providing directors with information that is more comprehensive, accurate, and timely than that filtered by management, AI could theoretically remedy one of the most persistent structural failures of corporate governance: *the board’s informational dependence* on the executives it is tasked with overseeing. This promise is all the more significant given that agency theory, in its subsequent developments, has clearly identified the quality of information as the determining factor in the effectiveness of the control mechanism.

In the Moroccan context, information asymmetries are sometimes amplified by the often family-controlled ownership structure of public limited companies, the frequent holding of multiple positions by the same individuals, and the still-limited level of digitization of governance bodies.

Bank Al-Maghrib Directive No. 1/W/2014 on corporate governance (supplemented by Circulars No. 4/W/2018 and No. 5/W/2018 on audit and risk committees), ACAPS Instruction No. P.IN.02/2021 on the governance system (Pillar 2 of the SBR), and the AMMC’s Moroccan Code of Best Practices for Corporate Governance of Companies and Public Institutions (2012)—constitute the first operational regulatory

framework governing the functioning of boards of directors in regulated sectors.

They require the creation of specialized committees (audit, risk, governance) responsible for overseeing information systems and, increasingly, algorithmic tools and artificial intelligence. In conjunction with Law No. 17-95 on corporations (notably Article 106 bis), these provisions form a composite body of regulations, which is set to evolve under the influence of international standards regarding AI governance and technological risks.

However, the enthusiasm generated by the promises of AI should not obscure the profound tensions it creates with the legal foundations of governance. Algorithmic models are sometimes opaque, difficult to interpret, and prone to reproducing and amplifying systemic biases present in the training data.

Technological dependence, cybersecurity risks, the lack of decision-making traceability, and uncertainty regarding liability in the event of algorithmic harm constitute major obstacles that current Moroccan law—based primarily on Law No. 17-95, as amended by Law No. 20-19—is not yet equipped to address with the precision that the situation demands.

This research examines the extent to which the integration of artificial intelligence into the boards of directors of Moroccan corporations can improve the quality of governance and the soundness of strategic decisions, without undermining the fundamental legal requirements of the duty of care, the exercise of independent judgment, and the personal liability of directors. Consequently, it questions the capacity of Moroccan law to regulate these algorithmic practices in a way that preserves the primacy of human judgment in the face of risks such as **opacity** (“black box”), **technological dependence**, **systemic biases**, and current **regulatory gaps**.

From this perspective, *five hypotheses* guide the analysis: **(H1)** AI serves as a tool for improving governance by enhancing information, risk detection, and decision-making efficiency, without replacing the independent judgment of directors; **(H2)** its use intensifies directors’ duties of diligence, disclosure, and technological competence, failing which they may face civil and criminal liability; **(H3)** the opacity of algorithmic systems represents a major legal obstacle due to the requirements for explainability and traceability necessary to comply with fiduciary duties; **(H4)** Moroccan law, as set forth in Law No. 17-95 as amended by Law No. 19-20, remains insufficiently adapted, justifying the urgent development of a specific regulatory framework inspired by

international standards; (H5) The most realistic development is not that of an AI director — which is legally impossible — but rather that of an augmented board of directors, where AI acts as an analytical support tool under mandatory and traceable human supervision.

This article aims to test these hypotheses through two complementary main sections. The first section examines the actual contributions and legal limitations of AI as a decision-tool within Moroccan boards of directors, identifying the tasks that can be supported by AI and those that remain dependent on human judgment.

The second part is devoted to the issues of director liability in the algorithmic era, the legal obstacle posed by the opacity of AI systems, and the prospects for an appropriate regulatory framework. The analysis is based on a comparative and prospective legal methodology, comparing Moroccan law with the legal systems of France, the European Union, the United States (Delaware), the United Kingdom, and Germany.

Part I. Artificial intelligence as a lever for governance

1.1. AI as a Tool for Reducing Information Asymmetries in Advisory Services

1.1.1. The Theoretical Foundation: Agency and Information Theory

Agency theory identifies information asymmetry as the fundamental market failure that the board of directors is tasked with correcting. In its classical conception, the board is a body whose effectiveness depends primarily on the quality of the information it receives: if directors have access only to information filtered and preselected by management, their ability to oversee the company is structurally limited.

This *informational dependence* is particularly pronounced in Moroccan public companies, where capital is often concentrated in the hands of a few families or shareholder groups that exert decisive influence over the composition and functioning of the board, and in which the same individuals frequently hold both executive and oversight roles.

In this context, artificial intelligence appears to offer a way to break free from the board's traditional reliance on filtered information. Its ability to analyze massive data streams in real time — including financial data, market data, industry information, regulatory indicators, and risk signals— enables board members to access information that is independent of management's filter, more comprehensive, more accurate, and faster than that provided in traditional board materials.

Empirical studies confirm the significance of this contribution: according to McKinsey (2023), generative AI is already integrated into many business functions and is on the agenda of approximately one-quarter of the boards of directors of organizations that use it, with notable improvements reported in terms of information quality and governance effectiveness.

1.1.2. Practical Applications in the Context of Moroccan Public Limited Companies

In the Moroccan context, companies in the banking and insurance sectors are among the most advanced in integrating algorithmic tools and artificial intelligence, particularly in their risk management, compliance, and monitoring systems. This trend has developed under the impetus of sector-specific regulators — Bank Al-Maghrib, ACAPS, and AMMC— which have gradually incorporated technological considerations into their governance requirements.

Several concrete areas of application can be identified that are particularly relevant for Moroccan boards of directors.

First, *real-time risk analysis*: AI systems can continuously monitor financial, operational, cyber, and regulatory risk indicators, alerting the risk committee well before situations become critical — a valuable capability in Morocco's increasingly demanding regulatory environment (AML/CFT, IFRS, prudential compliance).

Second, *enhanced preparation of board materials*: natural language processing (NLP) tools can automatically summarize vast amounts of legal, financial, and regulatory documentation, freeing directors from having to read everything in detail so they can focus their attention on essential strategic points and issues requiring their independent judgment.

Third, *enhanced internal auditing*: anomaly detection algorithms make it possible to analyze all of a company's transactions — rather than just statistical samples, as in traditional auditing — significantly increasing the likelihood of detecting fraud, irregularities, or errors.

Fourth, *automated regulatory monitoring, which is* particularly valuable given the growing number of obligations facing Moroccan public companies — IFRS standards, AML/CFT measures, ESG reporting, and prudential compliance in accordance with Bank Al-Maghrib's directives.

1.2. Legal Mapping of AI-Assisted and Non-AI-Assisted Tasks

1.2.1. Strategic tasks: the absolute and non-negotiable primacy of human judgment

Article 69 of Law No. 17-95 entrusts the board with determining the company's strategic direction, taking into account its corporate interest as well as the social and environmental implications of its activities.

This legislative wording reveals the profoundly qualitative nature of the strategic mission: determining a company's strategic direction means balancing values and weighing sometimes conflicting interests — shareholders, employees, customers, the local community, and the environment— within a framework of corporate interest that goes beyond mere financial optimization.

AI can support this process by providing predictions, sectoral analyses, scenario assessments, and financial models of remarkable precision — but it cannot replace the exercise of judgment that ultimately involves choosing between options that are not only technically comparable but also have moral and strategic implications.

Comparative law confirms this limitation with a unanimity that Moroccan law should regard as decisive.

In France, strategic decisions are a non-delegable prerogative of the board, which case law has rigorously protected for decades.

In the United States, Delaware's Business Judgment Rule is based on the human capacity to exercise independent, informed, and good-faith judgment: it does not protect the results of an algorithm, but rather the decisions of individuals capable of accounting for their reasoning before a court.

In the United Kingdom, the Companies Act 2006 explicitly requires directors to exercise independent judgment, which by its very nature precludes any automated delegation to an algorithmic system whose underlying principles have not been independently understood and validated.

In Germany, the codification of the Business Judgment Rule in §93 AktG explicitly presupposes the existence of an autonomous human decision based on adequate information. The most authoritative German legal scholarship confirms that this standard of adequate information requires directors to have a firm grasp of the fundamentals of the analytical tools on which their decisions are based—which, in the algorithmic era, includes a basic understanding of the AI systems used.

1.2.2. Financial Statement Approval and Risk Oversight: Permitted Assistance, Mandatory Human Vigilance

The board of directors is responsible for preparing the annual financial statements, approving the management report, and submitting these documents to the shareholders' meeting.

AI can provide valuable assistance in this process: automated analysis of transactions, detection of anomalies in accounting entries, verification of the consistency of financial ratios, and modeling of the risks associated with insufficient provisions. These tools significantly enhance the effectiveness of the audit committee and increase the likelihood of detecting irregularities or fraud.

However, the approval of financial statements remains a legal act of paramount importance for the board. Directors may be held liable if they approve inaccurate or incomplete financial statements. This liability is personal and cannot be transferred to an algorithmic system.

Directors must therefore personally and critically review the documents submitted to them, even if they use AI tools to prepare and verify the financial statements. Human oversight is not an option here: it is a prerequisite for the legal validity of the financial statements, and failure to comply may result in criminal liability for directors in the event of violations of statutory provisions.

Risk monitoring is one of the areas where the contribution of artificial intelligence is most evident and best documented. The AFEP-MEDEF Code, whose principles exert a significant influence on the governance practices of large Moroccan companies listed on the Casablanca Stock Exchange, emphasizes the need for the board of directors to regularly review all risks to which the company is exposed, including financial, legal, operational, climate-related, social, and environmental risks.

AI can provide substantial value in this area: climate and ESG modeling, financial stress tests, market simulations, real-time detection of operational anomalies, cybersecurity monitoring, and predictive analysis of regulatory non-compliance risks.

In the specific area of ESG reporting, AI can automate the collection and verification of non-financial data, improving the reliability and comparability of information published by Moroccan public companies.

However, AI itself is a specific risk factor that the board must absolutely incorporate into its risk mapping. Algorithmic biases can lead to a systematic underestimation of certain risk

categories, particularly emerging or atypical risks, which are by definition underrepresented in historical training data.

1.3. The Absolute and Universal Legal Impossibility of the Robot Director

1.3.1. The Clear and Unambiguous Solution Under Moroccan Law

Under Moroccan law, the answer is clear, categorical, and unambiguous: Law No. 17-95 requires that directors be either natural persons with legal capacity or legally incorporated legal entities represented by a designated natural person.

An AI, lacking any legal personality — that is, the capacity to hold rights and obligations, to possess its own assets capable of covering damages caused, to incur civil or criminal liability, or to express a legally recognized intent — cannot under any circumstances qualify as a director.

This exclusion is not an oversight on the part of the Moroccan legislature: it is a logical, necessary, and irreducible consequence of the fundamental architecture of the law of persons, as conceived in all modern legal systems.

The European legislature has not relaxed this position; on the contrary, it has strengthened the mechanisms for mandatory human oversight in the AI Act, classifying AI systems used in contexts of significant corporate governance among high-risk uses subject to strict obligations regarding documentation, auditability, and human supervision.

The European Commission's ethical guidelines for trustworthy AI enshrine the principle of *human oversight* as an absolute imperative, applicable to all decisions of significant importance made with the assistance of AI systems.

1.3.2. The Universal Convergence of Legal Systems: A Global Normative Consensus

The Moroccan approach is shared by virtually all contemporary legal systems, with no significant exceptions.

In France, Article L. 225-20 of the Commercial Code prohibits the appointment of an artificial intelligence system as a director, and legal scholars are unanimous on this point.

In Germany, the dual structure of the Vorstand and Aufsichtsrat further reinforces the need for personal, human, and responsible judgment.

In the United States, the Delaware General Corporation Law expressly requires that directors be natural persons. This requirement stems from the idea that the fiduciary duty — a central and fundamental principle of U.S. corporate law — is inherently moral and relational: it entails personal loyalty to the corporation, accountability to shareholders and third parties, and ethical judgment that cannot be attributed to an algorithm lacking a moral conscience.

In the United Kingdom, the Companies Act 2006 adopts a similar approach, and the UK Corporate Governance Code 2018 emphasizes the need for human collegial deliberation within the board. This universal convergence of legal systems is no coincidence: it reflects a shared conception of governance as a human, responsible, and deliberative act, which the most authoritative comparative legal scholars analyze as a cross-cutting constant in all contemporary corporate law systems.

The **Vital** incident in Hong Kong in 2014—often portrayed in the media as the first appointment of an AI to a board of directors — perfectly illustrates this impossibility of substitution: a careful legal analysis reveals that it was simply an analytical tool devoid of any voting rights, legal personality, or legal standing as a board member under Hong Kong law.

Legal scholarship has since explored the theoretical possibility of a robot director endowed with its own legal personality, but this faces fundamental and insurmountable obstacles: legal personality implies attributes such as capacity, will, dignity, and consciousness — concepts that cannot be applied to an AI given the current state of science and law.

Part II. Directors' liability in the algorithmic age, decision-making opacity, and prospects for an appropriate regulatory framework

2.1. The Intensification of Directors' Fiduciary Duties in the Face of AI

2.1.1. Directors' Fundamental Obligations: An Unshakable Foundation

Moroccan corporate law imposes a set of fundamental obligations on directors, the violation of which gives rise to their personal, civil, and criminal liability. These obligations can be grouped into five essential duties, expressly or implicitly enshrined in Law No. 17-95 and its case law: *diligence* (personally and diligently performing the duties entrusted by law and the articles of incorporation), *prudence* (not taking excessive or manifestly disproportionate risks with respect to the company's interests), *loyalty* (acting in the

company's best interests rather than in one's own personal, family, or partisan interests), *competence* (possessing the knowledge necessary to perform one's duties), and the *active duty to seek information* (seeking the information necessary for decision-making, without relying solely on information filtered by senior management).

Article 352 of Law No. 17-95, as amended by Law No. 20-19, establishes the liability regime for directors with a clarity that leaves no room for ambiguity: board members are liable, individually or jointly and severally as the case may be, to the company or to third parties, either for violations of the laws or regulations applicable to corporations, for breaches of the articles of incorporation, or for misconduct in the performance of their duties. This liability regime is based on a presumption that directors may rebut by proving either that they did not participate in the disputed acts, or that they were not at fault, or that they reported the facts to the next general meeting.

2.1.2. The Duty of Algorithmic Vigilance: An Emerging and Imperative Obligation

The use of AI in corporate governance does not alter these fundamental obligations: it intensifies them and substantially broadens their scope. Diligence may thus entail not only regular attendance at board meetings or careful reading of documents provided by management, but also a basic understanding of the operating principles of the algorithmic systems used in the preparation and making of decisions.

A director who relies on an AI recommendation without understanding its underlying logic, foundational assumptions, limitations, and areas of uncertainty could be considered to have breached their duty of care and committed a breach of fiduciary duty that could give rise to liability.

In this regard, legal scholarship proposes the concept of a “duty of algorithmic vigilance,” which refers to the emerging obligation on directors to understand and critically evaluate the algorithmic tools used within their organization.

This requirement is firmly established across all the legal systems studied.

In France, case law has long recognized that the board's duty to inform is an active duty, involving personal and continuous vigilance, rather than merely passively receiving information presented by management.

In the United States, Delaware requires directors, as part of their duty of care, to ensure that decisions are based on reasonably adequate information — which includes

understanding the analytical tools used to produce that information.

In the United Kingdom, Section 173 of the Companies Act requires directors to exercise independent judgment, which precludes any blind deference to an algorithmic tool whose underlying principles are not understood.

The available empirical data makes this requirement particularly urgent in the Moroccan and international contexts.

Deloitte highlights in its study *Governance of AI* (2024) that only 14% of boards discuss AI at every meeting, nearly 45% have not yet included the topic on their agenda, and a large majority of directors feel inadequately trained to effectively oversee algorithmic risks. These figures illustrate the troubling disconnect between the rapid proliferation of AI tools and the readiness of governance bodies to fully assume their legal responsibilities.

This finding is alarming in light of the fiduciary duties incumbent upon directors: if they do not understand the algorithmic tool on which they rely to make an important decision, how can they claim to exercise independent, critical, and informed judgment, as required by law?

Legal doctrine has clearly identified this cognitive limitation: simply providing algorithmic information is not enough to guarantee that directors understand and evaluate it correctly. Training directors in the fundamentals of AI is no longer an academic luxury or an educational option: it is now a legal requirement for the validity of their duties in the algorithmic age.

2.1.3. The Decisive Evidentiary Implications of the Presumption of Liability

The presumption of liability provided for in Article 352 of Law No. 17-95 has significant and largely underestimated evidentiary implications in cases involving harmful decisions made with the assistance of AI.

To rebut this presumption, administrators will have to demonstrate positively that they acted with due diligence, that is, that they exercised critical and independent judgment, regardless of the algorithmic recommendations they used.

In practical terms, this proof requires that they establish: first, that they conducted a critical — rather than passive — review of the AI's recommendations, by questioning its assumptions, training data, and limitations; second, that they understood the main parameters, limitations, and areas of uncertainty of the algorithmic system used before employing it; third, that they

ultimately exercised independent and autonomous judgment informed by, but not determined by, the AI's recommendations; and fourth, that the board minutes accurately reflect this effective exercise of collective judgment.

This evidentiary requirement confers new legal significance on the minutes of the board of directors, which, in the context of AI, become an essential defense tool for directors.

In a context where decisions are supported by AI systems, the quality and precision of the minutes — which must explicitly mention the information and analyses provided by technological tools, as well as the collective deliberation, the questions asked, and the independent judgment exercised by the directors — become a potentially decisive piece of evidence in the event of a subsequent challenge to the board's liability.

2.2. Algorithmic opacity: a major legal obstacle to the adoption of AI in corporate governance

2.2.1. The Legal Anatomy of the “Black Box” Problem

Artificial intelligence systems based on deep learning architectures — deep neural networks, transformers, large language models (LLMs) — have a fundamental characteristic that radically distinguishes them from traditional analytical tools used in governance: their decision-making opacity, commonly referred to as a “black box.”

Unlike a spreadsheet or a linear regression model, whose parameters and logic are fully transparent and explainable to any reasonably trained user, a deep neural network makes its decisions based on internal processes so complex that it is often impossible — even for its designers and developers — to accurately trace the complete causal chain leading from the input data to the resulting recommendation or prediction.

For directors of a corporation, this phenomenon is not merely a technical challenge: it is a potentially insurmountable legal obstacle to the use of these systems in the board's decision-making processes.

Under Moroccan law, as under French, U.S., or British law, directors' liability is based on their ability to justify their decisions and to demonstrate that they acted with due diligence and with sufficient information. However, if the decision was made based on an inexplicable algorithmic recommendation, this justification becomes impossible — or at least very difficult — to provide. How can a director demonstrate that he or she exercised independent judgment if he or she cannot explain why the AI recommended one option

over another? How can they prove the absence of fault if the decision is based on algorithmic reasoning that they themselves do not understand? Legal scholarship specializing in law and artificial intelligence has clearly identified this issue of allocating liability among the designer of the algorithmic system, its deployer, and its end user—in this case, the board of directors.

The European Union has fully recognized the significance of this issue by imposing, in the AI Act, strict obligations regarding documentation, auditability, and human oversight for AI systems classified as high-risk. Explainability thus becomes a positive legal imperative that transcends the boundaries of European positive law to gradually establish itself as an international governance standard—one that Morocco will not be able to sustainably circumvent without penalizing its companies in their dealings with partners subject to these standards.

To assess the legal implications of algorithmic opacity in concrete terms — without resorting to abstractions — let us consider the following scenario: The board of directors of a large publicly traded corporation uses a deep learning AI system to evaluate a major acquisition opportunity involving a target company in the industrial sector. After processing thousands of financial, sector-specific, and macroeconomic variables, the system produces a strong recommendation in favor of the acquisition, accompanied by a confidence score of 94%. Impressed by the sophistication of the analysis and reassured by the high confidence score, the board follows the recommendation without fundamentally questioning its underlying assumptions. The acquisition turns out to be disastrous: the target company had significant latent environmental liabilities that the AI system had failed to detect, because they were not reflected in the historical quantitative data used to train the model, and because the model had not been trained to identify this specific type of risk.

The aggrieved shareholders file a liability suit against the directors for mismanagement. In commercial court, the directors argue that they acted in good faith, relying on the analysis of a high-performing AI system. However, they are unable to explain: the specific criteria and weightings on which the recommendation was based; why environmental liability “ ” were not detected; what assumptions the model had made regarding changes to Morocco's environmental regulatory framework; whether the model had been trained on data representative of the sector and region in question; and whether an independent human validation of the recommendation had been performed.

In the absence of these explanations, the directors cannot establish that they exercised independent critical judgment in accordance with their duty of care. The presumption of mismanagement provided for by law cannot be rebutted. They are jointly and severally liable.

2.2.2. The Legal Preference for Explainable AI (XAI) Systems

The obstacle posed by algorithmic opacity is not absolute — it does not preclude the use of AI in governance altogether — but it creates a strong and growing legal preference for explainable AI systems, commonly referred to by the acronym **XAI** (eXplainable Artificial Intelligence). The OECD's Guiding Principles for Trustworthy AI specifically emphasize the importance of transparency and interpretability in AI systems as necessary conditions for effective human oversight, rather than merely as an optional ethical imperative. This legal preference is supported by solid and increasingly operational technical advances in the interpretability of AI models, notably **LIME** (Local Interpretable Model-agnostic Explanations), which generate intelligible local explanations of decisions made by complex models, and the **SHAP** (SHapley Additive exPlanations) method, which rigorously quantifies the contribution of each variable to a prediction.

This legal preference translates into an operational hierarchy of AI systems based on their compatibility with directors' fiduciary duties. First, and fully compatible: AI systems that are interpretable by nature — decision trees, regularized regression models, systems with explicit rules, generalized linear models — which offer complete and immediate explainability of their decision-making logic, without resorting to post-hoc interpretability techniques. Second, and conditionally compatible: semi-explainable AI systems equipped with post-hoc interpretability techniques (LIME, SHAP, GRAD-CAM), which allow for a documented approximation of decision explanations and are compatible provided there is rigorous documentation, critical validation by directors, and precise traceability of the decision-making process. Third, and for limited use only: opaque AI systems—complex deep learning, undocumented LLMs, proprietary models without access to source code— which pose a high legal risk to administrators and should be used only for preparatory or administrative tasks that do not fall within the board's sovereign discretion.

2.3. An Assessment of Current Moroccan Law and the Urgent Need for Reform

2.3.1. An Inventory of Regulatory Gaps

Moroccan law governing corporations, centered on Law No. 17-95 as amended by Law No. 20-19, has gaps in regulating the use of AI on boards of directors. First, the absence of any reference to the use of algorithmic tools in the provisions regarding directors' obligations—particularly in Articles 69 and 352 of Law No. 17-95, as amended—leaves directors and judges without a clear framework of reference in the event of a dispute.

Second, there is no legal definition of what constitutes a sufficiently informed decision in the age of AI, which creates considerable legal uncertainty regarding the applicable standards of care.

Third, the absence of legal requirements for documentation, auditability, or human oversight for AI systems used in corporate governance, contrary to what the European AI Act now mandates for high-risk systems.

Fourth, the absence of a uniform regulatory framework applicable to all public limited companies, as AI regulations are currently limited to the banking and insurance sectors through sector-specific guidelines and recommendations issued by Bank Al-Maghrib and ACAPS.

This regulatory fragmentation is all the more concerning given that the National Digital Transformation Strategy 2030 sets ambitious goals for the digitization of Morocco's economic sectors; its implementation in the area of corporate governance will necessarily require an appropriate regulatory framework, failing which it will create growing areas of legal uncertainty for directors, shareholders, and foreign investors.

2.3.2. Five Areas of Legislative and Regulatory Reform for an Adapted Moroccan Legal Framework

The identified gaps call for an ambitious and structured legislative reform, inspired by international best practices but adapted to the specificities of Morocco's legal, economic, and institutional context.

Five main areas can be considered.

First area: the introduction into Law No. 17-95 of a specific provision defining the conditions for the lawful use of AI tools in the governance of corporations, specifying in particular the requirement for mandatory human oversight, a documented minimum understanding of the systems used, and the

traceability of algorithm-assisted decisions in board meeting minutes.

Second area: the development by the AMMC and sector-specific regulators of a code of best practices regarding the use of AI in the governance of publicly traded companies, drawing on the principles of the OECD and the requirements of the European AI Act, to be applied under the “comply or explain” principle.

Third priority: the creation of a legal requirement for minimum training of directors on the fundamentals of AI and the specific risks of algorithmic systems used in their industry, a necessary condition for effective compliance with the duty of algorithmic vigilance in an increasingly complex technological environment.

Fourth priority: the introduction of auditability and technical documentation requirements for AI systems used in significant board decisions, enabling directors to demonstrate, in retrospect, the traceability and reasoned nature of their decision-making process in the event of a liability claim.

Fifth priority: the establishment of a national regulatory and certification body for AI in Morocco, similar to those being developed in other OECD member countries, tasked with issuing sector-specific recommendations, certifying AI systems used in sensitive contexts such as corporate governance, and contributing to the development of national expertise in responsible AI.

2.4. The “augmented board of directors” model

2.4.1. The Five Fundamental Characteristics of the Model

The analysis presented in the two parts of this article helps outline a coherent, legally sound, and practically operational model of governance in the age of AI, which can be referred to as the “*augmented board of directors*.”

This model does not depart from the fundamental principles of corporate law; rather, it enriches them and adapts them to the technological realities of the 21st century. It is based on five fundamental and interdependent characteristics.

First, **the absolute and non-negotiable primacy of human judgment**: AI enhances the board’s analytical and informational capabilities, but never exercises — and is legally unable to exercise — the sovereign prerogatives that Law No. 17-95 reserves for individual directors — strategic direction, approval of financial statements, appointment and removal of executives, and distribution of dividends.

Second, **mandatory, traceable, and documented human oversight**: every significant decision assisted by AI must be subject to explicit critical review and independent validation by the directors, recorded in the minutes with the precision necessary for their probative value in the event of a subsequent dispute.

Third, **algorithmic transparency** as a prerequisite for use: only explainable or semi-explainable AI systems may be used for decisions falling under the board’s sovereign judgment, while opaque systems are restricted to preparatory and administrative tasks.

Fourth, **the technological competence of board members** as a formalized fiduciary duty: board members must have a minimum level of training enabling them to understand the AI systems used in their organization, assess their strengths and limitations, and challenge them in an informed manner when their recommendations appear questionable.

Fifth, **clearly and personally assigned responsibility**: AI remains a tool at the service of the board, and directors remain personally and jointly liable for all decisions made, including — and especially — those based on algorithmic recommendations.

2.4.2. Validation of the Five Research Hypotheses

The analysis presented in this article validates the five research hypotheses formulated in the introduction, thereby lending overall coherence to the argument.

Hypothesis H1 is fully validated: AI does indeed serve as a lever for improving governance by enhancing the quality of information available to the board, enabling early risk detection and enhancing decision-making efficiency, as evidenced by pioneering experiences in Morocco’s banking and insurance sectors and international empirical studies — while remaining legally incapable of replacing the sovereign judgment of directors, as confirmed by comparative law across the globe.

Hypothesis H2 is fully validated: the use of AI does indeed intensify the duties of vigilance, disclosure, and technological competence incumbent upon directors, as demonstrated by the analysis of the presumption of liability under Article 352 of Law No. 17-95, comparative case law on the duty of care, and empirical data on the training gap among directors.

Hypothesis H3 is fully validated: the opacity of algorithmic systems does indeed constitute a major legal obstacle, as illustrated by the scenario of a harmful acquisition decision and the growing imperative of explainability outlined in the

AI Act, the OECD principles, and developments in legal doctrine.

Hypothesis H4 is fully validated: current Moroccan law is insufficiently adapted, as confirmed by the inventory of the four major categories of regulatory gaps identified and the reform proposals formulated.

Hypothesis H5 is fully validated: the “augmented board” model is indeed the most plausible development, the most legally sound, and the most compatible with existing positive law, offering an immediately operational framework for boards that wish to integrate AI in a responsible and controlled manner.

Conclusion

Artificial intelligence represents a historic opportunity for Moroccan boards of directors. By reducing information asymmetries, strengthening risk oversight, and enhancing the preparation of strategic decisions, it can transform the board into a more effective, better-informed, and more responsive deliberative body.

However, this transformation can only be achieved through strict adherence to two fundamental and complementary legal imperatives.

First, the **irreducible primacy of human judgment** in the exercise of the board of directors’ sovereign prerogatives — setting strategic directions, approving financial statements, monitoring major risks, and appointing and removing executives. Moroccan law, like virtually all the legal systems studied, reserves these decisions for individual directors, who alone are capable of fully assuming responsibility for them.

On the other hand, there is **the inevitable intensification of directors’ fiduciary duties** in the algorithmic era. The duty of care is no longer limited to attending meetings and reviewing documents: it now requires a basic understanding of AI systems, a critical evaluation of their recommendations, and the exercise of independent, well-documented, and accountable judgment.

This “duty of algorithmic diligence,” which remains largely implicit in Law No. 17-95 as amended by Law No. 20-19, is set to become an essential component of the director’s role in the 21st century.

To realize this potential, Morocco must promptly address the current gaps in corporate law: the absence of any reference to AI in Articles 69 and 352; the lack of requirements for auditability and traceability of algorithm-assisted decisions;

and the absence of a mandate for digital training for directors. These shortcomings create legal uncertainty that undermines the competitiveness of Moroccan corporate governance.

The five proposed areas of reform are in line with international best practices while aligning with the ambitions of *Digital Morocco 2030*. They aim to promote an **enhanced board of directors**, in which AI is not a substitute but a powerful analytical tool subject to mandatory human oversight.

The future of Moroccan governance lies neither in replacing human intelligence with artificial intelligence nor in rejecting it, but in their intelligent and legally regulated complementarity. Only under these conditions will AI become what it is meant to be: a catalyst for more effective, more responsible, and truly augmented governance.

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- shareholders and creditors; (4) conflicts between the corporation and its contractual partners; (5) conflicts between the corporation and third parties. The introduction of AI into corporate governance is likely to exacerbate the first three types of conflicts—particularly if executives use AI to filter the information provided to the board, or if algorithmic tools systematically favor the interests of majority shareholders at the expense of minority shareholders. See also: COFFEE, J.C. (2021). *Corporate Crime and Punishment: The Crisis of Underenforcement*. Berrett-Koehler Publishers.
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