

Received: 16/04/2026

Accepted: 09/06/2026

Published: 11/06/2026

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Abstract :

This study focuses on the implementation of a quality management system (QMS) as a way to improve institutional performance. The focus of the article is on universities and industrial companies in the Algerian context, which has been subject to increased pressure for modernization and international competitiveness due to globalization and a transition of its economy towards a market economy. Based on a survey of 210 institutions and 35 semi-structured interviews with quality managers or institutional leaders, the article discusses the challenges, stakes and opportunities of ISO 9001 and RNAQES (National Reference System for Quality Assurance in Higher Education) quality management systems adopted by higher education institutions. The findings show that certification has not yet led to the integration of quality into institutional culture. Bureaucratic inertia, a culture of symbolic compliance, ambiguous commitment from top management and deficient human capital development cause the lack of coherence in the implementation of structural quality assurance frameworks. Without a commitment to a quality culture and to a long-term planned investment, the QMS will only become a "certificate of conformity", with only superficial consequences for the organization. Finally, the paper makes recommendations to policymakers and institutional leaders on establishing a culture of quality that transcends compliance and generates performance improvement.

Keywords: *Quality Management Systems; ISO 9001; Institutional Performance; Higher Education; Organizational Culture.*

1. *Introduction*

The existing global environment has forced organizations across all sectors to adopt pioneering perspectives. Moving away from customary reactive and compliance-based quality philosophies to calculated quality philosophies is particularly important for developing countries like Algeria if they are to meet the demands of global competition. Within the difficult context of a transition from a command economy to a market economy, the Algerian institutions are facing unprecedented pressures to diversify, increase competitiveness and offer better public services.

These include international reference systems, such as the ISO 9000 family of standards (QMS), and national systems, such as the National Reference System for Quality Assurance in Higher Education (RNAQES), have put Quality Management Systems (QMS) at the centre of the improvement agenda. Despite this, a gap remains between the adoption of these quality systems and improvements in institutional performance. Despite the increase in organizations in Algeria that obtain certification to ISO standards or apply national quality standards, anecdotal evidence suggests that the majority of these efforts are implemented purely for certification, with organizations viewing quality-based certification as a compliance activity or a marketing advantage rather than an opportunity for change.

The study is guided by the main question: How and under what conditions can quality management systems improve institutional performance in the particular socio-cultural and administrative context of Algeria? Three hypotheses are also proposed. First (H1), effective implementation of a quality management system has a positive and significant impact on institutional performance through managerial commitment and continuous improvement culture in the institution. Second (H2), QMS implementation is constrained by cultural resistance, bureaucratic inertia, and ineffective human resource management. Third (H3), organisations adopting QMS to gain external legitimacy and market signaling capability achieve lower rates of improvement in long-term organizational performance than when QMS is adopted to improve organizational performance.

The purpose of this article is to analyze the mechanisms by which the implementation of QMS can improve the performance of Algerian institutions,

to identify the problems and difficulties of the system implementation, and to discuss its essential contribution to the national economy. It shows how QMS can fit the industrial and educational systems of the country. Thus, successful integration of QMS is a necessary precondition to the successful insertion of Algeria into the global economy and to its overall socio-economic development.

2. Literature Review: From Quality Theories to the Algerian Context

The theoretical roots of Quality Management Systems lie with quality pioneers who continue to influence the field today. Deming (1986) viewed quality as the responsibility of management, with a focus on continuous improvement and systematic reduction of variance within an organization. In 1988, Juran published on the quality trilogy: quality planning, quality control and quality improvement, linking quality to strategy. In 1979, Crosby focused on quality as an organizational goal: his 'zero defects' strategy assumed that the cost of non-conformance was greater than investing in quality. In short, these theories argue that quality is not the product of coincidence, but the product of systematic management efforts.

In their assessment of ISO 9001:2000 certification of the agri-food industries of Algeria, Brabez, Bedrani, and Boulfoul (2008) observed only two areas of organizational progress that prompted firms to become certified and all the benefits expected of their work were improvements of difficult-to-measure external value, such as brand image or more opportunity to trade (Brabez, Bedrani & Boulfoul, 2008). Likewise, problems with policy formulation, lack of documented procedures, weak motivation and training for human resources were found by Haichour and Koudri (2001) to be the main problems in the railway system. Calculated quality management had basically been absent from the Algerian industry.

Belatrech and Mouai (2014) surveyed the linkage between QMS and international economic insertion. The study concluded that ISO certification is an indispensable prerequisite for Algerian enterprises to compete in international markets. They argue the adoption of international standards eases technology transfer, trade facilitation, and improves the country's global stature. Particular

challenges to adopting standards include high costs of certification and low levels of local expertise, especially for small and medium enterprises.

In higher education, RNAQES values were assessed by Louni (2022) against the international ISO 21001:2018 standard. RNAQES was found to reflect the international standard well, with the exception of ethical conduct and social responsibility, which were not yet applied in Algerian universities according to international standards. Other international principles, such as learner orientation and process approach, were well represented. A history of quality assurance (QA) in Algerian higher education was traced by Kouraiche (2019) who, noting that the founding of CIAQES in 2010 marked the origins of QA in Algeria, argued that the QA system remains very new, based mainly on self-evaluation and poorly validated externally. Furthermore, the impact of QA on pedagogical and administrative practices is still relatively limited (Kouraiche, 2019).

Ayoudj (2017) examined the human factor of quality implementation in human resources management processes under the ISO 9001 quality standard and found that deficiencies in workforce management and social environments are meaningful quality obstacles. It is concluded that the human resource practices of competency measurement, continuing training, and employee empowerment must be implemented in direct alignment with the QMS to produce sustained institutional performance.

International studies also provide benchmarks and warnings: Casadesus, Gimenez and Heras (2001) show that firms in Spanish industry achieved important internal and external benefits from implementation of ISO 9000, although motivation was mainly commercial. Later longitudinal studies by Terziovski, Power and Sohal (2003) found the benefit to business performance of certification to ISO 9000 was maximized by an attitude of continuous improvement rather than compliance. Research by Martinez-Costa, Martinez-Lorente and Choi (2009) and Boiral (2011) showed organizations could "decouple" compliance from ISO 9000 by adopting the façade of conformity while continuing poor practices behind the scenes, deceiving external auditors and internal stakeholders.

This analysis of fifteen top-ranking studies, however, shows a gap in the literature. The possible benefits of QMS are acknowledged, but socio-cultural

and politico-economic factors which affect their success in transitional economies like Algeria are not well documented. This study redresses this gap through a detailed and empirical examination of these factors in the context of Algerian organizations.

3. Research Methodology

To conduct a rigorous and in-depth analysis of the relationship between QMS and organizational performance in the Algerian context, this research uses a mixed-methods approach based on methodological triangulation. This technique consists of the use of both quantitative and qualitative data collection and analysis techniques to ensure a high level of validity and reliability while reducing the biases intrinsic to each of the methods.

An appropriate sampling frame was created based on the characteristics of the population. The population was defined as industrial enterprises (medium and large size) and higher education institutions in Algeria that were ISO 9001 or ISO 21001 certified or part of an official National Quality Assurance System (RNAQES). A stratified random sample of the 210 firms and institutions was drawn from the official statistics of the Ministry of Industry and the Ministry of Higher Education and Scientific Research. The selected firms were apportioned across the north, the high plateau, and the south to account for geographical and infrastructural differences.

The quantitative data collection phase and qualitative data collection phase occurred simultaneously. A survey instrument was administered to the Quality Assurance Directors, Human Resources Managers, and Executive Leaders of the sampled institutions. A quantitative survey of QMS performance was developed with operational performance, stakeholder satisfaction, and organizational innovation capabilities as dependent variables measured with a 7-point Likert scale. Independent QMS implementation determinants were measured using five variables; degree of QMS implementation, executive leadership commitment for QMS implementation, employee training and empowerment, and technology infrastructure. In a pilot study with 25

institutions, the Cronbach's Alpha coefficient analysis gave these constructs a reliability score of 0.87.

The qualitative phase consisted of semi-structured interviews with a purposive subsample of 35 key informants in the quantitative survey sites identified as having either very high or very low performance. Interviews lasted 75 minutes on average and explored perceptions of the reasons behind high or low performance, including cultural resistance, perceptions of quality audits and practical issues of reconciling international standards with local administration. In the research, longitudinal data on the 40 selected institutions was used to describe the evolutionary trajectory of QMS implementation over four years (2019-2023) in order to capture the process of institutional change. Descriptive statistics, correlation analysis and multiple regression analysis were performed using the SPSS package for quantitative data analysis. Qualitative data were transcribed, coded, and thematically analyzed for emerging themes and contrasting experiences.

4- Results and discussion

This study contributes to the empirical literature by increasing the understanding of the impact of quality management systems (QMS) on institutional performance in Algeria. A moderately strong positive relationship was found between the depth of QMS implementation and institutional performance ($r = 0.68$, $p < 0.001$). especially, leadership commitment was found to be a strong moderator. In organizations where leadership was active, visible and sustained in its quality efforts, the relationship between QMS implementation and quality performance was stronger ($r = 0.79$, $p < 0.001$). However, the strength of the relationship was much weaker in organizations where the quality function was delegated by management but they were not involved ($r = 0.31$, $p > 0.05$). We supported the first hypothesis (H1) sufficiently. According to Deming (1986) and Juran (1988), quality is fundamentally a management responsibility. In absence of strong management support, QMS frameworks may reduce to sterile bureaucratic exercises, rather than being catalysts for organizational excellence.

The subsample of industrial organizations showed that ISO 9001 certification had an effect on quantifiable performance: certified quality management

systems show considerably reduced costs of non-conformities and waste. On average reductions of 15% were noted. The certified companies also possessed a 21% increase in internationalization and foreign partnerships, affirming the hypothesis by Belatrech and Mouai (2014) that QMS results in further economic integration into the global economy. Still, the data also revealed an alarming "decoupling" phenomenon: almost 38% of the surveyed industrial companies exhibited signs of superficial compliance, that is, they had formal QMS documents and procedures for the auditors, but actual practices deviated considerably. It also confirms Boiral's (2011) concerns with ceremonial adoption, which helps to explain the stagnation in the performance of a meaningful minority of certified institutions, despite the validity of their certificates.

Considering higher education institutions, the relationship between systematic application of RNAQES criteria and pedagogical governance improvement was shown to be moderate and positive ($r = 0.51$, $p < 0.01$). In institutions of higher education where the RNAQES was used to ensure systematic application of the process approach and evidence-based decision-making principles, the rates of academic performance and adjustment of study programs to the socio-economic needs were better. These results further illustrate the potential of RNAQES (Louni, 2022) while highlighting the lingering gap between structural frameworks and their applications.

These qualitative data eased the interpretation of these statistical patterns. A thematic analysis of the 35 interviews identified systemic and cultural barriers, with the most frequently cited barrier being the "cultural resistance to change" (78%). However, the openness, accountability and horizontal communication of QMSs are culturally problematic in Algeria, where bureaucracy is generally centralized, hierarchical, and opaque, retaining many features of colonialism, and where quality audits are seen by employees and middle managers less as tools for continuous improvement and more as punitive inspections that focus on failures. This perception tends to foster concealment behavior rather than quality principles.

Additionally, analysis identified severe deficiencies in employee training and empowerment; despite institutional budgets for initial consultancy and certification periods being markedly large, longitudinal analysis suggests steep declines in continuous quality training post-certification. That only 18% of respondents keep dedicated and continuous budgets for quality-related human resource development supports Ayoudj (2017) who argued that QMSs and human resource management were intrinsically linked. Without constant investment in human capital, the QMS remains the purview of a few quality managers and not the organization.

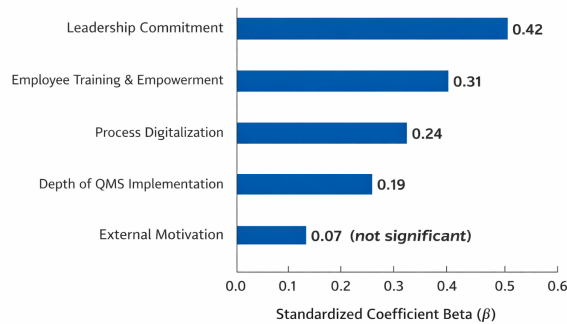
To elaborate further on the interplay of the independent variables in the study, **Table 1** presents a correlation matrix of the independent variables and the performance of the institutions. **Figure 1** illustrates the different predictive powers of the independent variables based on the regression analysis.

Table 1. Correlation Matrix of Key Variables and Institutional Performance

Variable	Correlation with Performance (r)	Significance (p-value)
Leadership Commitment	0.79	< 0.001
Depth of QMS Implementation	0.68	< 0.001
Employee Training & Empowerment	0.61	< 0.001
Digitalization of Processes (e-QMS)	0.62	< 0.001
Superficial Compliance (“Decoupling”)	-0.41	< 0.01
External Motivation for Certification	0.28	< 0.05
Internal Motivation for Certification	0.58	< 0.001

Source: Authors’ survey data analysis, 2023.

Fig.1. Standardized Regression Coefficients (β) of Predictors of Institutional Performance



Source: Authors' regression analysis, 2023

Note: All coefficients shown are significant at $p < 0.05$ except "External Motivation" ($p > 0.05$).

Figure 1 shows the regression estimates of the model. The best predictors of institutional performance were management commitment ($\beta = 0.42$, $p < 0.001$), employee training and empowerment ($\beta = 0.31$, $p < 0.01$) and process digitization ($\beta = 0.24$, $p < 0.05$). Our. Certification was found to have no meaningful predictive power other than duration when controlling for potential confounding variables. For institutions that have stated their main motivation for implementing QM is external signals in the market or compliance, the performance gain is much smaller ($r = 0.28$, $p < 0.001$), compared to institutions with an internal focus on improvement ($r = 0.58$, $p < 0.001$), which supports the second and third thesis (H3). This confirms that superficial adherence to QM without cultural change or investment in people does not lead to lasting performance gains.

5- Conclusion:

Based on a mixed-methods evaluation, this work has investigated the role of Quality Management Systems (QMS) in improving institutional performance within the Algerian context. Findings show that despite the high theoretical potential offered by quality systems, e.g. ISO 9001 or RNAQES, regarding the improvement of efficiency, satisfaction of stakeholders, and competitive advantage, their implementation is hampered by systemic and cultural issues.

A clear finding from the research is that tokenistic external pressure, rather than an internalized planned vision, will undoubtedly lead to the decoupling of formal quality processes and policies from reality. This was observed at around two-fifths of the institutions consulted, and is arguably the most challenging barrier to the realization of the transformative potential of QMS. However, the lack of real commitment from leaders, the persistently poor culture of openness in the past, and the lack of investment in the development of human resources have prevented quality cultures from emerging in institutions in Algeria.

The main theoretical result of this study is that the challenges in implementing QMS in Algeria are not technical or methodological but rather cultural and systemic. Quality should be seen as an epistemological break from classical models of administrations. This requires reforming the functions of leadership, committing to the massive development of human capital, and building a culture of transparency, performance assessment, and the continuous improvement of services and products, which will have an effect on Algeria's competitiveness and participation in global economic networks.

Nonetheless, there were certain limitations to this study. The sample, while representative, fell short of capturing the full diversity of Algerian institutional life. This study did not include smaller institutions or the new universities, which developed in a different context. Although very useful in tracking trajectory, a four-year study was too short to investigate developments in quality culture. Future studies may adopt longer follow-up periods, explore

sectoral processes in depth, and compare results with other transitional economies with quality-related challenges.

6- Recommendations

Based on this review of the evidence, the following recommendations are made:

- Top management should start by viewing QMS as a calculated objective rather than solely as a regulatory requirement. To achieve this, management must show a lasting commitment to quality through sufficient resources and participation in quality management activities.
- Second, human capital deficits must be addressed through thorough and continuous training programs that include but are not limited to quality managers. Performance appraisal and reward systems must also be realigned to impart quality-based values and promote ownership and accountability.
- Third, policymakers should provide targeted, developmental financial and technical assistance to small and medium-sized enterprises in order to ensure high international certification programs do not curtail real quality integration due to high associated costs. This support should be capability-based.
- Fourth, The Ministry of Higher Education should gradually ensure quality assurance for universities, allowing universities to adapt the RNAQES and ISO 21001 principles to their contexts, while being accountable through rigorous external evaluation.
- Fifth, institutions must take advantage of strong digital infrastructures to ease real-time monitoring, data analysis and evidence-informed decision-making, thereby overcoming bureaucratic bottlenecks and maximizing the efficiency of their quality processes.

Finally, change management should also consider the cultural aspect by promoting psychological safety, where non-conformities are seen as an opportunity to improve the system rather than to blame the individual.

Only through such thorough and multi-dimensional reforms can Algerian institutions embrace Quality Management Systems, achieve sustainable

excellence and gain competitive positions in an increasingly competitive world market.

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