

Barriers Retarding Zambian Manufacturing Companies from Applying Quality Management

*Mathew Saili

IDE-UNZA, University of Zambia, Lusaka, Zambia

*Corresponding Author

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ABSTRACT

The Zambian manufacturing sector faces significant challenges in achieving global competitiveness, primarily due to the critically low adoption of formal Quality Management Systems (QMS). With less than 3% of registered manufacturing companies certified at the time of data collection, this study identifies and ranks the critical barriers hindering implementation. Adopting an integrated theoretical lens combining the Resource-Based View (RBV) and Institutional Theory, the research posits that adoption failure stems from a lack of coercive and normative external pressures coupled with critical deficiencies in internal, firm-specific resources and capabilities. Using a robust mixed-methods approach involving a survey of 94 manufacturing managers and 18 semi-structured interviews, the study empirically ranks Organisational barriers (high cost and lack of skilled personnel) as the most binding constraints. The analysis categorizes these barriers into gaps in Tangible (financial, technical), Intangible (top management commitment, knowledge), and Human Resources (skills, culture). Integrating rich qualitative insights substantiates these rankings and adds contextual depth. Understanding these barriers as resource and institutional gaps provides a structured basis for policymakers and managers to develop targeted strategies to build the necessary VRIO (Valuable, Rare, Inimitable, Organised) capabilities for sustained quality excellence.

Keywords: Quality Management Systems (QMS); Barriers; Manufacturing; Zambia; Resource-Based View (RBV); Institutional Theory; Top Management Commitment.

INTRODUCTION

In an era defined by intense globalisation, the implementation of a robust Quality Management Systems (QMS) such as ISO 9001, Total Quality Management (TQM), and Lean Manufacturing is a strategic imperative for manufacturing firms seeking sustainable growth and international market access and penetration (Goetsch & Davis, 2022; Sila, 2017). These systems are proven Organisational capabilities that improve efficiency, enhance product conformity, and ensure customer satisfaction (Ali et al., 2020). However, the Zambian manufacturing sector exhibits a profound capability gap. Statistics from the Zambia Bureau of Standards (ZABS) and industry reports, current at the time of this study's data collection, indicated that out of approximately 1,519 registered manufacturing companies, fewer than 34 were QMS certified, representing an alarmingly low adoption rate of less than 3% (Saili, 2018). While recent years have seen increased certification among large industry players (e.g., Tradekings and Savenda), this low figure historically undermines the sector's overall ability to capitalize on trade agreements, such as the African Growth and Opportunity Act (AGOA), where quality certification often serves as a prerequisite for export. This critical situation underscores the urgent need to investigate the specific obstacles. This article addresses the objective: To ascertain the barriers retarding Zambian manufacturing companies from applying quality management. The paper presents empirical evidence by ranking the identified barriers and interpreting these findings through a combined theoretical framework, providing targeted recommendations for QM professors, industry, and policymakers.

Theoretical Framework

To provide a robust foundation for analysis, this study integrates two dominant theoretical lenses in strategic management and Organisational change: The Resource-Based View (RBV) and Institutional Theory.

The Resource-Based View (RBV) and VRIO

The Resource-Based View (RBV) argues that a firm's superior performance and sustained competitive advantage are rooted in its unique bundle of resources and capabilities that meet the VRIO criteria: Valuable, Rare, Inimitable, and Organised to exploit (Voola et al., 2020).

- a) Resources are firm-specific assets: Tangible (financial capital, technology, machinery), Intangible (knowledge, reputation, top management commitment), and Human (skills, training, culture).
- b) Capabilities are the firm's capacity to deploy these resources effectively, such as successfully designing, implementing, and maintaining a QMS.

A successful QMS can be a VRIO capability: it is Valuable (V) as it reduces waste and improves quality; Rare (R) in the low-adoption Zambian context; and potentially Inimitable (I) due to the underlying socially complex culture and integrated processes (Sila, 2017). The primary failure point analysed in this paper is the Organisation (O) element: Zambian firms often lack the necessary resources and Organisational structure to build and exploit this capability. The barriers identified are, fundamentally, critical deficiencies or gaps in the required VRIO resources.

Institutional Theory

Institutional Theory explains Organisational behaviour as a response to external pressures, coercive, normative, and mimetic from the environment (DiMaggio & Powell, 1983).

- a) Coercive Pressure: Legal requirements and regulatory enforcement (e.g., strong penalties for non-compliance, mandatory certification for public tenders).
- b) Normative Pressure: Professional standards, best practice guidelines, and educational efforts from industry associations and experts (i.e., QM professors).
- c) Mimetic Pressure: Imitation of successful competitors (benchmarking).

In the Zambian context, where regulatory enforcement is often weak (Saili, 2018) and few peers are certified, the lack of strong coercive and mimetic pressures reduces the external impetus for QMS adoption.

Integrated Framework

The integrated framework posits that QMS adoption occurs when external institutional pressures align with sufficient internal resource endowments (RBV). The absence of strong external demand (Institutional gap) and the presence of critical internal resource deficiencies (RBV gap) combine to create the most significant retardation to quality management application.

METHODS

The study adopted an explanatory mixed-methods research design, combining a cross-sectional survey with semi-structured interviews to provide both the breadth of quantified ranking and contextual depth.

Data Collection and Sample

The study population comprised approximately 1,519 registered manufacturing firms in Zambia. Given resource constraints and the requirement for direct access to key decision-makers, a non-probability, convenience sampling strategy was employed, targeting managers from firms actively operating in major urban commercial centres (Lusaka, Kitwe, Ndola) where the concentration of manufacturing activity is highest. This approach ensured accessibility to key respondents involved in quality decision-making.

A structured questionnaire was administered to managers in 94 manufacturing firms across various sectors. Managers were asked to rate 16 potential QMS barriers on a 5-point Likert scale (1 = Not a barrier; 5 = Major barrier). Subsequently, 18 semi-structured interviews were conducted with owners, operations managers, and quality officers to triangulate and provide illustrative context to the quantitative findings. Table I provides a demographic summary of the 94 respondent firms, showing a sample composition that aligns with the SME-heavy structure of the Zambian manufacturing sector.

Table I: Sample Firm Demographics

Characteristic	Category	N (Firms)	Percentage (%)
Firm Size	Small/Medium Enterprise (SME)	70	74.5%
	Large Enterprise	24	25.5%
Sub-Sector	Food & Beverages	35	37.2%
	Metal/Fabrication	30	31.9%
	Textiles/Clothing	15	16.0%
	Other	14	14.9%
Years in Operation (Average)		11.5	N/A

Instrument Validation and Reliability

The initial list of 16 potential barriers was developed based on a comprehensive literature review and adapted for relevance to the African industrial context. The questionnaire was pilot-tested with 10 non-sampled industry professionals to ensure clarity, comprehension, and contextual validity before final administration. The reliability of the 5-point Likert scale items was assessed using **Cronbach's Alpha** yielding a value of **0.971**. This statistically strong result confirms the high internal consistency and reliability of the barrier measurement instrument used in this study.

Analysis of Barriers were ranked based on their mean scores. Thematic analysis of the interview transcripts was used to interpret the quantitative rankings, particularly by relating the identified barriers back to the categories defined by the RBV (Tangible, Intangible, Human) and Institutional Theory.

RESULTS AND DISCUSSION

Ranked Barriers

Table II presents the top ten barriers ranked by their mean score, demonstrating that Organisational resource constraints are the most dominant obstacles.

Table II: Top Ten Barriers Retarding QMS Adoption (Source: Saili, 2018)

Rank	Barrier	Domain	Mean (1–5)
1	High implementation and certification costs	Organisational (Financial)	4.62
2	Lack of skilled quality personnel	Organisational (Human Capital)	4.33
3	Weak regulatory enforcement / low coercive pressure	Institutional	4.10
4	Limited access to finance for investment	Organisational (Financial)	4.02
5	Low customer demand for certified quality	Market/Cultural	3.88
6	Poor supplier quality and input variability	Technical	3.74
7	Limited technical infrastructure (calibration, labs)	Technical	3.66
8	Management scepticism about return on investment	Organisational (Intangible)	3.55
9	Complex certification procedures	Institutional	3.42
10	Cultural resistance to formal procedures	Cultural (Human Capital)	3.30

The survey results confirm that **Organisational** factors, primarily those related to the availability of resources, represent the most critical domain impediment.

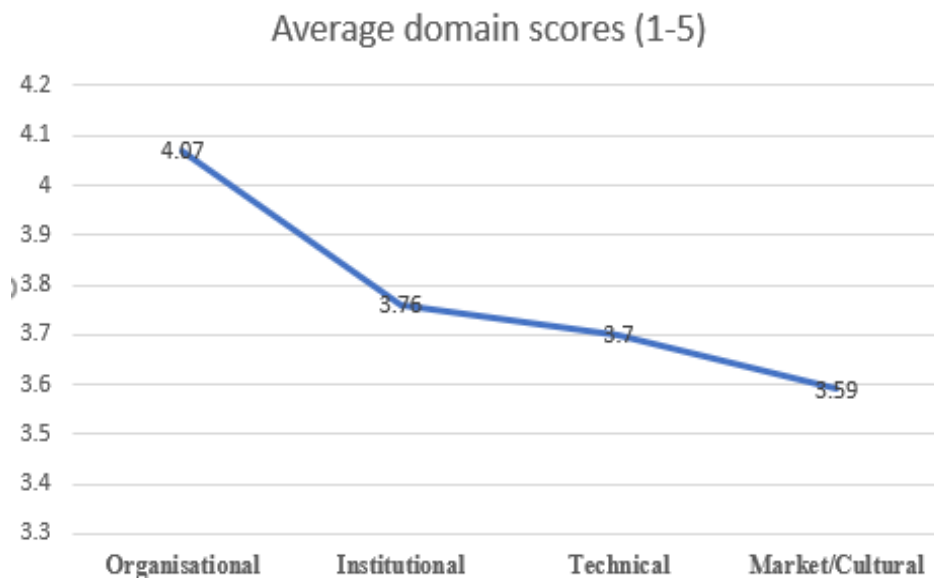


Figure I: Average Domain Scores (Authors Data)

Figure I: displays average domain scores computed from the constituent barriers, showing Organisational constraints (Mean: 4.07) as the dominant domain impeding adoption, followed by Institutional factors (Mean: 3.76), Technical factors (Mean: 3.70), and Market/Cultural factors (Mean: 3.59). (Source: Authors' Own Data)

The survey results confirm that Organisational factors—primarily those related to the availability of resources—represent the most critical domain impediment. The average domain scores, presented visually in Figure I, support this ranking, showing Organisational constraints (Mean: 4.07) as the dominant domain impeding adoption, followed by Institutional factors (Mean: 3.76), Technical factors (Mean: 3.70), and Market/Cultural factors (Mean: 3.59).

DISCUSSION

Interpreting Barriers through RBV and Institutional Lenses. The empirical ranking strongly validates the integrated RBV and Institutional framework as follows:

A. Tangible Resource Deficiencies (Financial and Technological); The top two ranked barriers (High Cost and Limited Access to Finance, ranks 1 and 4) represent a significant gap in **Tangible Resources** (Al-Dahood et al., 2023). The prohibitive direct costs (consulting, training, fees) and indirect costs (system downtime) prevent many Small and Medium-sized Enterprises (SMEs) from making the initial investment required to build the QMS capability (Ofori & Hinson, 2017). This perspective was strongly corroborated in the interviews: **“The cost for the initial consultant and fees is like paying a whole year's salary for a full-time employee. We just don't have that cash flow to start, let alone sustain it,”** commented one Production Manager. Furthermore, the lack of modern machinery and adequate calibration/testing infrastructure (Rank 7) constitutes a deficiency in **Technological Resources** (Odoom et al., 2019), making it physically difficult to achieve the consistent production quality demanded by QMS standards.

B. Human Resource Deficiencies (Skills and Culture); The second most binding constraint is the shortage of **Human Capital** (Rank 2). The lack of personnel trained in QMS methodologies (e.g., internal auditors, quality managers) prevents firms from effectively designing and maintaining the system (Ajagbe et al., 2016). This resource is valuable and rare in the Zambian labour market. As one HR Manager from a large textile firm lamented, **“We can't find a qualified local internal auditor. We have to contract one from South Africa for every audit, which is expensive and unsustainable for continuous improvement.”**

Deeper Analysis of Cultural Resistance (Rank 10): The cultural resistance to formal procedures is a critical, underlying **Human Resource** deficiency, reflecting the absence of the socially complex Organisational culture needed for continuous improvement (Dinh et al., 2023). Our interviews revealed this resistance manifests in

two key ways: **A preference for informal, personal control systems** (relying on trust and individual know-how) over documented, standardized procedures; and a **hierarchical, top-down structure** that discourages employee involvement and the upward reporting of non-conformities, which is fundamental to QMS. This cultural preference for informality and centralized control must be proactively managed to embed the QMS into the firm's inimitable processes.

C. Intangible Resource Deficiencies (Top Management and Knowledge); The underlying driver for resource gaps is often the lack of **Top Management Commitment** and the resultant **Management Scepticism** (Rank 8). RBV classifies committed leadership and strategic vision as a vital **Intangible Resource** (Gani & Ahmad, 2020). Without this commitment, the firm fails the "Organisation" (O) test of the VRIO framework, as leadership fails to align other resources toward the QMS goal. This lack of strategic vision was evidenced in the interviews, where a quality officer commented, **"Our MD sees the certificate as a wall-hanging, not a process change. They consistently ask, What's the immediate return on this big expense? —they misunderstand its long-term strategic value."** This is compounded by a lack of awareness and misunderstanding of QMS benefits (Madi, 2021), preventing management from accurately assessing the investment's strategic value.

D. Institutional and External Pressures; The empirical finding that **Weak Regulatory Enforcement** (Rank 3) is the third most significant barrier reinforces the role of Institutional Theory. The absence of strong coercive pressure and market demand (Rank 5) reduces the external motivation for adoption, meaning even resourceful firms may delay investment where no clear market or legal reward exists (Muneer, 2022). To clarify the domain in Table I, **Market/Cultural** refers specifically to **external** market pressures (customer willingness to pay for certification), while the **Cultural** barrier (Rank 10) refers to **internal** Organisational human capital issues. Policy measures, therefore, must focus on increasing the institutional signalling that quality management is required for market participation.

CONCLUSION AND STRATEGIC IMPLICATIONS

The retardation of QMS adoption in the Zambian manufacturing sector is a complex, systemic issue driven by an integration of resource deficits and weak institutional drivers. The low adoption rate is a symptom of a fundamental failure to accumulate the tangible, intangible, and human resources required to build a core strategic capability (Tsekouras et al., 2020).

This study's theoretical and empirical findings lead to clear strategic implications, particularly for those in the Quality Management profession and policy space:

For QM Professionals & Educators:

- a) Curriculum Alignment: Curricula must shift beyond theoretical concepts to focus heavily on practical implementation, cost-benefit analysis, and translating QMS into quantifiable business strategy to overcome management scepticism (Rank 8).
- b) Sectoral Partnerships: Launching joint training programs and applied research with industry to address the shortage of skilled personnel (Rank 2).

For Company Management (RBV Focus):

- a) Strategic Resource Investment: Management must reframe QMS from a compliance cost to an investment in a strategic, VRIO capability. Prioritize the development of the Intangible Resource of Top Management Commitment first, as this underpins all other resource allocations.
- b) Culture Change: Proactive measures are needed to overcome Cultural Resistance (Rank 10) by fostering employee involvement and continuous improvement principles (Zairi, 2021).

For Policymakers and Industry Bodies (Institutional Focus):

- a) De-Risking Financial Barriers: Establish public-private financing schemes or tax incentives to lower the high entry costs (Ranks 1 & 4).

- b) Infrastructure Sharing: Create regional, subsidized shared calibration and testing centres to mitigate the technical resource gap (Rank 7).
- c) Strengthening Coercive Pressure: Introduce clear regulatory signalling by making QMS certification a mandatory requirement for public procurement and certain government tenders to generate a predictable market pull (Rank 3).

Limitations and Future Research

This study is limited by its use of a cross-sectional, convenience sample of 94 firms, which, while highly reliable, may not fully represent the demographic complexity of the entire Zambian manufacturing sector. The findings are primarily perception-based, relying on manager assessments. Future research should address these limitations by employing longitudinal designs to track the success or failure of QMS implementation over time, or by conducting comparative studies across different African nations to differentiate common barriers from context-specific institutional gaps.

Addressing these barriers is an economic imperative. By adopting a unified strategy that addresses both the internal resource gaps (RBV) and the external institutional weaknesses, the Zambian manufacturing industry can enhance its product quality, productivity, and regional competitiveness.

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