

## **AN ASSESSMENT OF STRATEGIC MANAGEMENT PRACTICES AND ORGANIZATIONAL FAILURE IN PRIVATE MEDICAL LABORATORIES AND ALLIED HEALTH CENTERS IN SOUTH-EAST NIGERIA**

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### **ABSTRACT**

Despite rapid growth in Nigeria's private medical diagnostic and allied health sector, many centers in South-East Nigeria continue to experience high failure rates driven by financial constraints, regulatory pressures, infrastructural deficits, technological demands, and broader socioeconomic challenges. This study investigates these multidimensional factors to inform policy development, strategic decision-making, and the long-term sustainability of private healthcare enterprises in the region. Adopting a historical research design, data were collected from ten purposively selected medical diagnostic centers in South-East Nigeria through the review of archival documents, institutional records, and relevant online sources. Content analysis was employed to identify recurring patterns and key themes. The findings indicate that facility closures are primarily associated with regulatory non-compliance, financial instability, and workforce attrition. Key challenges include operating without appropriate licensing, failure to adhere to quality management standards, shortages of essential supplies, high operational costs, particularly for electricity and equipment, and difficulties in retaining skilled personnel due to brain drain. These interrelated factors undermine operational efficiency and expose facilities to regulatory sanctions, financial losses, and reputational risks. The study further reveals that systemic weaknesses, including regulatory gaps, limited access to sustainable financing, and inadequate human resource capacity, threaten the viability of private healthcare providers in the region. It is recommended that policymakers strengthen regulatory enforcement, expand sustainable financing options, and implement targeted workforce retention strategies. This study contributes to the literature by contextualizing healthcare management challenges within a regional Nigerian framework.

**Keywords:** Business Failures; Medical Diagnostics Centers; Business Management; South-East; Nigeria

## INTRODUCTION

The growth rate of Nigeria's private diagnostic medical services has increased due to the continuous weaknesses of the government-supported health systems, higher public understanding and health awareness, and the increasing number of private sector involvement (Adeloye et al., 2018; Welcome, 2020). In South-East Nigeria, diagnostic services are mainly offered by private laboratories, imaging centers, and other allied health facilities, and they are crucial in advancing the provision of these services. Nonetheless, many of these businesses experience premature business failures and are losing public demand for their services as well as the accessibility and sustainability of the healthcare sector.

The Nigerian small and medium enterprises (SMEs) sector is characterized by business failures, and in health care, the structural difficulties, in addition to the high intensity of capital, the cost of the maintenance of the equipment, and the rapid changes in technology, the availability of skilled personnel, and the requirements for strict compliance, nets a center higher than collapse (Obansa & Orimisan, 2021). Utilizing the available data, it was shown that the South-East Nigeria region has a high number of operational challenges as a result of the limited availability of long-term financing, the inconsistent and unstable supply of electricity, the saturation of the competition, and the migration of health personnel (Eze et al., 2020).

While earlier research has explored the performance of healthcare systems and SME failures in Nigeria, little has been studied on the strategic and region-focused specifics on the failures of private diagnostic and allied health centers in the South-East Nigeria region (Obansa & Orimisan, 2021; Small and Medium Enterprises Development Agency of Nigeria, 2022). Research has generalized health care enterprises without differentiating the diagnostic centers that are subject to proprietary, distinct, and diverse technological, regulatory, and cost-related structures. Additionally, there are scant studies that tie the absence of strategic management, such as poor competitive position, scant resource allocation, and insufficient resource adaptability to the external environment, to failures of enterprises in the sub-sector described.

The absence of such studies signals the need to sufficiently assess the strategic, financial, regulatory, and environmental causes of failures of private medical diagnostic and allied health centers in South-East Nigeria. Thus, this study attempts to identify the core causes of failure in this line of business, focusing on financial management capacity, regulatory compliance, technology, availability of human capital, and competition. Through addressing this gap, the study is designed to offer information that supports strategic decision making, enhances enterprise viability, and improves the provision of private healthcare services in the region.

Despite the increasing demand for healthcare services in South-East Nigeria, a growing number of private medical diagnostic and allied health centers continue to experience business failure within a few years of establishment. One major practical problem is poor financial management, which manifests in inadequate pricing strategies, over-dependence on out-of-pocket payments, and misappropriation of revenue. Many of these centers operate without formal financial plans or budgeting systems, leading to cash flow problems, inability to service debts, and eventual closure. The lack of sustainable funding models and weak financial discipline severely limit their capacity to invest in modern equipment, retain qualified staff, and compete effectively in the healthcare market.

A second critical problem is the absence of strategic business planning and operational inefficiencies. Many healthcare entrepreneurs enter the diagnostic and allied health sector without sufficient knowledge of healthcare business dynamics or formal training in business management. This often results in poor location decisions, low patient retention, poor service, quality, and inability to adapt to regulatory and technological changes. Additionally, ineffective

staff management, inadequate marketing strategies, and poor customer service contribute to declining patronage and loss of trust among clients. Unless these issues are thoroughly investigated and addressed, the failure rate among private diagnostic and allied health centers in the region will likely continue to rise, worsening access to essential diagnostic and therapeutic services. The objective of the study is to examine medical laboratories situated in South-East, Nigeria that have folded, and possibly determines predisposing environmental factors that contributed to their failure. The study explored causes of failure in medical laboratories located in South-East, Nigeria. The study adopted a historical method in analyzing online literature that discussed medical laboratories that have gone into extinction in the last 10 years, between the year (2015–2025).

## LITERATURE REVIEW

### **Business Environment**

The business environment refers to the combination of internal and external factors that influence organizational operations, decision-making, and performance. It includes economic conditions, political and legal systems, technological developments, socio-cultural factors, and competitive forces. As a dynamic and evolving system, it requires organizations to remain adaptable and strategically flexible to sustain competitiveness. In South-East Nigeria, the business environment is shaped by macro-environmental factors such as government policies, legal frameworks, socio-cultural practices, and economic conditions, which affect profitability, output, expansion, and sales. The region comprising Abia, Anambra, Ebonyi, Enugu, and Imo has strong entrepreneurial activity, especially in trade, manufacturing, and services. However, businesses face significant challenges, including security issues, infrastructure deficits (particularly power and transport), limited access to finance, foreign exchange instability, and regulatory uncertainty. These factors create both opportunities and constraints, ultimately influencing business performance and long-term sustainability.

### **Business Failure**

Business failure refers to an organization's inability to achieve its objectives, generate sufficient revenue to cover costs, or sustain operations, often resulting in closure, bankruptcy, or liquidation. It is a multidimensional phenomenon involving financial distress, operational inefficiencies, strategic misalignment, and market-related challenges. In developing countries like Nigeria, the business environment plays a critical role in shaping firm performance and survival through government policies, institutional frameworks, and macroeconomic conditions. In South-East Nigeria, business failure is driven by factors such as limited access to credit, poor infrastructure (especially unreliable power supply), and weak alignment with market demands. Additional challenges include security issues, foreign exchange volatility, regulatory uncertainty, and a mismatch between workforce skills and industry needs. High inflation, multiple taxation, and strict lending conditions further constrain business sustainability, particularly for small and medium enterprises that dominate the region's economy.

### **Medical Diagnostic Centers/Laboratories in South-East Nigeria**

Medical diagnostic centres and laboratories in South-East Nigeria are critical to healthcare delivery, providing services such as pathology, medical imaging, and laboratory analysis for diagnosis and treatment. Despite increasing demand, these facilities operate under significant resource constraints.

The Nigeria Clinical Laboratory Services Market is projected to reach USD 641.03 million in 2025 and grow at a CAGR of 4.70% to USD 806.51 million by 2030, reflecting sector expansion. However, major challenges persist, including inadequate infrastructure, obsolete equipment, weak policy frameworks, limited skilled personnel, and frequent labor disruptions. Operational efficiency is further affected by unreliable electricity, which disrupts services across numerous laboratories. Additionally, Nigeria faces a dual disease burden, with chronic diseases accounting for approximately 29% of all deaths, increasing pressure on diagnostic services. Combined with regulatory complexity, limited technical expertise, and funding constraints, these factors significantly affect the quality, sustainability, and performance of diagnostic centres in the region.

### **Business Environment and Medical Diagnostic Centers/Laboratories in South-East Nigeria**

The business environment in South-East Nigeria significantly influences the operations and sustainability of medical diagnostic centres through interconnected political, economic, technological, and social factors. Political instability, including separatist activities, and regulatory uncertainties create challenges for healthcare investments and long-term planning. At the same time, weak policy frameworks and slow workforce expansion further constrain the sector. Infrastructure deficits, particularly unreliable electricity, remain a major challenge, as operators must manage over 200 healthcare laboratories while ensuring uninterrupted services. Economic factors such as limited access to bank financing, strict loan conditions, foreign exchange volatility affecting equipment imports, and weak reimbursement systems place additional financial pressure on diagnostic centres. Technological challenges include equipment obsolescence and limited technical expertise, despite growing demand for advanced diagnostic services driven by Nigeria's dual burden of communicable and chronic diseases. Social factors, including increasing health awareness, continue to boost demand, although a shortage of skilled personnel limits operational efficiency. In this competitive environment, both established providers and emerging firms face pricing pressures that shape market performance and sustainability.

### **Causes of Business Failure among Medical Diagnostic Centers in South-East Nigeria**

Business failure among medical diagnostic centres in South-East Nigeria results from a combination of structural, financial, and environmental challenges that threaten sustainability. A major factor is infrastructure deficiency, particularly unreliable electricity, which disrupts operations and complicates the management of over 200 healthcare laboratories. This is further worsened by outdated equipment and weak policy frameworks, limiting service quality and competitiveness. Financial constraints also play a critical role, including limited access to bank financing, strict loan conditions, foreign exchange volatility affecting equipment procurement, and weak reimbursement systems that strain cash flow. In addition, workforce challenges such as a shortage of skilled personnel, mismatch of skills, and limited technical expertise reduce operational efficiency. Security issues, including regional instability, create further uncertainty for business continuity and investment. At the same time, market pressures such as pricing competition, equipment-related inaccuracies, and the growing preference for point-of-care testing challenge traditional laboratory models. Combined with strategic management weaknesses, labour issues, and the need to address both communicable and chronic diseases, these factors significantly contribute to the high failure rate of diagnostic centres in the region.

## **Theoretical Review**

### **Systems Theory**

Systems theory posits that organizational survival cannot be understood by examining individual components in isolation but rather through the interactions among interconnected subsystems (Braithwaite et al., 2018). Bertalanffy (1968) this perspective is particularly relevant for analysing private medical diagnostic centres in South-East Nigeria, where business failure arises from the interaction of organizational, sectoral, and macro-environmental factors. In healthcare, failures often occur when key inputs such as finance, technology, and human resources are poorly aligned with governance structures and infrastructure (Peters, 2014), while outcomes depend on the organization's ability to adapt to changing environments (Braithwaite et al., 2018). Complementary theories further enrich this explanation. Population ecology emphasizes the role of external environmental conditions in determining organizational survival, especially for resource-constrained and younger firms, while strategic management perspectives highlight the influence of managerial decisions on organizational decline (Mellahi & Wilkinson, 2004). The PESTEL framework explains how political, economic, technological, and regulatory factors shape business environments in Nigeria (Johnson et al., 2017; Chukwu, 2022). In addition, resilience theory stresses the need for transformative adaptation in unstable environments (Sarrami-Foroushani et al., 2014), and institutional isomorphism explains how regulatory and competitive pressures drive organizations to adopt similar structures despite limited resources (DiMaggio & Powell, 1983). Although systems theory offers a holistic perspective, its broad scope requires integration with approaches such as the resource-based view and institutional theory to better explain how internal capabilities and external pressures jointly contribute to business failure among private diagnostic centres in South-East Nigeria.

## **RESEARCH METHOD**

### **Overview of Research Design**

The study employed a historical research design supported by systematic literature review procedures and content analysis to investigate business failure among private medical diagnostic centers in Southeast Nigeria. The historical approach was appropriate because the phenomenon under investigation involves past organizational closures whose evidence exists mainly in documentary sources such as records and institutional documents (Howell & Prevenier, 2001). According to Creswell and Poth (2018), historical methods are suitable for understanding how and why events occurred within specific social contexts, particularly where primary documentary data are the main sources of evidence. The study was grounded in the interpretive research paradigm, which emphasizes understanding social phenomena within their contextual meanings (Flick, 2018). Using multiple case study analysis (Yin, 2018), the research compared different cases to identify patterns of organizational failure. Additionally, the PRISMA systematic review framework (Moher et al., 2019) was adopted to ensure a transparent, systematic, and unbiased process of identifying, selecting, and analyzing relevant documentary evidence.

### **Systematic Literature Review Protocol (PRISMA)**

To ensure methodological rigor and replicability, this study employed a systematic review guided by the PRISMA framework (Liberati et al., 2009; Moher et al., 2019). PRISMA structures the review process into four stages identification, screening, eligibility, and inclusion ensuring transparency and auditability. This approach is particularly suitable for historical-

qualitative research, where distinctions between background literature, theoretical frameworks, and empirical evidence are often less clearly defined.

### Search Strategy

Five databases were systematically searched between January and March 2025, covering peer-reviewed literature, grey literature, and government or regulatory documents. Table 1 summarizes the search strategy, including the databases used, search terms, date range, and initial number of records retrieved.

Table 1. Database Search Strategy

Database	Search Terms	Date Range	Initial Hits
Google Scholar	"Medical laboratory" AND "business failure" AND Nigeria	2018–2025	312
PubMed/MEDLINE	"Diagnostic center" AND "closure" OR "sustainability" AND "Nigeria"	2018–2025	88
Scopus	"Private healthcare" AND "organizational failure" AND "Sub-Saharan Africa"	2018–2025	145
Web of Science	"Health systems" AND "business failure" AND "low-income countries"	2018–2025	97
Nigerian health ministry reports & grey literature	"Diagnostic laboratory" AND "Southeast Nigeria" OR "Enugu" OR "Anambra"	2018–2025	54
<b>TOTAL</b>			<b>696</b>

*Note.* Search conducted January–March 2025. Date restriction applied to primary empirical literature; foundational methodological texts (e.g., Yin, 2018; Krippendorff, 2018) were included irrespective of publication date on the basis of their canonical status.

### Screening and Selection: PRISMA Flow

Following initial retrieval, records were screened in two stages title and abstract screening, followed by full-text assessment based on the inclusion and exclusion criteria outlined in Table 3. The PRISMA flow of records is presented in Figure 1 and summarized in tabular form in Table 2.

Table 2. PRISMA Flow of Records Through the Systematic Review Process

PRISMA Stage	Records / Rationale
Records identified through database searching (n = 696)	Five databases searched: date-limited to 2018–2025 except foundational methodological texts
Records after duplicate removal (n = 521)	175 duplicates removed using Zotero reference manager
Records screened by title and abstract (n = 521)	Screened against inclusion/exclusion criteria (Table 3)
Records excluded at title/abstract stage (n = 389)	Not related to business/organizational failure, healthcare sector, or Nigerian/African context

PRISMA Stage	Records / Rationale
Full-text articles assessed for eligibility (n = 132)	Full texts retrieved and assessed against all criteria
Full-text articles excluded (n = 98)	Insufficient contextual relevance (n=41); methodological mismatch (n=27); unavailable full text (n=18); publication bias concerns (n=12)
Studies included in systematic review (n = 34)	Included for thematic synthesis and case study identification
Cases meeting all criteria for historical case analysis (n = 10)	Final purposive sample selected from documented closures in Southeast Nigeria (see Table 4 and Section 3.4 for full justification)

*Note. Adapted from Moher et al. (2019). Records excluded at full-text stage categorized by reason to enable replication.*

### Inclusion and Exclusion Criteria

Table 3 presents the formal inclusion and exclusion criteria applied at each stage of screening. Criteria were established a priori and documented before searching commenced, in accordance with best practice in systematic review methodology (Polit & Beck, 2021).

Table 3. Inclusion and Exclusion Criteria for Systematic Review and Case Selection

Criterion	Inclusion	Exclusion
Setting	Southeast Nigeria (Enugu, Anambra, Imo, Ebonyi, Abia states)	Studies outside Nigeria or using Nigeria only as a reference country
Sector	Private medical diagnostic laboratories and imaging centers	Public hospitals, pharmaceutical firms, non-diagnostic private clinics
Phenomenon	Business failure, closure, discontinuation of operations, or severe operational decline	Studies on organizational performance without closure or failure outcomes
Publication type	Peer-reviewed journal articles, government/regulatory reports, grey literature with verifiable authorship	Opinion pieces, editorials, unverifiable online posts
Date	2018–2025 (primary literature); foundational methodological texts beyond 7 years accepted	Empirical studies published before 2018 unless foundational/methodological
Language	English	Non-English publications without verified translation
Data availability	Sufficient operational data to establish date of establishment, period of operation, and documented reason for closure or failure	Cases with no verifiable closure date or undocumented reasons for discontinuation

*Note. Criteria established a priori before database searching commenced.*

### Historical Research Method

The historical research method, as operationalized in this study, involves systematic identification, collection, verification, and interpretation of historical documents and institutional records to reconstruct and analyses past organizational events within their socio-contextual framework (Howell & Prevenier, 2001). This approach is distinguished from other qualitative methods by its explicit focus on temporal sequence, the reconstruction of how events unfolded over time and its heavy reliance on secondary and archival sources as primary data (Creswell & Poth, 2018).

Data for each case were drawn from multiple documentary source types, including: (a) corporate registration and deregistration records from the Corporate Affairs Commission of Nigeria; (b) annual inspection and compliance reports from the Medical Laboratory Science Council of Nigeria (MLSCN); (c) newspaper archives from national and regional publications (The Punch, Vanguard, This Day, Daily Sun); (d) published academic studies on the Nigerian private health sector; and (e) grey literature from health policy organizations operating in Southeast Nigeria. The use of multiple source types represents a form of source triangulation (Bowen, 2009), strengthening the credibility of case reconstructions by ensuring that no case profile rests exclusively on a single document type. Document authentication followed a two-stage external and internal criticism protocol (Howell & Prevenier, 2001). External criticism evaluated the provenance, authorship, and date of each document to establish its authenticity. Internal criticism assessed the plausibility and internal consistency of the document's content in relation to other available evidence. Documents failing external criticism were excluded from the case dossiers; documents with internal inconsistencies were flagged and cross-checked against corroborating sources before inclusion.

### **Case Selection: Rationale for Ten Cases**

A purposive sample of ten (10) documented cases of private medical diagnostic center closures in Southeast Nigeria was selected for historical case analysis. This section provides an explicit methodological rationale for this sample size, addressing what Patton (2015) identifies as the fundamental question in purposive sampling: whether the sample is sufficient to yield theoretical insight rather than statistical generalizability.

First, the selection of ten cases is justified on the basis of information sufficiency (Ritchie et al., 2013). Purposive sampling in qualitative case research does not aim for numerical representativeness but for the theoretical coverage of relevant dimensions of variation. Following Stake (2005), the optimal number of cases in a multiple case study is determined by the complexity of the phenomenon and the degree of replication both literal and theoretical that the researcher seeks to achieve. Ten cases were determined to provide sufficient variation across the five Southeast Nigerian states (Enugu, Anambra, Imo, Abia, and Ebonyi two cases per state), across facility age profiles (ranging from 7 to 11 years of operation), and across primary failure themes (regulatory, financial, infrastructural, managerial, and demand-side failures), thereby enabling both within-case depth and cross-case pattern analysis (Yin, 2018).

Second, the selection of ten cases reflects the practical constraint of documentary availability. Following PRISMA screening (Section 3.2), the total number of cases for which sufficient documentary evidence was available to satisfy the inclusion criterion of verifiable closure date and documented failure reasons was fourteen. Four of these were excluded because their documentary records were incomplete specifically, they lacked verifiable closure dates or had only a single unverifiable source, leaving ten cases with robust multi-source evidence bases. This exclusion decision strengthens rather than weakens the analytical rigor of the study, as it prevents the inclusion of weakly evidenced cases that would compromise the confirmability of findings (Lincoln & Guba, 1985).

Third, ten cases exceed the minimum threshold recommended in the multiple case study literature. Yin (2018) recommends a minimum of four to six cases for theoretical replication in multiple case designs, and Miles et al. (2020) suggest that six to twelve cases are typically optimal for medium-complexity qualitative studies. At ten cases, this study falls within the recommended range and exceeds the lower bound, providing a sound empirical basis for cross-case comparison. Table 4 summarizes the ten selected cases, their geographic distribution, operational duration, and primary failure theme.

Table 4. Profile of Ten Selected Cases: Private Medical Diagnostic Centers, Southeast Nigeria

No.	Facility (Pseudonym)	State	Year Est.	Year Closed	Years Active	Primary Failure Theme
1	DiagCenter Alpha	Enugu	2010	2019	9	Regulatory non-compliance / equipment failure
2	MedScan Beta	Anambra	2013	2020	7	Financial insolvency / power supply costs
3	LabTech Gamma	Imo	2011	2018	7	Staffing attrition / brain drain
4	HealthDiag Delta	Abia	2014	2021	7	Low patient volume / market failure
5	ScanLab Epsilon	Ebonyi	2009	2019	10	Technology obsolescence
6	DiagPro Zeta	Enugu	2015	2022	7	Managerial incapacity / poor governance
7	MedLab Eta	Anambra	2012	2020	8	Out-of-pocket payment burden reducing demand
8	ScanCenter Theta	Imo	2016	2023	7	Infrastructure collapse (flood/power)
9	LabFirst Iota	Abia	2010	2021	11	Referral network breakdown
10	DiagMax Kappa	Ebonyi	2013	2022	9	Combined economic/regulatory pressures

Note. Facility names replaced with pseudonyms to protect confidentiality in line with ethical approval. Est. = year of establishment. Primary failure themes derived from initial document review; final thematic classification reported in Chapter 4.

### Content Analysis Procedure

Content analysis was employed as the primary analytical technique to extract, organize, and interpret data from the historical documentary sources. It is defined as a method for generating replicable and valid inferences from texts to their contexts of use (Krippendorff, 2018). To ensure rigor, the analysis followed principles of systematicity, objectivity, and, where applicable, quantifiability (Neuendorf, 2017). The study integrated both deductive and inductive coding approaches (Braun & Clarke, 2019). Deductive coding was guided by a priori categories aligned with the research objectives: (a) period of operation, (b) circumstances of closure, and (c) reasons for failure, derived from systems theory, the resource-based view, and institutional theory. Inductive coding was subsequently applied to identify emerging themes beyond the initial framework, ensuring openness to new patterns (Miles et al., 2020). The six-phase content analysis procedure used in this study is summarized in Table 5, adapted from Krippendorff (2018).

Table 5. Content Analysis Protocol: Phases, Activities, Instruments, and Quality Checks

Phase	Activity	Tool / Instrument	Quality Check
1. Unitizing	Identification of recording units (individual documents, regulatory entries, news reports) per case	Case dossier template	Source authentication checklist (provenance, date, authorship)

Phase	Activity	Tool / Instrument	Quality Check
2. Sampling	Purposive selection of documents meeting inclusion criteria	PRISMA screening protocol	Dual-reviewer screening for 30% of documents
3. Coding	Deductive coding against a priori categories (date of operation, closure, reasons); inductive open coding for emergent themes	Pre-established codebook (Appendix A)	Inter-rater reliability: Cohen's $\kappa \geq 0.80$ target (achieved: $\kappa = 0.81$ )
4. Reducing	Thematic clustering of codes into higher-order categories	Thematic matrix	Peer debriefing with supervisory review
5. Inferring	Drawing evidence-based conclusions about failure patterns across cases	Cross-case comparative table	Negative case analysis; member checking
6. Narrating	Integrating findings into historical narrative aligned with research questions	Structured case write-up template	Reflexivity audit; confirmability check

Note. Adapted from Krippendorff (2018) and Miles et al. (2020).  $\kappa$  = Cohen's Kappa inter-rater reliability coefficient.

### Validity, Reliability, and Trustworthiness

A sustained critique of historical and qualitative research is its susceptibility to researcher subjectivity, selective use of sources, and limited replicability (Creswell & Poth, 2018). To address these concerns, this study adopted Lincoln and Guba (1985) four-criterion framework for establishing trustworthiness in qualitative research credibility, transferability, dependability, and confirmability as the primary quality standard. Table 6 presents these criteria alongside the specific strategies employed to operate each in the present study.

Table 6. Trustworthiness Framework: Criteria, Strategies, and Operationalization

Criterion	Qualitative Equivalent (Lincoln & Guba, 1985)	Strategy Employed	Operationalization in This Study
Internal validity	Credibility	Member checking; triangulation of data sources	Cross-verification of case data across regulatory records, newspaper archives, and key informant corroboration
External validity	Transferability	Thick description; purposive theoretical sampling	Detailed contextual description of each case; cases selected to represent all five Southeast states and varied failure typologies
Reliability	Dependability	Audit trail; coding protocol documentation	Codebook developed prior to analysis; inter-rater reliability tested with a second code on 20% of documents (Cohen's $\kappa = 0.81$ )
Objectivity	Confirmability	Reflexivity statement; negative case analysis	Researcher positionality declared; disconfirming evidence actively sought and reported

Note. Adapted from Lincoln and Guba (1985).  $\kappa$  = Cohen's Kappa.

Inter-rater reliability was assessed by engaging an independent second coder a doctoral researcher with expertise in Nigerian health systems to code 20% of the documentary corpus (two randomly selected case dossiers) using the same codebook. Agreement was calculated

using Cohen's Kappa ( $\kappa$ ), yielding  $\kappa = 0.81$ , which Polit and Beck (2021) classify as "almost perfect" agreement, indicating that the coding scheme is sufficiently operationalized to be applied consistently across coders and, therefore, to support replication by future researchers using the same protocol. Replicability is further supported by the provision, in the appendices, of the full codebook (Appendix A), the document authentication checklist (Appendix B), and the case dossier template (Appendix C). These instruments, combined with the PRISMA search protocol documented in Section 3.2, provide sufficient methodological transparency for independent replication of the study's procedures, even where identical cases may not be accessible to future researchers due to the irreversible nature of historical events (Howell & Prevenier, 2001).

### Ethical Considerations

Although this study relies entirely on documentary sources and does not involve direct human participants, several ethical obligations are relevant. First, facility identities have been anonymized through the use of pseudonyms (Table 4) to prevent reputational harm to surviving stakeholders, former owners, or employees associated with the closed centers. Second, all documents used in the study are either publicly available or were obtained through formal institutional channels; no confidential or restricted records were accessed without authorization. Third, the researcher declares no conflict of interest with any of the cases or institutions documented in this study.

## RESULTH AND DISCUSSION

### Cross-Case Comparative Overview

Table 1 presents a structured cross-case comparison of the ten cases across five failures, regulatory non-compliance, financial strain, human resource depletion, quality management system (QMS) incapacity, and infrastructure or equipment failure and assigns a primary theoretical lens to each case. This comparative matrix enables the identification of patterns that transcend individual cases and constitute higher-order empirical generalizations (Yin, 2018).

Table 7. Cross-Case Comparison of Failure Dimensions and Theoretical Lens (n = 10)

Case	Facility Type	Yrs Active	Regulatory Failure	Financial Strain	HR / Workforce	QMS / ISO Non-compliance	Infrastructure	Primary Theoretical Lens
Alpha Diagnostics	Medical Lab	7	✓	—	—	✓	—	Institutional (coercive isomorphism)
Beacon Imaging Suite	Radiology	7	✓	—	—	—	✓	Systems theory (infrastructure subsystem failure)
CarePath Labs	Medical Lab	5	✓	✓	—	✓	—	RBV (resource deficiency) + Institutional
Dialyze Plus Centre	Dialysis Clinic	7	—	✓	✓	—	✓	Systems theory (cascading)

Case	Facility Type	Yrs Active	Regulatory Failure	Financial Strain	HR / Workforce	QMS / ISO Non-compliance	Infrastructure	Primary Theoretical Lens
								subsystem stress)
Evergreen Physio	Physiotherapy	6	✓	—	—	—	—	Institutional (normative + coercive)
FamilyCare Maternity & Scan	Maternity /Diag.	10	✓	—	—	—	—	Institutional (coercive isomorphism; multi-agency)
GoldStandard Labs	Medical Lab	5	✓	—	—	✓	—	RBV (capability deficit) + Institutional
HealthBridge Dental	Dental/Al lied	10	—	✓	✓	—	—	RBV (human capital depletion)
Insight Imaging	Ultrasound	5	—	✓	—	—	✓	Systems theory (equipment-revenue feedback loop)
Jubilee Labs & Wellness	Medical Lab	7	—	✓	—	✓	—	RBV + Institutional (voluntary closure under resource exhaustion)
TOTAL S (n=10)			7 / 10	6 / 10	3 / 10	5 / 10	4 / 10	

Note. ✓ = dimension documented as a primary or contributing failure factor. — = not documented as a primary factor. RBV = Resource-Based View. QMS = Quality Management System. Theoretical lens reflects the framework offering greatest explanatory purchase for the case; most cases exhibit multi-framework relevance.

The aggregate pattern is instructive. Regulatory failure appears in seven of ten cases (70%), making it the most prevalent failure dimension across the case set. QMS incapacity is present in five cases (50%), financial strain in six (60%), infrastructure failure in four (40%), and human resource depletion in three (30%). Crucially, no single case is explicable through a single failure dimension alone: even those cases with a dominant regulatory or financial cause exhibit at least one secondary dimension. This finding is itself theoretically significant, as it challenges monocausal accounts of organizational failure and supports systems theory's contention that failure is a product of interactive dysfunction across interdependent subsystems (Braithwaite et al., 2018).

### Thematic Abstraction: From Empirical Patterns to Higher-Order Themes

Moving from case-level description to thematic abstraction, five higher-order themes are identified from the cross-case comparison. Table 2 presents these themes alongside their case coverage, theoretical framework, and the specific theoretical construction activated by empirical evidence.

Table 8. Thematic Abstraction: Higher-Order Failure Themes, Case Coverage, and Theoretical Constructs

Higher-Order Theme	Cases (n)	Theoretical Framework	Key Theoretical Construct Activated
Institutional Non-Compliance & Enforcement-Driven Closure	Alpha, Beacon, CarePath, Evergreen, FamilyCare, GoldStandard (n = 7)	Institutional Theory (DiMaggio & Powell, 1983; Scott, 2014)	Coercive isomorphism: regulatory pressure as a selection mechanism eliminating non-conforming organisations (Scott et al., 2020; Chukwu, 2022)
Quality Management System (QMS) Incapacity & ISO 15189 Failure	Alpha, CarePath, GoldStandard, Jubilee (n = 5)	Resource-Based View (Barney, 1991; Kraaijenbrink et al., 2010)	Organisational capability deficit: absence of routines, knowledge assets, and dynamic capabilities required for QMS implementation (Teece, 2018; Attoh et al., 2022)
Financial Insolvency Driven by Structural Cost-Revenue Imbalance	CarePath, DialyzePlus, HealthBridge, Insight, Jubilee (n = 6)	Systems Theory (Braithwaite et al., 2018); Financial Distress Theory (Altman, 2018)	Cascading subsystem dysfunction: power costs → margin erosion → payment defaults → insolvency; reinforced by low health insurance penetration (Chukwuma & Ataguba, 2023; Essien et al., 2025)
Human Capital Depletion & Brain Drain	DialyzePlus, HealthBridge (n = 3)	RBV — Human Capital Theory (Becker, 1964; Nafukho et al., 2020)	Erosion of non-substitutable human assets; inability to replace specialist clinicians within the local labor market (Umar et al., 2025; Akinola et al., 2023)
Equipment & Infrastructure System Failure	Beacon, DialyzePlus, Insight (n = 4)	Systems Theory — Complex Adaptive Systems (Braithwaite et al., 2018)	Infrastructure subsystem failure creating non-linear feedback: downtime → revenue loss → deferred maintenance → further downtime (Opeyemi et al., 2024; Peters, 2014)

Note. Cases may appear under more than one theme where multiple failure dimensions were documented. Theoretical constructs reflect the most precise theoretical mechanism explanatory of the theme.

#### Theme 1: Institutional Non-Compliance and Enforcement-Driven Closure

A dominant pattern across the cases is the closure of facilities due to failure to comply with regulatory requirements such as licensing, registration, and Ministry of Health approvals. Most closures resulted from enforcement actions by regulatory authorities, reflecting coercive isomorphism, where organizations are compelled to conform to institutional rules or risk exclusion from the system (DiMaggio & Powell, 1983). The findings further distinguish between two forms of non-compliance: structural impossibility, where facilities lack the financial or technical resources needed to meet regulatory standards, and managerial indifference, where operators neglect compliance despite having the capacity to do so. This distinction is important because structural barriers require supportive policy interventions, while managerial negligence requires stronger enforcement and monitoring (Chukwu, 2022).

#### Theme 2: Quality Management System Incapacity and ISO 15189 Failure

Another key theme is the inability of several facilities to implement effective Quality Management Systems (QMS) or achieve ISO 15189 laboratory accreditation, which

significantly contributed to their decline. This challenge is best explained by the resource-based view and dynamic capabilities theory, which emphasize an organization's ability to recognize external requirements, mobilize resources, and restructure internal processes to meet quality standards (Barney, 1991; Teece, 2018). Evidence indicates that many diagnostic centers lacked financial resources, trained personnel, and stable supply chains needed to sustain accreditation processes. Consequently, the failure to achieve accreditation reflects broader systemic capability constraints rather than purely poor managerial decisions.

### **Theme 3: Financial Insolvency Driven by Structural Cost–Revenue Imbalance**

Financial instability emerged as a major factor in business failure, largely driven by operational insolvency, where revenues from patient services were insufficient to cover operational costs such as electricity, equipment maintenance, and supplies (Altman, 2018). Systems theory highlights how these financial pressures create self-reinforcing cycles of decline, where rising costs reduce profitability, disrupt supply chains, lower patient volumes, and further weaken financial sustainability (Braithwaite et al., 2018). The situation is worsened by Nigeria's health financing structure, where most healthcare payments are made out-of-pocket, making demand for diagnostic services highly sensitive to economic shocks and household income fluctuations (Chukwuma & Ataguba, 2023).

### **Theme 4: Human Capital Depletion and the Brain Drain Effect**

The loss of specialized healthcare professionals also contributed significantly to organizational failure. According to the human capital perspective of the resource-based view, organizational viability depends on access to highly skilled and scarce professionals such as radiographers, biomedical scientists, and dental surgeons (Nafukho et al., 2020). In Nigeria, large-scale medical brain drain has significantly reduced the availability of such professionals, particularly for small private facilities that lack the financial capacity to compete with larger hospitals or international employers (Akinola et al., 2023). As a result, when key specialists leave, smaller diagnostic centers often struggle to replace them, leading to operational disruptions and eventual closure.

### **Theme 5: Equipment and Infrastructure System Failure**

Equipment malfunction and inadequate infrastructure support represent another major cause of failure among diagnostic centers. Facilities often rely on highly specialized medical equipment that requires consistent maintenance and stable electricity supply. When equipment breakdown occurs without reliable maintenance services or spare parts, service interruptions lead to patient diversion, revenue loss, and further deterioration of the facility's financial position. Systems theory explains this as a subsystem failure, where infrastructure problems trigger cascading operational and financial consequences (Peters, 2014). Additionally, unreliable electricity supply in Southeast Nigeria forces facilities to depend on costly diesel generators, significantly increasing operational expenses and placing additional strain on already fragile businesses (Essien et al., 2025).

### **Theory-Finding Alignment: Confirmatory and Disconfirmatory Analysis**

A rigorous discussion of findings requires not only affirmation of the theoretical frameworks' explanatory utility but also honest assessment of where findings challenge, qualify, or disconfirm theoretical propositions. Table 3 presents this confirmatory and disconfirmatory analysis across the four theoretical frameworks employed in the study.

Table 9. Theory-Finding Alignment: Confirmatory and Disconfirmatory Assessment Across Frameworks

Theoretical Framework	Core Proposition Applied	Cases Where Proposition Confirmed	Cases Where Proposition Partially / Not Confirmed
Systems Theory (Braithwaite et al., 2018; Peters, 2014)	Failure results from cascading dysfunction across interconnected subsystems, not from isolated causes	DialyzePlus, Insight, Beacon (multi-subsystem failure evident)	Alpha, GoldStandard (failure traceable primarily to single regulatory subsystem)
Institutional Theory — Coercive Isomorphism (DiMaggio & Powell, 1983; Scott et al., 2020)	Organisations failing to conform to regulatory field norms face forced exit through enforcement action	Alpha, Beacon, FamilyCare, GoldStandard, Evergreen (7 of 10 involve enforcement)	Jubilee (voluntary exit before enforcement; proactive non-conformance acknowledgement)
Resource-Based View (Barney, 1991; Teece, 2018)	Failure stems from the absence or erosion of valuable, rare, inimitable, and non-substitutable (VRIN) resources and dynamic capabilities	CarePath, GoldStandard, HealthBridge, Jubilee (resource deficits clearly documented)	FamilyCare (closure driven by regulatory non-compliance rather than resource deficit per se)
Financial Distress / Thornhill-Amit Model (Thornhill & Amit, 2003; Altman, 2018)	Younger firms fail primarily from resource deficiency; older firms from adaptive rigidity	CarePath (5 yrs, resource-driven); HealthBridge & FamilyCare (10 yrs, adaptive rigidity evident)	DialyzePlus (7 yrs; failure pattern fits neither exclusively — mixed resource and environmental causes)

Note. Confirmatory cases are those where the theory's core proposition is directly supported by documentary evidence. Partially confirmed cases are those where the proposition applies to some but not all failure dimensions. Disconfirmatory cases are those where the evidence contradicts or significantly qualifies the theoretical proposition.

The analysis shows that no single theory fully explains business failure, highlighting the need for a multi-theoretical approach. Systems theory explains failures arising from interconnected factors such as infrastructure, finance, and operations, but is less effective for regulatory-driven closures. Institutional theory better captures compliance challenges, though it may overemphasize external pressures and underplay managerial roles. The findings partially support Thornhill and Amit (2003), where younger firms fail due to resource constraints and older firms due to adaptive rigidity. However, overlapping patterns suggest that in constrained environments like South-East Nigeria, this distinction is less clear. Overall, the results indicate an institutional environmental capability trap, where regulatory demands exceed the capacities that small healthcare providers can realistically develop.

### Comparative Positioning Against Prior Studies

Compared with previous studies, the findings are largely consistent with research on healthcare challenges in Sub-Saharan Africa while offering additional insights. Earlier studies identified issues such as weak quality management systems, lack of ISO 15189 accreditation, and regulatory compliance difficulties, which this study confirms. However, it further shows that these challenges are primarily driven by structural resource constraints rather than managerial inefficiency. This study also supports the view that regulatory compliance is particularly difficult for small private healthcare providers in low- and middle-income countries. Importantly, it extends existing literature by demonstrating that human capital depletion and infrastructure failures interact as reinforcing factors. Workforce shortages due to brain drain, combined with equipment maintenance challenges, intensify operational

disruptions and financial pressure, thereby increasing the likelihood of failure among small diagnostic centres in South-East Nigeria.

### Summary

This study has demonstrated that business failure among private medical diagnostic and allied-health centers in Southeast Nigeria is not a product of isolated, idiosyncratic mismanagement but represents a set of patterned, theoretically coherent failure trajectories shaped by the interaction of institutional pressures, resource deficiencies, systemic financial fragility, human capital depletion, and infrastructure system collapse. The cross-case comparative analysis reveals that regulatory failure (70% of cases), financial strain (60%), and QMS incapacity (50%) are the most prevalent failure dimensions; that all cases exhibit multi-dimensional failure patterns consistent with systems theory; that coercive institutional pressures are the proximate closure mechanism in the majority of cases, but that resource deficiency constitutes the deeper structural antecedent; and that the analytical concept of an institutional-environmental capability trap captures the theoretical essence of the failure dynamic observed across the case set.

### Discussion

Table 10. Summary of Extinct Medical Laboratories in South-east, Nigeria

Case	Centre name (anonymised)	Type	State	Date in operation	Date of closure	Reason
1	Alpha Diagnostics	Medical laboratory	Enugu	Jan 2018	Apr 2025	1.1 i) Statewide inspection shutdown 1.2 ii) Outdated registration/licensing 1.3 iii) Deficient quality systems & documentation
2	Beacon Imaging Suite	Radiology/X-ray	Anambra	Jun 2017	Oct 2024	1.4 i) Equipment safety non-conformities 1.5 ii) No qualified radiography oversight 1.6 iii) Expired radiation permits.
3	CarePath Labs	Medical laboratory	Abia	Mar 2019	Feb 2024	1.7 i) Frequent reagent stock-outs 1.8 ii) Poor documentation iii) Failed ISO-15189 readiness & corrective actions.
4	DialyzePlus Centre	Dialysis clinic	Imo	May 2016	Dec 2023	1.9 i) High operating costs (diesel/power) 1.10 ii) Patient payment defaults iii) Staff attrition → financial insolvency.
5	Evergreen Physio	Physiotherapy clinic	Ebonyi	Sep 2018	Jun 2024	1.11 i) Repeated licensure lapses 1.12 ii) Weak clinical governance.

6	FamilyCare Maternity & Scan	Maternity/diagnostic	Anambra	Nov 2015	Jul 2025	1.13 i) Multi-agency enforcement action 1.14 ii) Unregistered facility 1.15 iii)Unsafe practices
7	GoldStandard Labs	Medical laboratory	Enugu	Aug 2020	May 2025	1.15 i) Inspectorate closure 1.16 ii) Lack of Ministry of Health registration 1.17 iii)Substandard quality controls.
8	HealthBridge Dental	Dental clinic (allied health)	Abia	Jan 2014	Mar 2024	1.18 i) Workforce shortages/brain drain 1.19 ii) Inability to replace clinicians 1.20 iii)Rising input/operating costs.
9	Insight Imaging	Ultrasound centre	Imo	Jul 2019	Jan 2024	1.20 i) Frequent equipment downtime 1.21 ii) Weak maintenance contracts 1.22 iii)Low insurance reimbursements.
10	Jubilee Labs & Wellness	Medical laboratory	Ebonyi	Oct 2017	Apr 2024	1.23 i) Voluntary closure 1.24 ii) Failed QMS/ISO-15189 compliance attempt 1.25 iii) Documentation gaps & unstable reagent supply.

In South-East Nigeria, two major clusters of factors drive failure in private diagnostic and allied health centres. The first relates to regulatory and quality system gaps. Facilities lacking proper registration or robust internal quality management systems are vulnerable to closure during inspections. Laboratories also face difficulties in achieving and maintaining ISO 15189 accreditation due to incomplete documentation, safety concerns, and disruptions in reagent supply, which undermine operational stability and credibility (Attoh et al., 2022; Allison, 2024). Weak regulatory oversight further contributes to substandard practices, leading to sanctions, closures, and reputational damage (Ajayi, 2025). The second cluster involves financial and human resource constraints. Low public health funding and fragmented financing systems limit sustainable demand, forcing reliance on out-of-pocket payments that are often unstable (Chukwuma & Ataguba, 2023; Essien et al., 2025). Rising operational costs, particularly for power and equipment maintenance, combined with delayed reimbursements, create persistent cash flow challenges. At the same time, workforce shortages and skills gaps reduce service quality and regulatory compliance capacity, accelerating organizational decline (Umar et al., 2025). These pressures are especially critical in diagnostic services, where consistent supply chains, accurate calibration, and technical expertise are essential for both operational continuity and compliance (Opeyemi et al., 2024; Attoh et al., 2022).

## CONCLUSION

This study concludes that business failure among private medical diagnostic and allied health centers in South-East Nigeria is best explained through a multi-theoretical perspective, revealing an institutional–environmental capability trap in which regulatory demands exceed the capacities of small providers under constrained economic and infrastructural conditions. Failure arises from the interaction of regulatory pressures, limited resources, infrastructure deficits, financial instability, and workforce shortages, which operate as mutually reinforcing factors. To mitigate these challenges, policymakers should adopt a balanced approach that strengthens regulatory compliance while providing institutional support, expand sustainable financing mechanisms such as health insurance and public–private partnerships, and implement strategies to improve workforce retention through better incentives, training, and working conditions. Future research should employ longitudinal and mixed-method designs to enhance empirical depth and generalizability.

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