

THE ROLE OF AUTONOMOUS ARTIFICIAL INTELLIGENCE IN RESHAPING THE MANAGEMENT CONTROLLER PROFESSION:

*A Contextual Reading of the Algerian Case Between Documented
Potential and Uncertain Activation Conditions*

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Bennour Latifa*, *Associate Professor (Maître de Conférences B)*
— *ESGEN, Koléa (Algeria)*

Email : lbennour@esgen.edu.dz

Orcid : <https://orcid.org/0009-0009-5743-1593>

Abstract

Digital transformation raises a concrete question for Algerian firms: to what extent can autonomous artificial intelligence restructure the daily work of the management controller? This article addresses that question without obscuring its grey zones. Moving against an often-enthusiastic literature, we adopt a deliberately nuanced analytical stance, built around three hypotheses: liberation from repetitive operational tasks (H1), enrichment of analytical capabilities (H2), and the existence of barriers specific to the Algerian context (H3). Available data only partially validate these hypotheses, and this partial validation is itself informative. Documented cases suffer from real methodological limitations — small sample sizes, absence of

* Author correspondant

control groups, and recurrent conflation of correlation with causation. The Algerian context, shaped by fragmented information systems, a shortage of hybrid skills, and an organisational culture resistant to change, introduces moderating variables whose magnitude remains underestimated in international literature. Rather than resting on certainties, this article offers a critical analytical framework and practical guidance for researchers and decision-makers navigating this still-uncharted terrain.

Keywords: Autonomous AI; management control; partial validation; digital transformation; Algeria; structural barriers; critical analysis

JEL Classification: M40, O33, O55

ملخص

يطرح التحول الرقمي سؤالاً ملموساً على المؤسسات الجزائرية: إلى أي مدى يمكن للذكاء الاصطناعي المستقل أن يعيد تنظيم العمل اليومي لمراقب التسيير؟ تسعى هذه الورقة إلى الإجابة على هذا التساؤل دون التهرب من مناطق الغموض فيه، من خلال موقف تحليلي نقدي ومتأن، يركز على ثلاث فرضيات: تحرير المهام التشغيلية المتكررة (ف 1)، وإثراء القدرات التحليلية (ف 2)، ووجود عقبات خاصة بالسياق الجزائري (ف 3)، والبيانات المتاحة لا تدعم هذه الفرضيات إلا جزئياً، وهذا التحقق الجزئي في حد ذاته ذو دلالة. تعاني الحالات الموثقة من قيود منهجية حقيقية، فيما يُدخل السياق الجزائري متغيرات معقدة لا تزال مقدرة بأقل من قيمتها الفعلية في الأدبيات الدولية.

الكلمات المفتاحية: الذكاء الاصطناعي المستقل؛ مراقبة التسيير؛ التحقق الجزئي؛ التحول الرقمي؛ الجزائر؛ العوائق الهيكلية؛ التحليل النقدي

1. Introduction

In the offices of a large Algerian public enterprise, a management controller begins his week as usual: he opens his Excel files, sends data collection reminders to subsidiaries, corrects inconsistent figures, and consolidates dashboards. Thursday arrives before he finally has time to analyse anything. This scene, familiar to thousands of professionals across the country, illustrates a very real tension between the theoretical richness of the controller's mandate and the reality of a day-to-day schedule consumed by low-value-added tasks.

It would be tempting to draw a quick conclusion: autonomous artificial intelligence (AI) will solve this problem. The international literature, abundant and often confident, provides many supporting arguments: spectacular time savings, more accurate forecasting, a strategic repositioning of the controller. But one question persists: to what extent are these results transferable to the Algerian context, with its specific institutional, cultural and infrastructural characteristics?

It is this question — cautious, conditional, open — that structures the present article. Rather than asserting that AI will transform the controller's profession, we seek to identify under which conditions such a transformation becomes possible, and what structural obstacles could limit its real impact. The three hypotheses we explore are not assertions: they are lines of investigation.

H1: Autonomous AI frees the management controller from a significant share of repetitive operational tasks — but this gain remains conditional on a prior maturity of the information infrastructure.

H2: It improves the quality and scope of analyses — provided that the necessary hybrid skills are available and effectively mobilised.

H3: The Algerian context presents specific barriers whose moderating effect on the first two hypotheses remains insufficiently assessed in the available literature.

The approach adopted relies on an updated international literature review, supplemented by a documentary analysis of the Algerian context based on recent institutional reports (Rapport Digital Algérie, 2025; Kheta & Tahrat, 2025; ESGEN, 2024). This empirical base has limitations that we discuss explicitly: it does not constitute a representative sample and does not permit generalisable conclusions without serious methodological precautions.

The article is organised as follows: we first trace the evolution of the controller's profession and the tensions that run through it (section 2); we then analyse the potential contributions of AI across three dimensions (section 3); we examine the specificities of the Algerian context and their moderating effects (section 4); we propose practical recommendations grounded in this cautious reading (section 5); we finally discuss the limitations of our approach and the research avenues that follow (sections 6 and 7).

2. From Classical Controller to Strategic Partner: An Evolution Under Tension

2.1. The Traditional Architecture of Management Control and Its Limitations

When Robert Anthony defined management control in 1965 as the process by which managers ensure that resources are obtained and used effectively and efficiently (Anthony, 1965), he laid a robust analytical framework — but one designed for relatively stable environments. What has changed since is not so much the definition as the context to which it applies.

Contemporary markets combine commodity price volatility, accelerating innovation cycles, growing regulatory pressure — the entry into force of the CSRD Directive in Europe now requires large companies to report on more than a thousand sustainability indicators (European Commission, 2022) — and the globalisation of supply chains. In this context, producing a monthly dashboard in fifteen days, as was still the norm in some industrial companies, amounts to delivering a weather forecast for the previous week.

In Algeria, this obsolescence takes a particular form. According to a survey conducted in 2024 among public economic enterprises (EPEs), management controllers devote an average of 60% of their time to the manual collection, verification and consolidation of data, versus only 40% to analysis and steering. This figure, indicative rather than statistically representative, signals a structural trend consistent with qualitative field observations.

2.2. Towards a New Paradigm: Collaborative Intelligence

As early as 2009, Lambert and Sponem identified four management controller profiles — the discrete, the watchdog, the partner and the omnipotent — noting that the underlying trend was towards the strategic partner role (Lambert & Sponem, 2009). This partner-controller does not merely measure variances: they anticipate, model, scenario-plan and advise. They sit in decision-making bodies not to read out their tables, but to bring a data-informed perspective.

Wilson and Daugherty (2018), in their analysis of human-machine collaboration, show that the highest performance levels are achieved neither by humans alone nor by machines alone, but by hybrid teams drawing the best from each intelligence. This conceptual framework is attractive for management control. But it rests on an implicit condition that is often underestimated: complementarity does not occur automatically. It requires co-design of tools, adequate training, and an organisational willingness to accept a redistribution of roles — conditions that are by no means guaranteed, and even less so in a context of institutional transformation such as Algeria's.

Academic literature tends to document success cases — which is natural — while omitting contexts of failure or stagnation. This asymmetry creates a confirmation bias of which the informed reader must be aware before extrapolating results from a major European industrial group to an Algerian SME or EPE.

3. Autonomous AI in the Service of Management Control: Documented Contributions and Methodological Reservations

3.1. Clarifying a Frequently Oversimplified Concept

The term "artificial intelligence" covers a heterogeneous reality that would be misleading to treat as a uniform block. For the purposes of this article, we retain the definition provided by Russell and Norvig (2020): an autonomous AI system is capable not only of executing predefined tasks, but of learning from experience, adapting to new situations and making decisions without constant human intervention.

This definition clearly distinguishes autonomous AI from traditional ERP software — however sophisticated — which only executes pre-coded rules. It draws on several complementary families of techniques: machine learning, which enables the system to improve its performance from accumulated experience; deep learning, a subset based on artificial neural networks, particularly suited to detecting accounting anomalies or generating financial forecasts; and natural language processing (NLP), which allows the analysis of unstructured data — contracts, reports, emails — that constitute a significant share of organisational information.

But this technical power calls for a fundamental caveat: the capabilities of an AI system are fully deployed only if the data feeding it are sufficiently clean, complete and structured. It is precisely this prerequisite that poses a problem in many Algerian organisations — and that conditions the real scope of the hypotheses we explore.

3.2. Dimension 1 — Automation: Real Liberation or Conditional Promise?

The first transformation brought by autonomous AI is the automation of repetitive, low-value-added tasks. Gartner (2024) estimates that by 2026, more than 80% of financial reporting processes in large companies will be automated through AI tools. At Siemens, the implementation of SAP solutions enhanced by machine learning modules reduced the time spent on monthly close by 40% (SAP, 2023). BNP Paribas reports a 50% reduction in the time required to produce its regulatory reports (ATLAS BNP, 2022).

In Algeria, encouraging signals are emerging. CIRTÀ IT deployed a predictive inventory management solution across fifteen points of sale, achieving an 18% reduction in stock-outs, a 12% decrease in dormant items, and a halving of time spent on monthly reporting (CIRTÀ IT, 2024). IT Solutions developed a "Smart Controller" module that tripled the speed of identifying significant budget variances (IT Solutions, 2024).

These results deserve to be read with caution. Algerian cases, while promising, cover limited perimeters and have not yet been the subject of peer-reviewed publications enabling rigorous methodological assessment. Their value is primarily indicative. Our reading of H1 is therefore as follows: automation is technically feasible and its benefits are documented in specific contexts. Its generalisation across the Algerian economic fabric presupposes the resolution of information infrastructure problems that have not yet been resolved. H1 is partially validated, with an important methodological reservation.

3.3. Dimension 2 — Predictive and Prescriptive Analytics: Seeing Further, But at What Conditions?

Autonomous AI tools do not merely replicate what the controller did, only faster: they enable analyses that unaided human judgement cannot perform within the required timeframes. Where a controller can reasonably consider three to five budget scenarios per planning cycle — limited by available time and cognitive capacity (Kahneman & Tversky, 1974) — an AI system can explore hundreds in a matter of seconds, simultaneously integrating economic, operational and climatic parameters.

McKinsey (2023) reports that companies deploying AI tools for financial forecasting observe a median 50% reduction in forecast errors over twelve months. Coca-Cola integrated rolling forecast modules based on Oracle Analytics, achieving a 22% reduction in storage costs across its pilot markets (Oracle, 2023). In Algeria, AMA developed a "FinanceAI" solution that enabled several client companies to improve the accuracy of their thirty-day cash flow forecasts by 25% (AMA, 2024). At ESGEN, a pilot conducted in 2025 demonstrated a 30% improvement in the accuracy of enrolment forecasts for training programmes (ESGEN, 2024).

These figures are suggestive. But they raise several questions that the available literature does not resolve: what was the initial quality of forecasts before implementation? Are the gains stable over time, or linked to a novelty effect? How do these systems behave in the face of exogenous shocks — energy crises, currency devaluations — not anticipated by their training data? These are open questions, not definitive objections. They simply mean that H2 requires more robust validation than current data allow.

3.4. Dimension 3 — Strategic Repositioning: A Well-Founded Aspiration, an Uncertain Realisation

The logical consequence of the first two transformations would be a repositioning of the management controller. Freed from a portion of operational tasks and equipped with more powerful analytical tools, they could devote more energy to understanding organisational dynamics, formulating contextualised recommendations, anticipating risks and supporting strategic decisions.

Bhimani and Willcocks (2014) note that the value of a management controller in the digital era lies less in their capacity to produce reports than in their ability to translate data into actionable intelligence. This translation requires competencies that AI lacks: organisational empathy, an understanding of power dynamics, and the ability to communicate with interlocutors operating across different cognitive horizons.

But a question remains: does this repositioning occur automatically as soon as operational tasks are lightened? Or does it depend on a set of organisational conditions — formal role recognition, access to decision-making bodies, acquired legitimacy — whose realisation is not guaranteed? The available literature documents the aspiration to repositioning more than its effective realisation. This is an important distinction for Algerian practitioners engaging in this transformation.

Table 1: Contributions of Autonomous AI to Management Control — Documented Gains and Methodological Limitations

Dimension	Without AI (EPE, 2024)	With Autonomous AI	Documented Gains	Limitations to Note
Reporting automation	60% of time on data entry and consolidation	Auto-generated in 3–5 days (Siemens, SAP 2023)	–40% on monthly close times	Large industrial companies; transposability to Algerian EPEs not established
Predictive analysis and scenario planning	3–5 scenarios per planning cycle	Hundreds of simulations in seconds	–50% forecasting errors (McKinsey, 2023)	Results from data-mature organisations; gap with Algerian reality not measured
Anomaly detection	Post-close identification, variable delay	Real-time alerts, before close	Immediate, traceable correction	Requires upstream data quality rarely achieved in current Algerian IS
Inventory optimisation	Manual replenishment, frequent losses	Automated rolling forecasts	–22% storage costs (Oracle/Coca-Cola, 2023)	FMCG sector; generalisation to heavy industries requires caution
Strategic role	Static, retrospective reporting	Forward-looking advisory and scenario framing	Increased influence in decision-making bodies	Conditional on managerial acceptance — a predominant cultural variable in Algeria

Source: compiled by the author from cited works. The "Limitations to Note" column is an original analytical contribution.

4. The Algerian Context: Between Affirmed Strategic Ambition and Constrained Ground Reality

4.1. Real Political Will, an Ecosystem Under Construction

Algeria is not absent from the global movement towards artificial intelligence. The National Artificial Intelligence Strategy, announced under the impetus of President Tebboune in 2024, structures a plan articulated around six priority axes: digital infrastructure, training, research, regulation, financing, and sectoral deployment (Présidence de la République, 2024). With 36 million internet users in January 2025 — representing a penetration rate exceeding 80% — and the digital sector's share of GDP progressing towards 2.5%, the foundations of a favourable ecosystem exist (Rapport Digital Algérie, 2025).

Higher education institutions are beginning to integrate AI into their curricula. ESGEN, in particular, has initiated partnerships with local technology players to develop hybrid programmes combining management control and data analysis. These initiatives are promising. But they are embedded in a broader context marked by significant sectoral disparities and a rate of technological diffusion within companies that is difficult to quantify in the absence of available longitudinal surveys.

4.2. Structural Barriers: A Lucid Diagnosis, Uncertain Solutions

Ground reality calls for caution. A survey conducted in 2024 among a panel of Algerian companies reveals that 68% of management controllers spend an average of two days per month correcting erroneous or inconsistent data — a signal of insufficient data quality for training reliable AI models (Rapport Digital

Algérie, 2025). Kheta and Tahrat (2025), in their study of AI deployment in an Algerian construction materials company, document an underutilisation of available tools primarily due to the absence of standardised data repositories and resistance from existing teams.

These barriers are organised around three axes. First, a technological barrier: information systems in Algerian companies are often fragmented, with data dispersed across incompatible software — a legacy of decades of uncoordinated IT development. Second, an organisational barrier: the pronounced hierarchical culture in many public enterprises creates resistance to change that can stall AI projects that are technically sound. Third, a human barrier: hybrid skills — combining mastery of data analytics tools and management control expertise — are rare and fiercely contested in the labour market.

It would be inaccurate to present these barriers as insurmountable. They are real, but they are also documented — which is the prerequisite for addressing them. Our hypothesis H3 is confirmed in its diagnosis: the Algerian context does indeed present specific barriers. But their precise moderating effect on H1 and H2 remains to be measured. This is where future research has the most work ahead of it.

**Table 2: Barriers to AI Adoption in Algerian Management Control —
Diagnosis and Residual Uncertainties**

Category	Concrete Manifestation	Impact on AI	Resolution Pathway — and Residual Uncertainties
Technological	Data dispersed across incompatible, non-standardised systems	AI models impossible to train on inconsistent data	Standardisation of repositories (cost centres, chart of accounts, item codes) — cost and timeline uncertain for EPEs
Human	Shortage of hybrid skills combining data analytics and management expertise	Underutilisation of deployed tools; low return on investment	Hybrid ESGEN-university curricula — whether the pace of skills acquisition matches the rapid evolution of tools: an open question
Organisational	Resistance to change; pronounced hierarchical culture	AI projects blocked or abandoned before any real deployment	Early involvement of controllers — internal power dynamics poorly theorised in Algerian management literature
Regulatory	Legal framework for data still being developed	Uncertainty regarding the lawful exploitation of collected data	Proactive regulatory monitoring — Algeria does not yet have a framework law on AI in 2025
Financial	High entry cost of AI solutions for SMEs and micro-enterprises	Technological divide between large and small firms	Pooled pilots and local cloud solutions — local offering still embryonic; external technological dependencies problematic

Source: compiled by the author from Rapport Digital Algérie (2025), Kheta & Tahrat (2025) and ESGEN (2024). The "Resolution Pathway" column is an original analytical contribution.

5. Practical Implications: Managing the Transition with Lucidity

Diagnosing barriers is not enough. The value of work grounded in a real-world problem lies also in its capacity to illuminate action — without offering universal recipes. The recommendations that follow are formulated with an awareness of their limits: they are orientations, not guarantees.

5.1. Start with Data, Not with Algorithms

The temptation is strong to deploy sophisticated AI tools before resolving the fundamental question of data quality. Any successful AI initiative begins with a rigorous audit of available data: their completeness, consistency and accessibility. In the Algerian context, this often means starting with a repository standardisation project — cost centres, chart of accounts, item codes — before even raising the subject of predictive algorithms.

Organisations that attempted to shortcut this step paid the price: AI models producing aberrant forecasts because they were fed inconsistent data, and increased user distrust of technically capable tools. Data governance is not a bureaucratic prerequisite: it is the foundation on which any useful artificial intelligence rests. Estimates of the duration of this project range from eighteen months to five years depending on the complexity of the initial information system — a variable that deserves to be factored into any serious transformation plan.

5.2. Proceed Through Targeted, Rigorously Evaluated Pilots

Rather than deploying AI across the entire finance function, the recommended approach is to begin with targeted pilots on well-defined processes. Automating the monthly reporting is an ideal candidate: the process is repetitive, the benefits are measurable, and the risks in case of failure remain limited. CIRTÀ IT followed this logic by starting with inventory management in a single geographical area before expanding its solution (CIRTÀ IT, 2024).

But the recommendation does not stop with the pilot itself: it includes its rigorous evaluation. A pilot without a control group, without indicators defined *ex ante*, and without longitudinal monitoring produces data that feed commercial discourse more than scientific knowledge. Algerian companies would benefit greatly from forging partnerships with institutions such as ESGEN to co-evaluate their field experiences — thereby creating the local evidence base indispensable to future research.

5.3. Invest in Hybrid Skills over the Long Term

An AI tool, however high-performing, only produces value if someone is capable of interrogating it intelligently, interpreting its outputs and translating them into actionable recommendations. This requires management controllers to develop an expanded skill set: proficiency in data visualisation tools (Power BI, Tableau), a grounding in statistics and machine learning, and an understanding of data architectures (Granlund & Malmi, 2002).

ESGEN has a central role to play in developing continuing education modules accessible to professionals in post. But a question remains: is the speed at which these skills can be acquired and diffused throughout the Algerian economic fabric compatible with the pace of evolution of the tools themselves? The risk of a

growing gap between the training provided and the real needs of the market is real, and little discussed in local literature.

5.4. Adopt an Ethical and Critical Governance of AI

AI is not an infallible oracle. Its recommendations can be biased if the training data are — and in a context of fragmented data such as that of Algerian EPEs, this risk is particularly high. The so-called "black box" problem — the inability to explain the reasoning of a complex AI system — takes on a critical dimension when recommendations influence significant resource allocation decisions.

Ethical AI governance implies establishing regular audits of deployed models, defining mandatory human intervention thresholds for high-impact decisions, and training teams to remain critical of algorithmic outputs. This ethical dimension is almost entirely absent from Algerian literature on AI in business — a blind spot that deserves specific attention in future research.

5.5. Involve Controllers from the Design Stage, Not Only at Deployment

Too often, AI projects are driven by IT teams or external consultants, and end users — the controllers themselves — are involved only at the deployment phase. This approach is a recipe for resistance. The transformation must be co-constructed with those it concerns, starting with the definition of needs and the design of tools.

Management controllers know better than anyone the specificities of their processes, the blind spots in their data, and the organisational subtleties that the algorithm cannot perceive. Organisations that have successfully deployed AI in management

control have almost always involved "ambassador controllers" in the project from its very inception. These ambassadors enrich the design of the tool with their field experience and become the most effective vectors for diffusing the solution among their colleagues.

6. Discussion: What the Data Establish, What They Leave Open

The convergence of the elements analysed in this article sketches a potentially profound transformation, whose actualisation nonetheless remains conditional. Profound, because the documented gains — in time, accuracy and analytical scope — are real in the contexts where they have been measured. Conditional, because those contexts are not directly comparable to the Algerian economic fabric in its generality.

6.1. What the Hypotheses Allow Us to Assert

H1 is partially confirmed: the automation of operational tasks is technically achievable and its benefits are documented in organisations with sufficient information infrastructure. The relevant question is no longer "is it possible?" but "in which Algerian organisations, and over what timeframe?"

H2 is partially confirmed: AI tools improve analytical quality in the studied contexts. But their deployment presupposes rare hybrid skills and an initial data quality that is often insufficient in the local context. The analytical gain promised by the international literature presupposes the resolution of infrastructure problems that the Algerian context has not yet overcome.

H3 is confirmed in its diagnosis: structural barriers are real and documented. It remains partially open in its implications: the

precise magnitude of their moderating effect on H1 and H2 is yet to be measured. This is where future research is most needed.

6.2. What the Data Do Not Yet Allow Us to Conclude

The available literature does not answer several questions that practice nevertheless poses acutely. First question: what is the minimum informational maturity threshold beyond which AI produces a positive return on investment? This threshold probably varies by sector, company size and type of process , but it has not been quantified for the Algerian context.

Second question: does the strategic repositioning of the controller occur spontaneously as soon as operational tasks are lightened, or does it depend on additional organizational conditions , formal role recognition, access to decision-making bodies, evolution of managerial culture? The probable answer is the latter, but it remains under-documented.

Third question: what are the second-order effects of automation on employment in Algerian finance departments? The question is carefully avoided in the management literature, perhaps because it is uncomfortable. Yet it is central to any policy of responsible transformation. These open questions map out a research agenda for the years to come.

6.3. The Notion of the "Centaur" Revisited with Caution

The metaphor of the "centaur" — that hybrid human-machine chess player who surpasses both grandmasters and the best programmes — is attractive for describing the AI-augmented controller. It captures something real: the potential complementarity between the machine's computing power and the human's contextual judgement.

But the metaphor has its limits. In chess, the rules are fixed, information is complete, and the success criterion is unambiguous. Management control operates in a universe of fuzzy rules, incomplete information and success criteria that are contestable depending on the stakeholder. The analogy is stimulating; it cannot be taken at face value. What AI actually brings to the Algerian controller — under current conditions — is probably more modest and more targeted than the "centaur" promise. This is not a reason to abstain; it is a reason to begin with calibrated ambitions.

7. Research Limitations and Future Avenues

The present research presents several limitations that should be explicitly acknowledged. First, it rests on a literature review and documentary analysis, not on primary field research. The data mobilised are indicative; they do not permit statistically robust conclusions about the Algerian economic fabric as a whole.

Second, the documented local cases — CIRT A IT, AMA, IT Solutions — come from institutional or commercial sources that have not undergone peer review. Their value is heuristic, not probative. Independent validation through standardised field research remains to be conducted.

Third, the pace of evolution of AI tools is such that some observations in this article may be partially superseded within a two-to-three-year horizon. This is an inherent characteristic of research on emerging technologies, which calls for regular updating rather than definitive conclusions.

Future research would benefit from orientating itself along three priority axes. First, longitudinal case studies in Algerian

companies that have deployed AI tools, with control groups and indicators defined *ex ante*. Second, representative quantitative surveys on informational maturity and hybrid skills in Algerian EPEs and SMEs. Third, work on the ethical governance of AI in contexts of institutional transformation, a perspective almost entirely absent from the Francophone management literature.

8. Conclusion: The Future Is Hybrid, But It Must Be Built — Not Decreed

Let us return to our management controller from the beginning, absorbed in his Excel files. Autonomous AI will not simply save him time — though that is already valuable. In the optimal conditions documented by the literature, it could restore something more fundamental: the possibility of fully exercising his profession, with all the intellectual and strategic richness that training and experience have brought him.

But those optimal conditions are not those of the majority of Algerian companies today. This is what our cautious reading of the three hypotheses reveals: H1, H2 and H3 each find a partial, conditional and asymmetric validation. The benefits are real; the conditions for their local realisation are still largely to be built.

The National AI Strategy 2031 provides a favourable political framework (Présidence de la République, 2024). Local players — CIRTÀ IT, AMA, IT Solutions — demonstrate that the technology is available and adaptable. Institutions such as ESGEN are building the skills of tomorrow. But assembling these pieces requires patient, methodical and lucid work — very different from the enthusiastic adoption that sometimes characterises digital transformation discourse.

What this article hopes to have demonstrated is that the question is not "will AI transform the management controller's profession?" — the answer is probably yes, within an uncertain horizon. The real question is: "what conditions must be created for this transformation to benefit the greatest number, and how can research accompany this process with rigour and humility?" It is to this second question that future work must apply itself.

The organisations that will achieve this hybrid future will not be those that have deployed the most tools, but those that have invested most intelligently in the foundations — data quality, hybrid skills, a culture of evidence — that make those tools useful. For Algerian companies engaging in this path today, the time is not lost. It is invested.

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