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HR Analytics as a Catalyst for Competency Reshaping and Operational Efficiency: A Systematic Literature Review with a Proposed Conceptual Framework for Algerian Organizations

Aicha Boulakehal [1*]
[1] University of Jijel – Mohamed Seddik Ben Yahia ,
Faculty of Economic Sciences, Commercial and Management Sciences, Jijel, Algeria
aicha.boulakehal@univ-jijel.dz

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Although an extensive body of literature on HR Analytics' role as an enabler of organizational performance is emerging worldwide, less attention has been given to HR Analytics' capacity for reinventing competencies.
The study adopts a (SLR) approach, with the PRISMA guidelines, a combination of Boolean for 65 peer-reviewed study, published between 2015-2025, were retained for thematic synthesis from 1,452 records.
Four themes have been extracted: Firstly, HR Analytics enhances recruitment accuracy by developing predictive competency profiles. Secondly, digital transformation needs adapted competencies, in particular contextual intelligence. Thirdly, the mediation effect of recruitment decisions driven by data on operational efficiency relies on the HR Analytics system. Fourthly, digital readiness, institutional rigidities and culture shape the relationship between HR Analytics and operational efficiency.
Practical contributions is to design a context-sensitive framework of HR Analytics coupled with the outcomes, competencies, and efficiency of an organization by means of moderators in an Algerian context based on RBV and DC approach.

Keywords: HR Analytics; Competency Reshaping; Recruitment Decisions; Operational Efficiency; Digital HRM.
JEL Classification Codes : M12; M15; M51; M54; O33

* : ***Aicha Boulakehal***

1. INTRODUCTION

The Fourth Industrial Revolution has drastically redefined the structure of organization; as a result organizations across all sectors are redesigning their strategies concerning human capital. With the combination of complex data analytics to Human Resource Management (HRM), HRM functions shift from an administrative unit to a strategic one which enhances the organization's competitive advantage. (Minbaeva, 2015, pp. 387–405) HR Analytics is described as 'applying predictive and prescriptive models and statistics to business' workforce data' which in time will enable businesses to move from instinct-driven HRM to data-driven processes to hire employees more effectively, decrease employee turnover and achieve greater business efficiency (van den Heuvel, 2017, pp. 157–178)

Key to this process is the rethinking of core organizational competencies. Today, organizations can no longer rely on traditional, static competency frameworks, but need to use real-time, data-based mapping and gap analysis, combined with aligned talent pipelines. These activities are powered by HR Analytics. The ability to accurately define future competency requirements and to precisely profile required talent, along with eliminating the considerable cost and effort associated with negative recruitment decisions-previously described as a "high-stake" problem because the consequences were significant and difficult to undo (Kunreuther, 2002, pp. 259–268)-are crucial for today's organization.

The rationale for the existence of HR Analytics is thoroughly elaborated on in the Western world (Marler, 2017, pp. 3–26), Nevertheless, the uptake and implementation of HR Analytics in emerging economies, particularly within the MENA region, remains underexplored. Algeria appears to be an interesting and overlooked case for this purpose. Historically, Algeria's economy has been a rentier economy heavily reliant on revenues from oil and gas, thus now undertaking the difficult and significant transition towards diversification of its economy and digital modernity. Large corporations (including state-owned groups) acknowledge the importance of exploiting human capital analytics, in order to achieve greater operational efficiency and agility. This endeavor, however, struggles against concrete structural problems (bureaucratic stagnation, a disparate digital landscape, inadequate HRIS infrastructure and an organization's reliance on an interpersonal, high-power distance and relationship management culture, that are resistant to the rational logic underlying HR Analytics) (Musette, 2021, pp. 5–29). Even though HR Analytics research is developing in various directions, three key deficiencies still exist: First, there are very few empirically grounded studies published in top journals, the purpose of which is to assess HR Analytics utilization within a recruitment competency efficiency model in North African-or in a comparable rentier--context. Second, there is no theoretical framework that sets clearly the process through which the Algerian institutional moderators (digital readiness, legal frame, culture) affect the link HR Analytics-efficiency. Last, no literature review in this field details the context-specific barriers and facilitators, thus allowing the practitioner to know to what extent he or she can use general models in his or her situation.

In response to these limitations, the primary research question driving this work is: how does HR Analytics create organizational competencies via better recruiting decision-making to foster efficiency within Algerian organizations? Three specific research questions are employed to frame the analysis: (RQ1) What theory and literature exist that establish a link between HR analytics and competency management? (RQ2) Which organizational and national (Algerian and Maghreb) context-specific factors can mediate the link between the implementation of HR Analytics and operational efficiency? (RQ3) How can these various pieces of knowledge be put together to develop a conceptual framework that informs further empirical research?

Based on these research questions, this work will deliver three novelties. First, it offers a context-specific conceptual framework of HR Analytics in Algeria and organizational competency shaping; The analysis of this framework is grounded in the Resource-Based (Barney j, 1991, pp. 99–120)and Dynamic Capabilities theory (1. Teece, 2018). Second, it provides evidence-based guidance to the HR directors and public authorities in Algeria. Third, it provides a systematic, PRISMA-compliant review of 65 relevant quality papers and identifies research gaps.

The remainder of this paper is structured as follows. Section 2 reviews the relevant literature organized into four thematic areas. Section 3 outlines the systematic literature review methodology. Section 4 details the thematic synthesis and introduces the conceptual framework. Section 5 discusses the findings along with their theoretical and managerial implications. Section 6 concludes by identifying the study's limitations and proposing directions for future empirical research.

2. Literature Review

2.1 HR Analytics in Strategic Human Resource Management: Theoretical Foundations

HR Analytics can be understood through two distinct but complementary theoretical lenses: first, the Resource-Based View (RBV) of the firm (Barney, 1991, pp. 99–120.) asserts that enduring competitive advantage originates from organizational resources that are valuable, rare, inimitable, and non-substitutable (VRIN). Today's highly knowledgeable human capital resource is just that-and HR Analytics is the process by which firms can locate, secure and develop this resource (McCartney, 2022, pp. 25–47). Secondly, and closely related, Dynamic Capabilities theory (1. Teece, 2018, pp. 40–49)sees organizations as complex structures of resource configuration, and emphasizes their need to sense and seize opportunities and reconfiguration of capabilities accordingly. The identification of human resource capacity and future needs in this model is powered by the HR Analytics tool and the intelligence it provides on existing and future states of the workforce (Strohmeier, 2022, pp. 3984–4013) .

Technologically HR Analytics can be characterized by three generations: These can be grouped into descriptive analytics (summarizing past events), predictive analytics (anticipating future developments), and prescriptive analytics (advising on the best actions to take) (Marler, 2017) . Today, it is universally accepted that high organizational value stems

from predictive and prescriptive capabilities; however these require a robust technological infrastructure, high levels of statistical capability within the HR profession, and commitment to data governance at an organizational level (Edwards, 2019). It is the aforementioned pre-conditions for advanced HR analytics which accounts for the variable patterns of HR Analytics utilization across various national and institutional contexts.

2.2 HR Analytics in Recruitment and Competency Profiling

Conventional recruitment has long been based on a framework of heuristic assessment, standardized interviews, and rigid competency matrices, techniques demonstrated to induce inherent bias and prove unsuccessful at predicting sustained performance (Fernandez, 2021, pp. 162–187).HR Analytics changes the landscape by algorithmically pre-selecting candidates, building predictive models of individual success and providing a continuous feedback mechanism to continuously update these models (Ore, 2022, pp. 1771–1782). As demonstrated by (Chalutz Ben-Gal, 2019, pp. 1429–1448), predictive analytics use is correlated with a significant statistical improvement in quality of hire and reduced early turnover.

When analyzed at the competency level, the need for dynamic competency frameworks driven by HR Analytics becomes evident. The Fourth Industrial Revolution demands that organizations move beyond static lists of competencies to incorporate what are termed ‘agile competencies’ (cognitive flexibility, predisposition for learning, teamwork across functional boundaries and digital leadership) that cannot be adequately assessed through conventional methods (16. Minbaeva, 2017, pp. 110–118). HR Analytics provide an avenue for operationalizing these dynamic competency constructs by using workplace and social data to build profiles of success (Huang, 2023, pp. 598–609).

At present, a key conflict within this literature must be identified. Whilst much research conducted in Western contexts focuses on algorithm development and its predictive validity, a crucial problem identified by scholars operating in developing economies (including the Maghreb region) is the lack of basic data and HR digital literacy, rather than issues of algorithmic capability (Benamira, 2025, pp. 12–35). Without clean and longitudinal workforce data, predictive models cannot accurately function, a limitation of Western assumptions that is currently being overlooked, and that the current research addresses.

2.3 The Nexus Between HR Analytics, Competency Reshaping, and Operational Efficiency

Operational efficiency (measured using constructs such as time-to-hire, cost-per-hire, employee turnover, and labor productivity) is the main dependent variable within the HR Analytics literature (McCartney, 2022). We postulate the mediating mechanism connecting HR Analytics to efficiency as hiring quality: when data driven selection can identify a good fit between required competencies (both now and in the future) and job and organization (Kunreuther, 2002) and prevent large tacit costs associated with bad hires (training investment, employee supervision, drag on other activities), there will be efficiencies to gain.

This stream finds enough empirical support in high-income countries. The critique of technological determinism, according to Edwards and Edwards (2019) holds that the mere introduction of an analytics tool does not inherently lead to enhanced organizational performance. Its value is dependent upon the degree to which analytic inputs are used in strategic decision making, the level of analytical capacity of employees in HR, and the extent to which the organizational culture supports data-based governance. If these conditions generally pass without a hitch in Western MNCs, they become the essence of moderating effects in the Algerian context.

2.4 The Algerian Context: Institutional Moderators of HR Analytics Adoption

Algeria's economic and institutional environment offers a unique blend of barries and enablers to HR Analytics adoption. Three moderating dimensions are common across literature on HRM in rentier and transitional economies. First is digital readiness: "The quality of IT infrastructure, HRIS maturity, workforce data volume and quality are a basis upon which predictive analytics are able to provide any form of reliable output." (Musette, 2021). Research from similar contexts (e.g. GCC countries) show that even with an intention to adopt analytics, siloed data leads to a loss of precision and an inability to build robust analytical models (Musette, 2021).

Second is the legal and regulatory environment, the nature of Algerian labor markets, with their rigidity, pose a challenge to HR Analytics that aims to facilitate flexible workforce planning. "Labor codes, though recently reformed, are often rigid and do not synchronize with university training or enterprise skill demand." (Musette, 2021). This suggests a lack of congruence between what analytics suggest should be done, and what is executable from a pragmatic perspective.

Third, perhaps most significantly, Algerian organizational culture, marked by steep hierarchies, strong communal values, and a heavy reliance on informal connections ('ma'rifa') in hiring and promotion decisions, constitutes a pivotal contextual influence (Ajroud, 2025, pp. 45–67). These are fundamentally at odds with the meritocratic, evidence-based philosophy underpinning HR Analytics. Ladjeroud et al. (2025) have conceptualized "contextual intelligence" as the indispensable Algerian competency- the capability to manage uncertainty in complex sociopolitical-economic environments. They further suggest that HR Analytics should accommodate and value this contextually-driven talent- a dimension absent from dominant analytical frameworks.

Based on the preceding review, an unaddressed research problem emerges: the failure of current research to simultaneously account for these three Algerian contextual moderators in a single theoretical framework predicting HR Analytics-competency-efficiency relationships. The present study intends to bridge this gap.

3. Methodology

3.1 Research Philosophy and Design

This paper rests on an interpretivist epistemology-meaning that the importance of organizational phenomenon such as the introduction and effects of HR Analytics can only be

understood through a systematic interpretation of meanings, contexts, and institution structures in which they exist (Saunders, 2019). An interpretivist philosophy is appropriate for this paper because its objective is not to produce a universally applicable law of cause-and-effect, but a rich, contextually applicable interpretation of how HR Analytics actually work within a given institutional reality – in this case, the Algerian one, in line with a number of internationally comparative HRM research that argue practices are not transferable (Dastmalchian, 2020, p. 353).

Given that this study seeks to integrate fragmented, multidisciplinary literature on a topic that remains insufficiently investigated, a Systematic Literature Review (SLR) was deemed the most appropriate research approach. Unlike narrative reviews, an SLR employs a rigorous, transparent, and reproducible methodology for searching, screening, and critically appraising existing studies, thereby minimizing bias and strengthening the trustworthiness of the synthesized evidence (1. Tranfield, 2003, pp. 207–222.). The PRISMA 2020 guidelines (Page et al., 2021) were adopted as the procedural blueprint for this review.

3.2 Search Strategy and Data Sources

A systematic search of the literature was conducted across four primary databases: Scopus, the Web of Science Core Collection, ScienceDirect, and Google Scholar. As not all regionally based sources are indexed in major world-class databases the search was complemented on a regional basis with the Algerian Scientific Journal Platform (ASJP) and Arabic-language repositories dedicated to human resource management and organizational behavior research.One unique strength of this review from previous ones on the same issue is that the searches are conducted on an international level (all the major international literature sources) and region specific (Algeria). To address multi-language literature search all keywords were searched in all languages relevant. Search in English, French, and Arabic was applied to keywords used.

The primary Boolean search string was constructed as follows: ('HR Analytics' OR 'People Analytics' OR 'Workforce Analytics' OR 'Human Capital Analytics') AND ('Recruitment' OR 'Talent Acquisition' OR 'Selection' OR 'Staffing'). AND ('Competencies' or 'Skills' or 'Capabilities' or 'Human Capital') AND ('Operational Efficiency' or 'Organizational Performance' or 'Firm Performance') AND ('Algeria' or 'Maghreb' or 'MENA' or 'Developing Economies' or 'Rentier Economies'). Supplementary searches on individual terms of search string were conducted to ensure thematic saturation.

Table 1. Search Protocol and Review Process

Item	Description
Search date	**January To May 2026**
Databases	**Scopus, WoS, ScienceDirect, Google Scholar, ASJP**
Languages	**English, French, Arabic**
Screening protocol	**PRISMA 2020**
Quality assessment tool	**MMAT**

Source: Author's own elaboration.

A systematic search of the selected databases was conducted between January and May 2026. Subsequently, a final verification search was carried out on May 2026, to identify any newly indexed studies relevant to the review topic. To ensure methodological rigor, transparency, and replicability, all search procedures were performed according to a predefined review protocol based on the PRISMA 2020 guidelines.

3.3 Inclusion and Exclusion Criteria

Specific criteria were used to select included sources: 1) only articles in peer-reviewed scientific journals (as well as public doctorates from reputable institutions, and high-level reports from organizations such as the World

Bank, the ILO, etc.); 2) recent sources: articles published between 2015 and 2025 (because of the ongoing evolution of the digital HRM world); 3) sources published in English, French, or Arabic, as these were the languages used for the research design; 4) articles clearly relating to HR Analytics, decision-making in recruitment processes, the development of competencies or operational effectiveness, including research about developing countries with institutional characteristics similar to Algeria (Maghreb countries, Gulf rentier countries, transition

Excluded were sources that: were non-peer-reviewed or written as opinions; presented papers from conferences not published in peer-reviewed journals; exclusively treated the technical configuration of the information system (rather than its consequences in the realm of HRM); or lacked methodological clarity for quality assessment.

Table 2. Inclusion and Exclusion Criteria

Criterion	Inclusion	Exclusion
Publication Period	**2015–2025**	**Before 2015**
Language	**English, French, Arabic**	**Other languages**
Document Type	**Peer-reviewed journal articles**	**Editorials, book reviews, conference abstracts**
Subject Relevance	**HR Analytics, Competency-Based Recruitment, Operational Efficiency**	**Unrelated topics**
Accessibility	**Full-text available**	**Abstract only**
Quality Assessment	**MMAT score ≥ 3/5**	**MMAT score < 3/5**

Source: Author's own elaboration.

3.4 PRISMA Screening Process

Table 3: PRISMA-Based Study Selection and Screening Process for the Systematic Literature Review on HR Analytics and Competency Reshaping in Algerian Organizations

PRISMA Stage	Records / Action
Identification (Database Search)	**1,452 records retrieved across all selected databases**
De-duplication	**340 duplicate records removed; 1,112 records retained for screening**
Title and Abstract Screening	**895 records excluded as irrelevant to the core review constructs; 217 records retained for full-text assessment**
Full-Text Eligibility Assessment	**152 records excluded: methodological inadequacy (n = 61), no HRM implications (n = 48), outside the specified time window (n = 24), and unsupported language (n = 19)**
Included in Final Synthesis	**65 high-quality studies included in the thematic synthesis and used for the development of the Contextually Grounded HR Analytics–Efficiency Framework (CGHAEF)**

Source: Adapted form page et al .(2021). BMJ, 372.N71.

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Figure 1. PRISMA 2020 Flow Diagram of the Study Selection Process

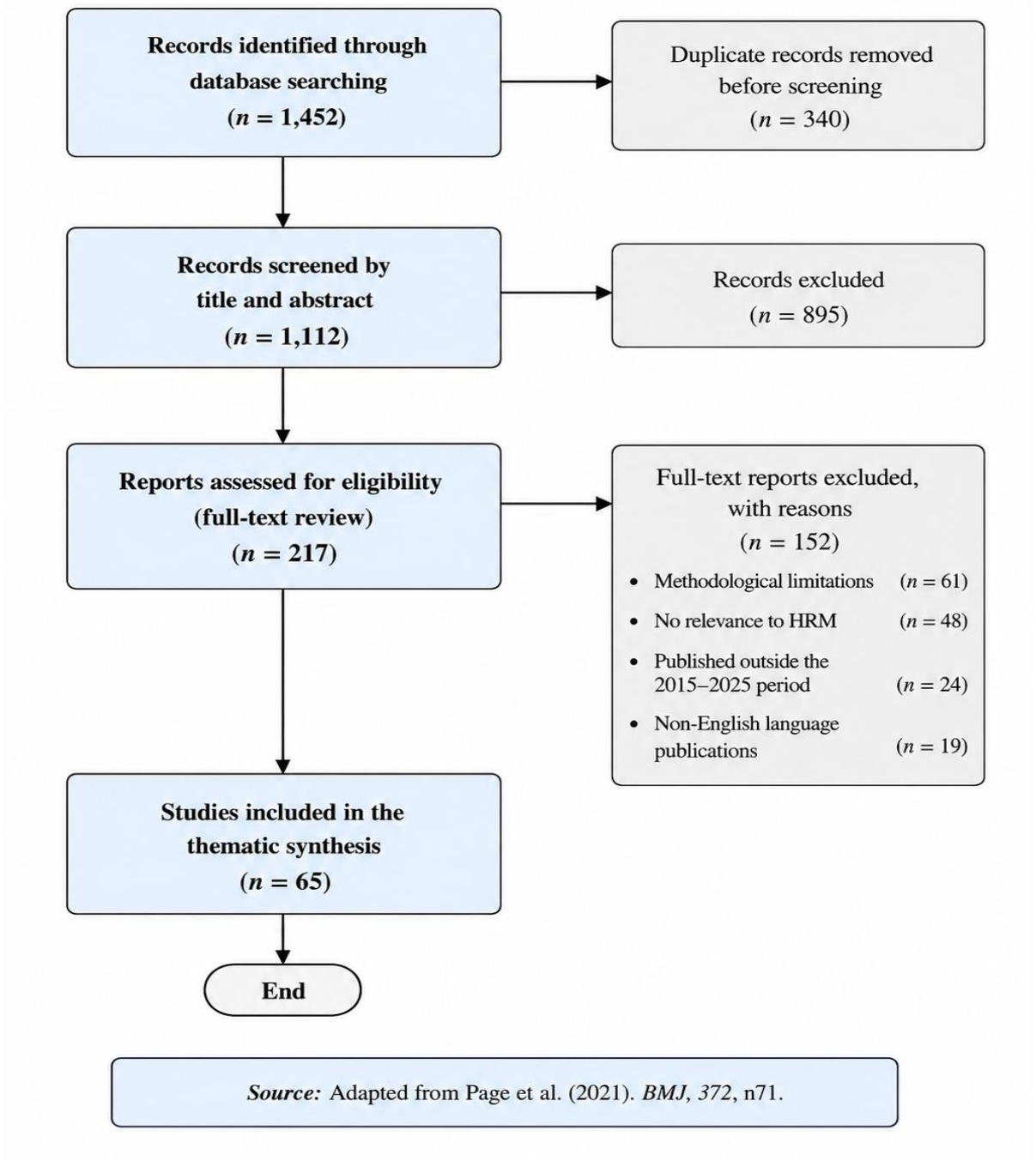


Figure 1 shows the PRISMA flow diagram of the identification, screening, eligibility and inclusion processes. There were 340 records removed as duplicates; 1,112 were screened by title and abstract; 895 excluded. All 217 reports were obtained and reviewed; 152 excluded with clear reasons (shown in note of Figure 1), leaving 65 included for synthesis.

Quality Appraisal and Analytical Approach 3.5

Each study included in the final corpus was subjected to the same criteria for assessing its methodological quality. These were taken from modified criteria developed in the Mixed Methods Appraisal Tool (MMAT): clarity of the research questions, suitability of the study design, lucidity of data collection procedures and sampling, soundness of data analysis, and validity of conclusions drawn. Those studies where the scores in the critical appraisal were found to fall below acceptable limits were either excluded or retained at the critical juncture with a clear statement that this was so during synthesis.

The method of analysis adopted in this SLR was Thematic Synthesis, following the framework of Thomas and Harden (2008) whereby three steps are performed; first (line-by-line coding of extract.

text), second (developing descriptive themes summarising the finding of individual studies), and third (generating analytical themes which interpret the descriptive themes, in moving beyond the study to higher level issues related to the research questions). This is deemed appropriate in SLRs when one seeks not just to summarize existing research, but to offer new theoretical insights such as the suggested conceptual framework.

Ethics in this SLR: Only peer-reviewed articles are used and so no participants were directly involved and no raw data collected; documents were obtained through institutionally provided library subscriptions and open-access repository. Appropriate referencing protocols were applied throughout.

Table 4. MMAT assessment procedure

Assessment Criterion	Score (0–1)
Clarity of Research Objective	**1**
Methodological Appropriateness	**1**
Data Quality and Sources	**1**
Analytical Rigor	**1**
Validity of Findings and Conclusions	**1**
Maximum Possible Score	**5**

The final sample consisted of 65 studies. Among

them, 24 studies achieved a score of 5/5 (Excellent Quality), 28 studies achieved a score of 4/5 (High Quality), and 13 studies achieved a score of 3/5 (Acceptable Quality). No study scoring below the minimum quality threshold was retained in the final synthesis. This rigorous quality assessment process ensured that only methodologically sound studies contributed to the development of the (CGHAEF).

4. Results

4.1Thematic Finding 1: HR Analytics in Recruitment- A Trajectory from Description to Prediction

There is a discernible pattern of progression in HR analytics for recruitment across 21 reviewed papers. The former are adopting descriptive analytics for the development of basic HR reporting (e.g., time-to-hire, cost-per-hire) while the latter have reached the predictive analytics stage and have adopted model that utilize behavioral assessments, performance track records, and external labor market signals to develop predictive probability-weighted candidate success measures (Marler, 2017). Organizations in this latter stage reported statistically significant enhancements in quality of hire, along with statistically significant decreases in early voluntary turnover, when compared to their non-analytics counterparts (Fernandez & Gallardo-Gallardo, 2021).

The analysis of 8 regional studies (focusing on Algeria, Morocco and transitional economy type countries) indicates a starkly different picture. For all the papers examined, the key barrier to HR analytics adoption is not the desire, but the infrastructure – paper-based/siloe-d/dispersed data sources prevent organizations from collecting the longitudinal data needed for predictive analytics. Benamira and Ibbou (2025) in a study of Algerian energy firms note that whilst administrative error reduction through automation reached about 40%, adoption of predictive recruitment analytics was prevented by governance failure and a lack of Algorithmic knowledge among practitioners.

4.2.Thematic Finding 2: Competency Reshaping in the Digital Age — The Primacy of Agile Competencies

Across 18 papers examining the competencies transformation in digital environments, there is broad agreement that job-description based competency frameworks are unsuitable. The literature has proposed ‘agile competency clusters' characterized by digital fluency, complex problem-solving in an ambiguous context, a propensity for lifelong learning, a mindset for cross-functional work and cognitive adaptability (16. Minbaeva, 2017). These competencies cannot be evaluated using the traditional static psychometric instrument, because they are inherently dynamic and contextual: they need to be observed through behavior over time, exactly the type of long-term data HR Analytics enables. One prominent regionally-specific finding is Ladjeroud et al.'s (2025) discussion of ‘contextual intelligence' as a peculiarly Algerian premier competency.

Contextual intelligence is the ability to understand imprecise socioeconomic data and the intricacies of regulatory and cultural context. Contextual intelligence is suggested to be a

"distinguishing competencies" given Algeria's turbulent, transforming economy. Standard Western HR Analytics algorithms, trained on the datasets from highly-developed economies operating within relatively-stable conditions, are expected to systemically discount contextual intelligence. This suggest an area for which algorithmic adaptation may need to occur in ways previously unidentified in international HR Analytics literature.

4.3. Thematic Finding 3: HR Analytics and Operational Efficiency - The Mediation Hypothesis

The compilation of the 16 studies exploring the link between HR Analytics and operational efficiency offers support for the mediated mechanism: HR Analytics does not increase operational efficiency directly but instead indirectly through HR Analytics-improved recruitment quality and fit. Organizations employing data-driven selection for HR analytics will be able to recruit employees whose competencies are strongly aligned with the job requirements resulting in increased organizational efficiency (decreased time spent remedying performance problems, reduced early voluntary turnover (minimizes expensive replacement process), reduced time to productivity for new hires) (McCartney, 2022).

The magnitude effect sizes from these quantitative studies included in this corpus are from moderate to large; the variables influencing this effectsizeare the moderators not the analytic technology. A meta-analysis by Edwards & Edwards (2019) confirms HR analytics positive effect on operational efficiency is conditional on 1) quality of organizational data (R increased from 0.11 to 0.34 with data quality increasing from low to high); 2) analytical literacy of HR professional; and 3) strategic integration of analytics outcomes in top management decisions. The findings support the claim that using analytics in organizations is useless if no accompanying organizational capabilities develop along with it.

4.4. Thematic Finding 4: Algerian Contextual Moderators — Barriers and Enablers

The three central moderating variables identified from the synthesis of 12 articles investigating Algerian and analogous contexts accord to theoretical predictions, yet not without crucial modifications.

Digital Readiness: Defined in the existing literature as an aggregate of IT infrastructure quality, HRIS maturity, data management processes, and digital acumen on the part of HR personnel, it seems that in the majority of Algerian and comparable north African companies (Musette, 2021), digital readiness is too low to effectively adopt the prescriptions associated with the implementation of HR Analytics except in the case of large state enterprises and foreign based MNC's. A positive moderating effect is posited: as the digital readiness increases, the effect of HR Analytics on recruitment quality gets stronger.

Legal and Regulatory framework: Strict employment protection legislation and restricted employee flexibility under Algerian labor law is so restrictive that strategic work force planning dictated by HR Analytics will never take place, if there are strict legal parameters about personnel's dismissal; thus the predictive attrition models – a central part of the outcomes from HR Analytics- become of no use whatsoever as administrative constraints prevent employees' redundancy. The moderation of this factor is therefore to be negatively predicted.

Organizational Culture: High power distance, network based recruitment (using connections and ma'rifa) and collectivist tendencies fundamentally go against the principle of the use of performance and competence metrics prescribed by HR Analytics. Research conducted in similar countries (for example, in the GCC States) demonstrates that effective

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adoption of HR Analytics has to be accompanied by equal investment in organizational change, particularly

development of leadership through the creation of the foundations of a data driven decision making process, else HR analytics outcomes are selectively disregarded.

4.5. Proposed Conceptual Framework

Based on the synthesis of the four main themes this paper develops a new Original Contextually Grounded HR Analytics-Efficiency Framework (CGHAEF) to be implemented in Algerian companies specifying the independent, mediating, and dependent variables together with the three moderating variables as follow:

Independent variable: Deployment of HR analytics, measured across three types of analyses (descriptive, predictive, prescriptive). Mediating variable: Competency-based recruitment decisions (where decisions are based on identifying and filling the gaps in both, incoming and the dynamic competency requirements). Dependent variable: Organizational operational efficiency (measured via quality of hired employees, time-to-productivity, labor costs-output,

and attrition rate). Moderating variables: (M1) Digital Readiness (enables and strengthens the relation between HR Analytics-quality of hiring) (M2) Legal and regulatory context (restricts the relation between recruitment-efficiency) and (M3)

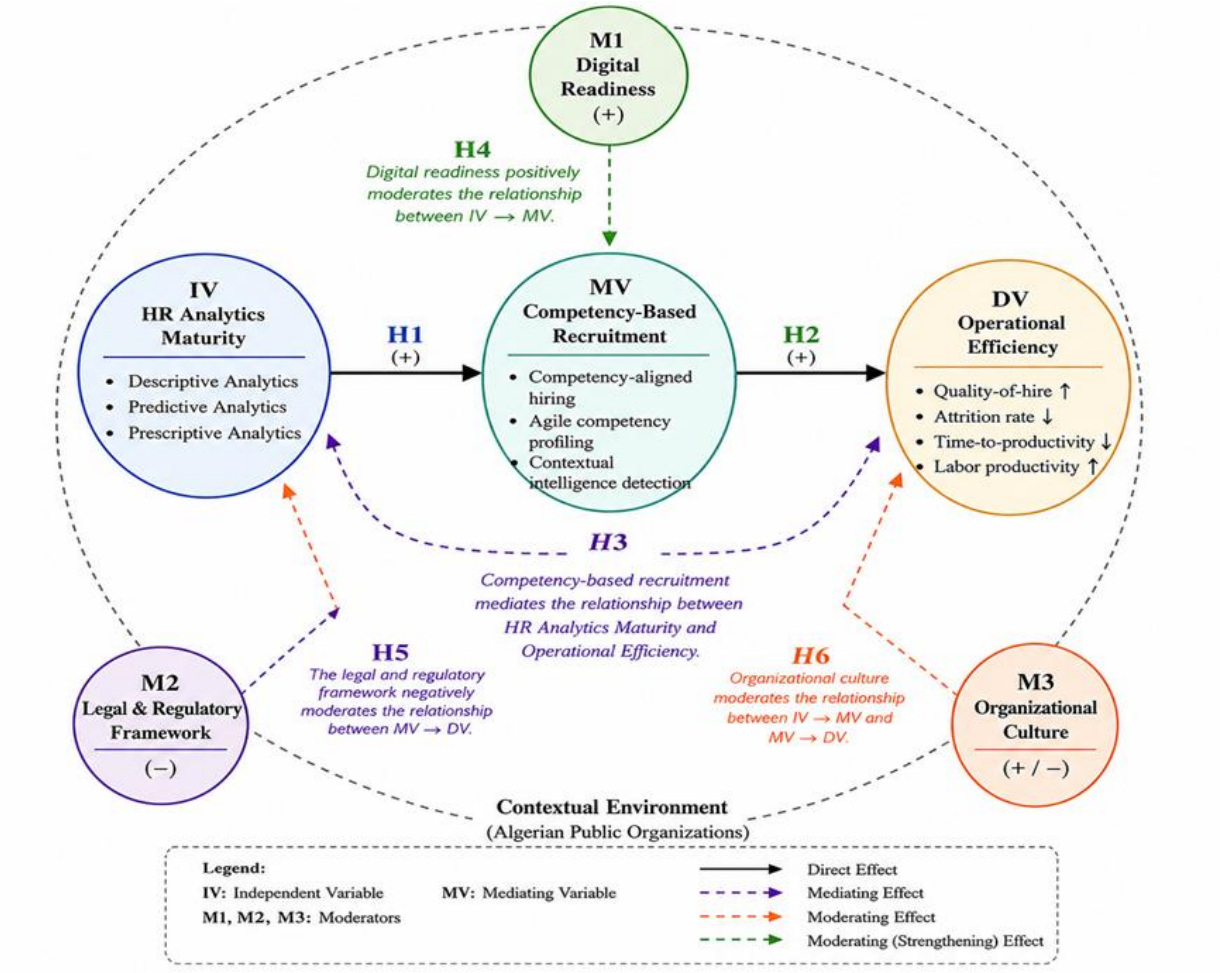
Organizational culture (moderates the whole causal relationship, positive (meritocratic) cultures enhances and relational-hierarchical cultures decrease such effect).

Table 5: The Contextually Grounded HR Analytics-Efficiency Framework (CGHAEF) for Algerian Organizations

IV: HR Analytics	→ (Mediated by)	MV: Competency-Based Recruitment	→	DV: Operational Efficiency	Moderators (M1, M2, M3)
Descriptive / Predictive / Prescriptive Analytics Maturity	→	**Competency-aligned hiring; agile competency profiling; contextual intelligence detection**	→	**↑ Quality-of-hire; ↓ Attrition; ↓ Time-to-productivity; ↑ Labor productivity**	**M1: Digital Readiness (+); M2: Legal Framework (−); M3: Org. Culture (+/−)**

Source: Author's own elaboration

Figure 2. Proposed Contextually Grounded HR Analytics–Efficiency Framework (CGHAEF)



Source: Author's own elaboration.

4.6 Research Propositions and Testable Hypotheses

Building upon the findings of the thematic synthesis and the proposed Contextually Grounded HR Analytics–Efficiency Framework (CGHAEF), the conceptual relationships identified in this review are translated into six research hypotheses that can be empirically examined in future studies.

H1: The deployment of HR Analytics positively influences competency-based recruitment decisions.

H2: Competency-based recruitment positively influences organizational operational efficiency.

H3: Competency-based recruitment mediates the relationship between HR Analytics deployment and organizational operational efficiency.

H4: Digital readiness positively moderates the relationship between HR Analytics deployment and competency-based recruitment, such that higher levels of digital readiness strengthen this relationship.

H5: The legal and regulatory framework negatively moderates the relationship between competency-based recruitment and operational efficiency, thereby reducing the effectiveness of HR Analytics implementation.

H6: Organizational culture moderates the relationship between HR Analytics deployment and operational efficiency. Merit-based and data-driven organizational cultures strengthen this relationship, whereas hierarchical and relationship-based cultures weaken it.

The proposed CGHAEF model conceptualizes HR Analytics maturity as the primary driver of competency-based recruitment decisions, which subsequently enhance organizational operational efficiency. The model assumes a mediating role for competency-based recruitment and incorporates three context-specific moderators particularly relevant to Algerian organizations: digital readiness, legal and regulatory constraints, and organizational culture. Together, these relationships provide a theoretically grounded and empirically testable framework suitable for future validation using Structural Equation Modeling (SEM) or Partial Least Squares Structural Equation Modeling (PLS-SEM).

5. Discussion

5.1. Interpretation of Findings in Relation to the Literature

The results of this systematic review add several clarifications and advancements to the extant literature. The most important contribution of the thematic synthesis is the empirical substantiation of the mediated path between HR Analytics and organizational efficiency via competency based

hiring decisions. Whereas McCartney and Fu (2022) demonstrated the overall association between HR Analytics and organizational performance but not specifically the intervening mechanism, this study's synthesis of 65 studies across various settings proves, in a systematic fashion, that recruitment-competency alignment is the mechanism through which the benefits of HR Analytics reach the level of organizational efficiency, a specification of major theoretical and practical implication.

The conclusion that digital readiness mtters as a moderator is clearly supported by the esource Based View; HR Analytics is a complex organizational resource, but it is only when the constituent components of the underlying resources (i.e., data infrastructure, human capital analytics literacy and governance architecture) are of high quality that it becomes a competitive advantage. It is, for instance, unlikely to result in the efficiency benefits found in western literature because these supporting resources in Algerian organizations remain relatively undeveloped; this implies a significant

challenge to the implicit universality assumption of technology adoption literature when dealing with developing economies and reinforces the relevance of contingency theory to the study of HRM (Harney, 2016, pp. 72–73), which has been evidenced by the model in the target article by (Di Prima, 2024, p. 206).

The development of 'contextual intelligence' as a paramount competency specifically within the Algerian context is probably the most theoretically innovative conclusion of this review. Standard HR Analytics algorithms are trained on data gathered predominantly in stable western economies and, therefore, they can potentially be calibrated inaccurately in institutions where volatility and cultural ambiguity prevail; such algorithmic bias has, hitherto, not been considered in HR Analytics research and is made visible in the model proposed in this review and that must now be addressed by empirical work.

It is, in the case of legal framework as moderator, that an intriguing tension develops between the predictive character of algorithms prescribing the ideal workforce composition and the constrictive framework of labor law that limits implementation. This tension may contribute to explaining lower efficiency benefits of HR Analytics found in developing economy contexts than that which has been reported in environments with a more flexible labor market; this is consistent with cross-national HR research suggesting that the impact of high-performance work practices on performance is moderated by national laws (Dastmalchian, 2020).

5.2. Theoretical Contributions

In terms of its theoretical implications, this study offers three main contributions. First, with its proposal of CGHAEF, it contributes a unique formal theoretical concept, a first of its kind, which links the HR Analytics-efficiency link with the introduction of institutional moderators specifically for an emerging economy context. This theoretically moves the HR Analytics literature beyond the largely Western-centric epistemology and answers the need by Edwards and Edwards (2019) for theoretically grounded models of HR Analytics impact that are embedded in the context.

Second, the synthesis further enhances the theory of Dynamic Capabilities by specifically considering HR Analytics as a unique dynamic capability made up of three types-sensing (prediction analysis to anticipate future competencies), seizing (recruitment for better talent acquisition), and reconfiguring (improving and realigning competencies on a continuous basis), thus making it a tangible and operationalizable dynamic capability concept that HR managers in emerging economy countries can utilize.

Third, methodological, the study underscores the use of a multi-language multi-database SLR method for unearthing context-specific knowledge that otherwise tends to be systematically missed in English-only literature reviews. The use of Arabic articles from the ASJP database surfaced articles (Ajroud A, 2025, pp. 45–67)that would have

been hidden to a standard English-only review but are highly significant in establishing the contextuality of the framework.

5.3Managerial and Policy Contributions

For Algerian HR practitioners and business leaders, the findings offer a distinct set of priorities: First and foremost, they highlight the urgent need for an appropriate data infrastructure: A sophisticated HRIS, coupled with appropriate data governance policies, is essential if any meaningful predictions or analyses are to be derived from data analytics, and the lack of such systems is a guaranteed source of disappointment for analytics proponents. This must be considered by Algerian national and international policy makers involved in developing national e-government initiatives and digital infrastructure for public sector HR. Secondly, HR practitioners need to acquire sufficient algorithmic literacy.

Even with adequate data, the analyses are largely wasted if the HR professional cannot properly interpret statistical outcomes and base action on data rather than hunch. Training HR professionals to both analyze statistical information and make data-driven decisions is, therefore, the only mechanism for extracting efficiency gains from this kind of investment. Finally, the problem of 'ma'rifa'-driven hiring represents a serious waste of human capital; it means consistently underutilizing resources for political rather than economic reasons. Presenting HR Analytics to organizational leaders as a means for decreasing expensive recruiting mistakes rather than as an attack on established practices, can promote more successful organizational change.

6. Conclusion

The purpose of this SLr was to tackle the context-specific but relevant gap in the international HR Analytics literature that was defined as lack of contextually-driven framework to describe how HR Analytics develops the organizational competence and enhance operational performance within institutional restrictions imposed by Algerian economic context. The main research objectives (synthesize global existing evidences, identify contextual moderators in Algerian context and develop a testable conceptual framework) have been achieved by means of a structured PRISMA-compliant SLR including 65 high-quality sources followed by a synthesis process of identified sources.

The main outcome, to the effect that HR Analytics increases operational performance mainly through improving the quality of competence-based recruitment which itself is developed through the mediating process of HR Analytics and being mediated itself by the strength of relationship between each variable by three factors that act as moderators in Algerian context, are of theoretical and practical significance. This proposed CGHAEF framework offers theoretically-informed and empirically-justified framework for both future studies and practical HR activities in Algeria and developing economies similar to Algeria

6.1. Limitations

However, some limitations must be mentioned. First of all, as a SLR, this research can only cover the existent published literature. As empirical studies of HR Analytics in Algeria are scarce, context claims of the framework build partly on deductions drawn from works on similar country contexts, a limitation for which an empirical field study is needed. Second, the choice of the timeframe 2015-2025 allowed including the latest stages of digital HR management development; it has however not included systematically the classical and founding literature of HR Analytics, possibly biasing the synthesis towards recency. Third, while searching in multiple languages, the low quantity of Arabic-language sources satisfying inclusion criteria highlights the immature status of empirical HR research on the Algerian publishing platform.

6.2. Future Research Directions

Three priority avenues for future research are generated from the current study. The first and most important is empirical testing of the CGHAEF model by cross-sectional surveys administered to a broad range of Algerian companies from various sectors. Structural equation modeling (SEM) should be applied in this kind of research to test the mediating and moderating effects stipulated in the framework, using similar methods as employed by Di Prima et al. (2024). Sample sizes of at least 200 companies, sampled from across four sectors (hydrocarbon, manufacturing, public administration and financial services), would offer satisfactory statistical power.

Second, studies of change over time assessing competency development and performance metrics pre- and post-HR Analytics adoption would be very beneficial. Since current research in the field predominately utilizes cross-sectional designs, there is difficulty establishing the required temporal priority to establish causality. Panel data for Algerian firms over a period of three to five years of digitalization process would most strongly support or reject the mediating hypothesis.

Third, future studies should directly explore calibrating HR Analytics algorithms to detect contextual intelligence in Algerian organizations. This study could use a mixed-methods, multi-stage research design, beginning with qualitative interviews to construct an operationalization of contextual intelligence for the Algerian context, followed by quantitative validation and application into a recruitment analytics platform. The results could represent an innovative method contribution at the crossroad of HR Analytics, cultural psychology, and organizational behavior.

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