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Operationalizing Pragmatism in Mixed-Methods Research- A Methodological Framework for Integrating Post-Positivist and Interpretivist Inquiry in Supply Chain Studies

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This research focuses on the methodological consistency and philosophy needed to conduct research within complicated supply chains and public procurement systems of emerging countries, using Zambia as the main context for case studies. Bridging the gap between objectivist positivism and subjectivist interpretivism as traditional epistemological perspectives, the study uses Pragmatism as the guiding philosophy, arguing that truth exists in what works when solving complicated problems. In order to link ontological and epistemological presumptions with their empirical application, the research implements a sequence of mixed methods (\text-QUAN \rightarrow \text-qual, which is explanatory in nature. Phase one involves a quantitative approach under the post-positivist framework by means of structured 5-point Likert scale questionnaires and operational documents analyzed using SPSS and SmartPLS. The second phase takes on a qualitative approach to interpretation, using semi-structured interviews with key-informants and institution documentation through the process of reflexive thematic analysis using NVivo until theoretical saturation. Through the process of data integration using data triangulation and the development of joint display tables in Chapters 4 and 5, meta-inferences are drawn and concrete policy recommendations are produced based on empirical evidence for regulatory compliance, digital e-procurement adoption, and infrastructure resilience.

Keywords: Pragmatism, Explanatory Sequential Design, Mixed Methods Research, Public Procurement, Supply Chain Resilience

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1. Introduction

The main objective of the methodology chapter is to set up the overall structural basis within which the empirical study is undertaken (Creswell & Creswell, 2018; Saunders et al., 2019). Setting up an effective methodological structure is essential in ensuring that the results of the study remain valid, credible, and reliable in addressing the key research question (Bryman, 2016). Importantly, in order to maintain the methodological rigour of the study, it is essential to demonstrate vertical integration, or methodological coherence between the abstract theoretical premises related to knowledge creation and the actual tools used for the collection of data (Crotty, 1998; Richards & Morse, 2013). In order to do so, this chapter comprehensively discusses its key elements such as research philosophy, research design, sampling, data collection tools, and ethics (Mertens, 2015; Saunders et al., 2019).

In this study, the use of a mixed methods research design has been made, and particularly that of an explanatory sequential mixed-methods approach (\text{QUAN} \rightarrow \text{qual}). Adopting a philosophy of pragmatism in this research, the current investigation does not make use of any dualistic distinction between extreme objectivism and subjectivism and emphasizes problem-focusing of the research problem at hand (Biesta, 2010; Kaushik & Walsh, 2019; Morgan, 2014). This study involves the execution of the research through two sequentially organized phases. In the first stage (QUAN), the use of 5-point Likert scale questionnaires both online and in-person has been used for the purpose of establishing any statistical patterns, testing of hypotheses, and establishment of empirical benchmarks within a stratified random sample (Creswell & Creswell, 2018; Creswell & Plano Clark, 2018).

In order to interpret these numerical patterns, the second strand is the qualitative one (\text{qual}), which makes use of semi-structured key-informant interviews and institution document analysis. The chosen participants will be selected through purposive and criterion sampling up to the point of reaching theoretical saturation. These qualitative data will be interpreted via NVivo (version 14) software through reflexive thematic coding, which will interpret the reasons behind these operational patterns in reality.

The integration between the two strands will be carried out via the joint display method in order to achieve data triangulation. Also, all empirical steps adhere to institutional ethical guidelines, including REC approval, informed consent, and full anonymity.

For the development of methodologies and research proposals, research philosophies act as the overall theoretical perspective that gives legitimacy to the development and construction of knowledge as well as our understanding of reality. The selection of the research philosophy determines whether the research will employ quantitative, qualitative, or mixed methods approach. Quantitative research philosophies have their basis in theories that perceive reality to be objective, measurable, and independent of any human perception, thus valuing empiricism, logic, and statistical tests.

2. Background of the Study

The past few years have been characterized by the emergence of serious supply chain weaknesses, governance challenges, and infrastructural constraining factors that affect organizational operations and implementation of policies (Creswell & Creswell, 2018; Saunders et al., 2019). In modern times, public and private organizations find themselves operating in complex environments in which regulatory requirements, technological shocks, and macroeconomic conditions define supply chain efficiency and organizational compliance (Hair et al., 2019; Park et al., 2020). In emerging markets, updating public procurement systems and ensuring effective supply chain implementation have become important catalysts for sustainable development, financial discipline, and MSME development (Kaushik & Walsh, 2019; Ryan, 2018). Nevertheless, there are some constraining factors that impede the achievement of such organizational goals.

Considering the case of Sub-Saharan Africa, and Zambia in particular, the legislation and structuring of public procurement and SCM has been subjected to substantial changes with an aim of improving the level of transparency, local value addition, and integrity (Government of Zambia, 2020, 2025). The most significant change in this process was the adoption of Public Procurement Act No. 8 of 2020, where the old 2008 Act was replaced and the requirements for standardized pricing indices, obligatory reporting standards, and mandatory use

of Electronic Government Procurement (e-GP) system were introduced (Government of Zambia, 2020; ZPPA, 2024). This legal basis has been supported by various instruments of regulation that include Statutory Instrument No. 45 of 2025 (Public Procurement Preference and Reservation Schemes Regulations), where the margins of preference and local content requirements are defined with the aim of encouraging manufacturing, youth, women, and citizens' entrepreneurship within the tendering process (Government of Zambia, 2025). In addition, there are local content requirements in other areas, for example, Statutory Instrument No. 68 of 2025 for mining and industrial sectors.

However, despite the existence of these progressive regulatory and technological reforms, organization implementation proves to be very volatile because of operational urgencies (Park et al., 2020; ZPPA, 2023). Incessant public infrastructural inadequacies have largely prolonged the problem of electricity load-shedding, transport constraints, and digital network breakdowns that interfere with the cold chain management process, lead time operation, and continuity of system access within manufacturing, municipal, and commercial networks (Park et al., 2020; ZPPA, 2023). Although delivery variance, contract compliance rate, and holding cost metrics provide clear insights into the magnitude of these problems, they tend to overlook how organizational players cope with them (Junjie & Yingxin, 2022; Ryan, 2018). Coping tactics, buyer-supplier bargaining on an informal basis, and governance modifications are regularly employed by management to deal with system breakdowns and regulation rigidity (Junjie & Yingxin, 2022; Ryan, 2018).

An understanding of the dynamic relationships among statutory laws, electronic procurement infrastructures, exogenous events, and adaptation by managers calls for a proper methodological approach (Creswell & Creswell, 2018; Kaushik & Walsh, 2019). An exclusive objectivist quantitative method can run the risk of detaching statistical relationships from their institutional basis, while an exclusive qualitative approach runs the risk of ignoring the structural patterns and trends within the industry (Kaushik & Walsh, 2019; Park et al., 2020). Therefore, an empirical study guided by pragmatism, which uses the Explanatory Sequential Mixed-Methods Design (\text{QUAN}\rightarrow \text{qual}), is necessary to marry up statistics and context (Creswell & Creswell, 2018; Kaushik & Walsh, 2019). Through such a research design, this study considers baseline operational variables, hypothesized models, adaptation logic, and triangulation by joint displays of both strands of the empirical work (Creswell & Creswell, 2018; Kaushik & Walsh, 2019).

3. Study Objectives

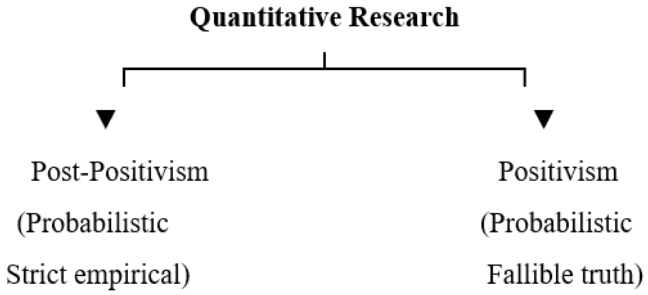
i. To determine initial operational metrics, compliance requirements, and key performance indicators of the target population using structured quantitative measures.
ii. To analyze statistical associations and hypothesis testing for the relationship between core operational variables and performance.
iii. To study decision-making behavior, experiences, and adaptations by key stakeholders in light of operational disturbances and regulatory needs.
iv. To integrate the numerical data and qualitative observations with an explanatory framework using the joint display approach.

4. Problem Statement

The public procurement in Zambia is responsible for about 15% of the Gross Domestic Product of the country among over 700 separate Procuring Entities but is hindered by various inefficiencies arising due to several problems. In terms of philosophy, these empirical observations cannot be understood using a simple reductionist approach but require a holistic and integrative approach. First of all, there are (1) significant infrastructure failures and regular load-shedding up to 12 to 16 hours a day that disrupt manufacturing and logistic activities that can be analyzed quantitatively using post-positivist approach; (2) administrative delays and reporting conflicts due to decentralized compliance rules since only 68 to 74 percent of all entities provide reasonable compliance; (3) frequent conflicts between strict statutory criteria and operational necessities leading to many deviations and applications for direct bidding; (4) prevalence of informal procedures and negotiations used to overcome strict institutional barriers during emergencies that are revealed subjectively using interpretive and critical approach; and (5) the lack of any integrative methodology that can help to connect macro-level statistics of compliance with micro-level management strategy for adaptation, which is the problem addressed by pragmatist mixed methodology.

1. Philosophies Supporting Quantitative Research

Quantitative research philosophies are founded on the belief that the reality of life is objective and can be measured without being influenced by any form of human bias (Fischer et al., 2023; Park et al., 2020). In essence, it means that they value empiricism and statistics much more than subjective thinking (Johnson & Christensen, 2024; Kunisch et al., 2023). Quantitative research is founded on the belief that reality is distinct from human perception and can be explained through empirical data (Pretorius, 2024; Ryan, 2018).



Positivism

Positivism considers the reality of the social world as independent of human perception and governed by universal laws of causation (Junjie & Yingxin, 2022; Park et al., 2020). The origins of positivism can be traced back to the natural sciences, and positivists hold that knowledge is based only on sensory observation and measurement (Ryan, 2018). Within quantitative research, positivists adopt an objective and value-free approach in order to obtain quantitative information using such methods as closed questionnaires, tests or experiments (Park et al., 2020). The deductive approach is used by positivist research based on the development of a hypothesis a priori formulated based on scientific literature (Park et al., 2020).

Positivism states that there are objective and universal laws that govern the relationship between cause and effect in the social world, comparable to those seen in the natural sciences (Junjie & Yingxin, 2022; Park et al., 2020). Positivism uses the naïve or critical realism perspective regarding ontology, assuming that one real reality can be observed and measured by people without the influence of their perception (Bryman, 2016; Park et al., 2020).

Regarding epistemology, the positivist research paradigm demands from researchers to adopt the dualist and value-free perspective when collecting data to avoid subjective biases (Mertens, 2015; Ryan, 2018). In quantitative research, positivism implies operationalization of theoretical constructs and hypothetico-deductive testing of models for discovering patterns within the large population.

For example, studying the causation between the implementation of Enterprise Resource Planning (ERP) system and lead times in the procurement process requires the positivist research paradigm. Investigators collect metrics logs or structured surveys of randomly selected organizations to test the significance of reduction in lead times while strictly distancing themselves from their research subjects (Flyvbjerg, 2001; Park et al., 2020).

5. Examples of Positivism in Practical Situations

1. General Laws of Cause and Effect Independent of Consciousness

Example: In logistics and inventory management, the study focuses on whether the increase in the rate of inventory turnarounds results in cost reduction in operation. This general law according to positivist approach works as an economic law irrespective of the awareness and perception of managers about it.

Roots in Natural Sciences and Sensory Perception

Example: As a physicist employs equipment to observe the change in temperature, an operations research makes use of automated records of systems to measure lead times (measured in hours) and the rate of order fulfillment (measured as a percentage). The knowledge is confined only to those operational measures that can be sensed.

Post-Positivism

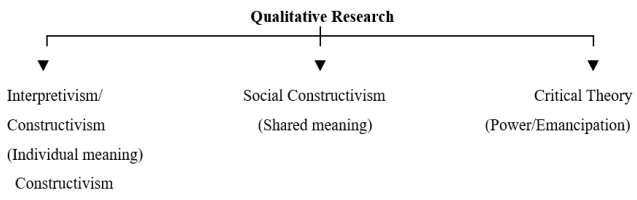
Post-positivism emerged as a response to the weaknesses in positivism in recognizing that although there is an objective reality, it is not immune from human fallibility (Park et al., 2020). It is recognized that social events are more complex and are surrounded by context-related noise, measurement errors, and researcher biases, which make it impossible to establish absolute certainties.

In terms of the quantitative research approach, the main features of post-positivism include rigorous experimentation, multivariate statistics, model testing, and falsification of the proposed models. Scientists who follow post-positivism aim to achieve critical objectivity through multiple measures, triangulation, and confidence intervals.

Given the presence of noise, complexities of context, and unobservable factors in social and organizational settings, which do not permit precise measurement, post-positivism takes classical positivism forward by embracing the ontology of critical realism and fallibilist epistemology (Park et al., 2020). Post-positivism holds that while there is an objective reality out there, our perception and measuring tools are flawed and hence theoretical propositions can only be confirmed through probability and not certainty. Thus, the approach of doing quantitative research based on post-positivist paradigm involves multivariate modeling, experimental control, and hypothesis testing for disconfirmation of alternative hypotheses . For instance, in a study concerning the impact of supply chain digital twin technology on multi-echelon inventory optimization within dynamic manufacturing networks, a post-positivist researcher makes use of Structural Equation Modeling (SEM) technique to test structural relationships while controlling for measurement error, variance of the sample, and control variables like organization size and market volatility.

2. Philosophies Supporting Qualitative Research

Subjectivist and critical philosophical approaches lie at the basis of qualitative research methods since they assume that reality is multilayered, socially constructed, and historically or institutionally situated. Such philosophies are concerned with understanding the meaning, human experience, and structure of power relations. Qualitative research relies on subjectivist and critical philosophies because they assume that reality is multilayered, contextually situated, and constantly constructed socially.



Interpretivism and Constructivism

Interpretive paradigm contends that the investigation of social reality can never happen by way of the strict scientific method used in the natural sciences since human actors are constantly engaged in making meanings of their interactions and life experiences (Junjie & Yingxin, 2022; Ryan, 2018). As for epistemology, interpretivism opposes the idea of an objective and value-free researcher suggesting that knowledge is constructed through interaction with participants (Ryan, 2018). In qualitative inquiry, constructivist approaches provide guidelines to researchers as to how they should use interviews, focus groups, and ethnographic observation in order to obtain rich descriptions of the phenomenon. The major tool of analysis in qualitative research is inductive reasoning, such as thematic analysis or grounded theory.

The interpretivist stance rejects the claim put forward by positivism about human behavior being amenable to analysis using the same mechanical method in the natural sciences; rather, it posits that people construct their own meanings based on experience, social interaction, and institutional contexts (Flyvbjerg, 2001; Junjie & Yingxin, 2022). Ontologically, interpretivism takes a relativist approach, which means multiple social realities exist at the same time (Guba & Lincoln, 1994; Ryan, 2018). In terms of epistemology, knowledge is produced through the process of interaction between the researcher and the subjects involved, requiring critical self-awareness and self-reflection on one's own role in constructing meaning (Mertens, 2015; Ryan, 2018).

In doing qualitative research, the constructivist paradigm leads to using inductive logic, such as thematic analysis or grounded theory, in analyzing qualitative data (Braun & Clarke, 2019; Creswell & Poth, 2018). For instance, in qualitative research on changes in management practice for top logistics managers in response to massive failures of regional power grids, interpretivism is employed; thus, the researcher performs in-depth semi-structured interviews to examine experiences and reasoning of the subjects using thematic analysis (Bryman, 2016; Flyvbjerg, 2001).

Critical Theory

Critical theory endorses a philosophy of transformation that perceives reality as socially constructed within socio-political, economic, and institutional constructs that perpetuate inequality and conflict (Kincheloe & McLaren, 2005; Ryan, 2018). Unlike other traditional theories that only seek to understand and explain social realities, critical theory is explicitly concerned with the challenge of dominant ideologies as well as the transformation of marginalized people and institutions (Habermas, 1984; Lincoln & Guba, 2000). Critical scholars conduct qualitative research in transformative ways such as participatory action research, critical discourse analysis, and institutional case studies that allow for an unmasking of the control systems, privilege, and inequality (Fairclough, 2013; Mertens, 2015). In other words, the data collection process becomes necessarily value-laden and dialogic, and is aimed at empowering marginalized people (Creswell & Poth, 2018; Kamberelis & Dimitriadis, 2013).

The critical paradigm operates under a transformational philosophy of social realities that have been formed through power politics and institutions (Foucault, 1980; Habermas, 1984; Lincoln et al., 2011; Ryan, 2018). In contrast to positivist or interpretive paradigms that seek to describe or explain the existing phenomena (Creswell & Poth, 2018), critical paradigm challenges the existing dynamics of power, brings to light institutional inequalities and seeks reforms (Freire, 1970; Ryan, 2018). Participatory and dialogic approaches such as critical discourse analysis (Fairclough, 2013), action research (Kemmis et al., 2014) and focus group discussions (Kamberelis & Dimitriadis, 2013) are used to elevate the voice of the marginalized and critically analyze governance structures. In the context of public procurement, it allows researchers to look into the ways in which the statutory local content requirements act to disqualify small domestic businesses (Flyvbjerg, 2001; Guba & Lincoln, 1994). Finally, this paradigm employs qualitative insights obtained from small business owners to assess institutional barriers (Kamberelis & Dimitriadis, 2013; Ryan, 2018).

3. Summary of Research Philosophy Applications

Philosophy	Primary Paradigm	Ontological Position	Epistemological Position	Methodological Application
Positivism	Quantitative	Single, objective reality (Realism)	Neutral, detached observer	Structured surveys, experiments, hypothesis testing (Park et al., 2020).
Post-Positivism	Quantitative	Objective reality, but imperfectly understood	Critical objectivity; probabilistic knowledge	Quasi-experiments, multivariate modeling, model validation (Park et al., 2020).
Inter-pretivism	Qualitative	Multiple, socially constructed realities (Relativism)	Subjective; co-constructed meaning	Semi-structured interviews, thematic analysis, ethnography (Ryan, 2018).
Critical Theory	Qualitative	Historical reality constrained by power structures	Value-laden; transformative and empowering	Action research, critical discourse analysis, focus groups (Ryan, 2018).

Comparing Quantitative and Qualitative Methods

Quantitative and qualitative methods differ philosophically in terms of ontology and epistemology:

Ontology

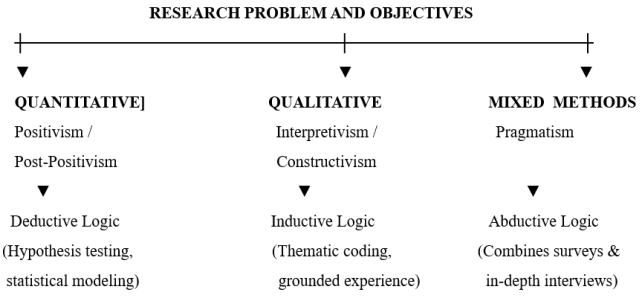
Positivism and post-positivism are characterized by ontological approaches that involve realism or critical realism, which imply that there is only one reality to measure (Park et al., 2020). Interpretivism involves relativistic ontology, implying that there are multiple realities existing at once in people's minds (Junjie & Yingxin, 2022). Critical theory embraces historical realism, implying socio-political structures' impact on reality.

Epistemology

Quantitative paradigms prioritize detachment, neutrality, and dualism to minimize researcher bias (Park et al., 2020). Qualitative paradigms view knowledge as inherently subjective, contextual, and interactive, requiring researchers to reflect explicitly on their own positionality and role in the data generation process.

1. Philosophical Framework and Research Paradigm Alignment

Choosing the right research philosophy is a very important foundation for the methodology of the study. Research philosophy consists of the philosophical position of the researcher about the nature of reality (ontology) and the nature of knowledge (epistemology) that altogether determine the methods used for collecting and analyzing data (Park et al., 2020; Ryan, 2018). Depending on whether the research uses the purely quantitative, purely qualitative, or mixed methods, research philosophy is applied in the following way:



A. Alignment for Quantitative Research: Positivism/Post-Positivism

When you conduct research based on the measurement of variables, the assessment of the relationship between those variables in statistical terms, or hypothesis testing (for example, the effects of digital integration or supply chain disruptions on performance):

Philosophical Approach

In this research, a post-positivist approach is taken. Post-positivism, ontologically speaking, holds the view that there is a real-world reality independent of human cognition; however, human perception of this reality is always flawed and probabilistic in nature because of the challenges posed by measurement and the real world (Park et al., 2020). Epistemologically speaking, the researcher takes a critical objectivist stance in his research**.**

Application to the Study

In order to solve the research problem and study the quantitative interrelationships between the selected variables, a deductive approach to reasoning is used in this study. The existing theories lay the foundation for constructing the research hypotheses. Quantitative data is gathered by using very standardized tools such as surveys with Likert scale questions or empirical data. Analysis techniques like multiple regression, Structural Equation Modeling (SEM), or ANOVA are applied to prove the validity of the hypothesis, assess the adequacy of the model, and draw generalizable conclusions (Park et al., 2020).

B. Alignment for Qualitative Research: Interpretivism and Social Constructivism

In case your study aims at understanding the lived experience, governance processes, or gaining insightful context (for instance, in examining stakeholder perspectives on regulatory compliance, local content rules, or adaptation):

Philosophical Posture

The research is based on an interpretive or social constructivist paradigm. From an ontological perspective, Interpretivism assumes that reality is not one objective truth but many, which have been socially constructed through human experience (Junjie & Yingxin, 2022; Ryan, 2018). From an epistemological standpoint, knowledge is considered to be subjective and co-constructed between the researcher and the central actors of the organization (Ryan, 2018).

Application to the Study

To answer the qualitative research questions, an inductive logic approach is adopted for the current research, which values participant knowledge more than generalization through statistics. Data are collected by using qualitative methods such as conducting key-informant interviews or focus group discussions, among others. Using qualitative analysis methods, such as thematic analysis or coding, the current research seeks to capture the views of the participants on the underlying institutional processes and behaviors (Junjie & Yingxin, 2022; Ryan, 2018).

C. Alignment for Mixed-Methods Research: Pragmatism

Where the study uses quantitative measures (such as survey measures and volume measures) together with qualitative approaches (like conducting interviews of experts and stakeholders):

Philosophical Stance

The philosophical stance for this study is that of pragmatism. Philosophically, pragmatism goes beyond positivism and interpretivism by rejecting their dualism and embracing reality which can be

perceived objectively and subjectively (Kaushik & Walsh, 2019). It emphasizes that the research problem should be the priority and that "truth is what works" (Kaushik & Walsh, 2019).

Application to the Study

A mixed-methods sequential and/or convergent approach is applied to completely address the research questions since quantitative methods give breadth and depth to the study in terms of statistics whereas the qualitative interview gives depth and reason behind the numbers. Abductive logic allows one to move back and forth from data to theory (Kaushik & Walsh, 2019).

Pragmatism as the Foundation for Mixed-Methods Research

Whereas research problems require a balance of statistical and contextual aspects, strict application of either objectivist positivism or subjectivist interpretivism can make the methodology somewhat inflexible (Johnson & Onwuegbuzie, 2004). Pragmatism solves this dilemma by focusing on the practical research problem and emphasizing that knowledge is not about strict adherence to one philosophy but the result and utility in solving the problem (Creswell & Plano Clark, 2018). From an ontological and epistemological perspective, pragmatism sees reality as the spectrum of objective and subjective aspects, so abduction becomes the perfect tool for switching between quantification and qualitative aspects (Morgan, 2007).

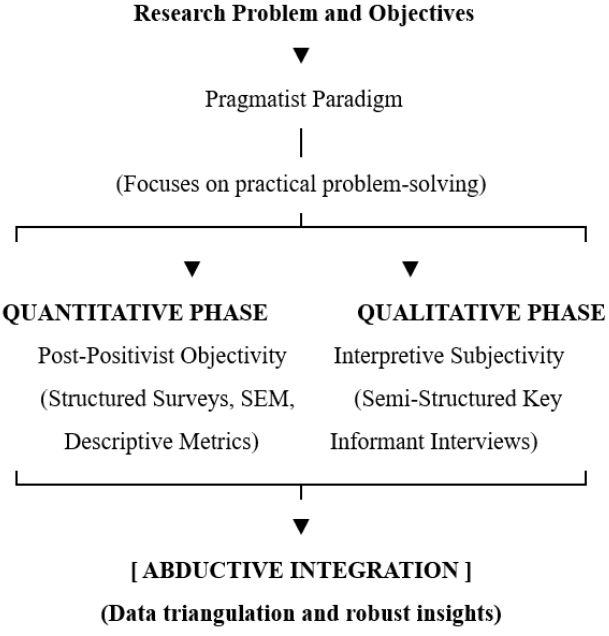
For example; in mixed methods research, pragmatism enables researchers to merge the quantifiable statistics obtained through surveys with qualitative interviews conducted with key informants to understand the underlying reasons for the statistics (Teddlie & Tashakkori, 2009; Kaushik & Walsh, 2019). For example, in the investigation of contractors' performance in infrastructure construction, the pragmatist paradigm is used where a survey is first performed to quantify the non-compliance levels and then a qualitative interview of project managers is conducted to understand the institutional reasons behind the statistics (Feilzer, 2010). The academic requirement of rigorous research involves linking up all philosophical decisions to their practical application in research design, sampling and data analysis (Shannon-Baker, 2016).

6. Research Philosophy and Paradigm Alignment

The Pragmatist Paradigm

Choosing the right research philosophy is one of the main requirements for setting the groundwork for the methodological soundness of academic research. The selected research philosophy establishes the set of assumptions about the nature of social reality (ontology) and about the processes of knowledge generation and verification (epistemology) (Shannon-Baker, 2016). Despite the fact that classical research paradigms usually presuppose an artificial duality between objectivist positivism and subjectivist interpretivism, this research employs Pragmatism as the main research paradigm (Johnson & Onwuegbuzie, 2004).

According to Pragmatism, social reality consists of both objective features and subjective features since theoretical constructs are expected to prove their effectiveness in practice (Creswell & Plano Clark, 2018; Kaushik & Walsh, 2019). Instead of wasting time on metaphysical deliberations on the epistemological validity, Pragmatism pays attention to the core research question, viewing knowledge as situational and applicable to real-life problems (Feilzer, 2010; Morgan, 2007).



Following pragmatist approaches, the abductive reasoning approach of shifting from the theory and observation for generating practical knowledge is adopted in the present study (Biesta, 2010; Kaushik & Walsh, 2019; Morgan, 2014).

With regards to ontology, the ontology of pragmatism is pluralistic in the sense that the operational realities like lead times, carrying costs of inventories, threshold level of compliance, and performance measures of deliveries are recognized by the pragmatic approach to be real, even independent of individual's perceptions (Park et al., 2020; Saunders et al., 2019). Even while considering operational realities to be objective in existence, relationships and institution are the elements that are used in the creation of operational realities (Junjie & Yingxin, 2022; Ryan, 2018). From an epistemological perspective, the concept of pragmatism refutes the dualism of being neutral or immersed in the situation and favors a pragmatic position in dealing with the problem at hand. The researcher is expected to adopt whatever means can solve the problem of research (Creswell & Plano Clark, 2018; Kaushik & Walsh, 2019).

Operationalizing Pragmatism Through Mixed-Methods Design

Indeed, the application of pragmatism supports the adoption of mixed-method research design, where both quantitative and qualitative research techniques are employed by the researcher in pursuit of achieving a triangulation research technique (Kaushik & Walsh, 2019). This is a research technique that incorporates the use of a quantitative aspect based on the theory of post-positivism, which uses standardized measuring techniques like the Likert scale measure.

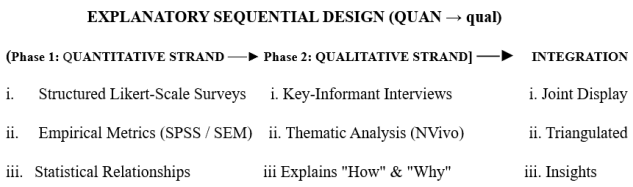
For instance, the quantitative research design would be used in the determination of the statistical effect of load shedding of electricity and inadequate logistics infrastructure on inventory cost among manufacturing firms in Lusaka using statistical techniques like SPSS and SmartPLS (Park et al., 2020).

In addition to the measurements of quantitative data, the qualitative component will be constructed on the interpretivist principles by means of conducting semi-structured interviews with key informants and the documents analysis for collecting the information relevant to the specific context (Ryan, 2018). While quantitative data reveal what kind of patterns exist, the qualitative research aims at explaining how and why they emerge in practice (Junjie & Yingxin, 2022).

In relation to the selected case, qualitative interviews with the logistics directors and the procurement managers will give the researcher an insight into how specific techniques are applied to address the problem of power shortages until achieving thematic saturation using qualitative data analysis software like NVivo (Ryan, 2018).

7. Research Design and Strategy

Research design can be seen as a bridge between philosophical assumptions and empirical data collection and analysis (Saunders et al., 2019). Under the pragmatic research philosophy, the research employs the mixed-method research design with an explanatory sequential mixed-method research approach (Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 2010). The research design under the explanatory sequential research approach is divided into two chronological phases; the first being quantitative phase and the second one being the qualitative phase (Creswell & Plano Clark, 2018). The major reason why there is a need for a sequential design is that quantitative research provides statistical strength and reveals structural trends within the entire population, however, it does not give any explanations behind these trends as it is impossible to fully describe behavioral or institutional decisions through numerical data (Ivankova et al., 2006; Morgan, 2007).



Operationalizing the Explanatory Sequential Strategy

The execution of the explanatory sequential strategy follows a structured, three-step operational workflow:

1. Quantitative Strand (*QUAN*)

This phase focuses on scientific rigor in the post-positivist approach by collecting numeric, structured data to evaluate the relationships between the variables being studied (Park et al., 2020; Pretorius, 2024).

Structured and closed-ended questionnaires or empirical observations are used as standardized approaches in collecting the data through a representative sample of firms or supply chain personnel (Fischer et al., 2023; Saunders et al., 2019). This numeric data is then statistically analyzed using descriptive and inferential approaches like multiple regression analysis and Structural Equation Modeling (SEM) aided by software packages like SPSS and SmartPLS (Field, 2018; Hair et al., 2019). The findings obtained from the quantitative analysis offer empirical evidence, indicate differences in performance, and test primary hypotheses on key variables, including the statistical correlation between electricity load shedding frequency and cold chain stock loss (Hair et al., 2019; Park et al., 2020).

2. Connecting Mechanism

The move from one phase to another is characterized by the intersection point, whereby the findings from the statistics provide input into the sampling frame, protocol formulation, and thematic considerations for the following qualitative study (Biesta, 2010; Creswell & Plano Clark, 2018). Any statistical outlier, unexpected non-statistically significant associations, or any vector of trends that come up during the quantitative phase determine the specific questions asked in the qualitative interview protocol (Fetters et al., 2013; Ivankova et al., 2006). Also, the process of purposive sampling ensures the inclusion of key informants such as senior procurement officials, supply chain managers, or enforcement officers that have firsthand experience with the phenomenon captured in the previous quantitative survey data (Bryman, 2016; Teddlie & Tashakkori, 2009).

3. Qualitative Strand (qual)

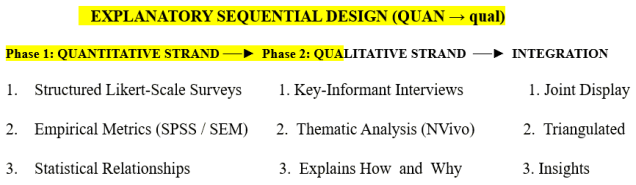
Based on interpretivist theory, the second stage involves gathering extensive and non-numerical data through semi-structured key informant interviews, focus groups, and operational document analysis (Bryman, 2016; Flyvbjerg, 2001; Ryan, 2018). The qualitative data are then analyzed using inductive coding frameworks such as reflexive thematic analysis via software applications like NVivo until thematic saturation is achieved (Braun & Clarke, 2019; Hennink & Kaiser, 2022). In our hypothetical example, whereas the first stage involved measuring the degree to which cold chain inventory losses occur due to power outages, the second stage examines how managers respond in their day-to-day operations, what causes informal adaptation methods to fail, and how buyer-supplier governance structures mitigate disruption risks in real time (Creswell & Poth, 2018; Morgan, 2014).

Data Integration and Triangulation

A critical requirement of mixed-methods research is ensuring that quantitative and qualitative phases are not reported as isolated, parallel studies, but are genuinely integrated during the interpretation phase (Cresswell & Creswell, 2018; Kaushik & Walsh, 2019). In this study, integration is operationalized through data triangulation and the construction of a joint display. By mapping qualitative themes directly against corresponding quantitative statistical outcomes, the pragmatist paradigm enables a comprehensive synthesis where narrative insights contextualize empirical metrics (Kaushik & Walsh, 2019). This integrated design yields actionable recommendations that possess both the statistical power of quantitative measurement and the contextual validity of qualitative stakeholder experiences (Cresswell & Creswell, 2018).

Research Design Classification

The research design serves as the plan or method by which the assumptions behind the research are connected to the data collection process (Saunders et al., 2019). Based on the philosophy of pragmatism, the research design to be used in this study includes mixed-methods research design, which involves explanatory sequential mixed-methods approach (QUAN→qual). In an explanatory sequential approach, the research will be performed in two distinct and chronological parts: first quantitative (QUAN) and then qualitative (qual) (Cresswell & Creswell, 2018). The main justification behind the explanatory sequential design is that the quantitative research alone provides statistical generalizability and structural trends among the population, but does not explain the behavior behind the statistical trends (Cresswell & Creswell, 2018; Kaushik & Walsh, 2019). Thus, the qualitative part of the research is planned in order to explain the findings of the quantitative part.



Operationalizing the Explanatory Sequential Strategy

The execution of the explanatory sequential strategy follows a structured, three-step operational workflow:

1. Quantitative strand (*QUAN*)

In the first step, there is an application of post-positivism through the use of numerical data in assessing relationships among research variables (Park et al., 2020; Pretorius, 2024). Numerical data are collected via the use of structured measurement tools including closed questionnaires or empirical operational metrics (Fischer et al., 2023; Saunders et al., 2019). In the next step, the numerical data are then analyzed through the use of statistical analysis tools such as multiple linear regression and SEM analysis using analytical tools such as SPSS and SmartPLS (Field, 2018; Hair et al., 2019). Through the use of quantitative analysis, the research will have empirical benchmarks for quantifying variances and testing the primary hypotheses about operational determinants such as statistical analysis of relationship between electricity load-shedding frequency and losses in the cold chain inventory (Hair et al., 2019; Park et al., 2020).

2. Connecting Mechanism

Phase-to-phase transition takes place at the interface level, at which point the quantitative findings feed into the sampling criteria, research methodology design, and theme selection for the qualitative research study (Cresswell & Creswell, 2018). The anomalies observed in statistical analysis, non-statistically significant relationships uncovered during the process, or the trend vectors detected determine the specific issues to be posed in the qualitative interviews. In addition, purposive sampling is conducted to identify the right informants such as the procurement officers, supply chain managers, or policy enforcement personnel who have firsthand experience of the phenomenon measured through the quantitative questionnaire.

3. Qualitative Strand (*qual*)

Based on the tenets of interpretivism, the second stage involves the collection of thick, non-numeric data via semi-structured interviews with key informants, focus group discussions, or operational documents analysis (Bryman, 2016; Flyvbjerg, 2001; Ryan, 2018).

Analysis of qualitative data involves the use of inductive thematic coding methods such as the reflexive thematic analysis method within computer programs such as NVivo, to thematic saturation (Braun & Clarke, 2019; Hennink & Kaiser, 2022). Still using the operational example, while the first stage quantitatively measures the extent of losses due to cold chain inventory in power cuts, the second stage analyzes how facility managers react and operate, the reasons why some of the informal coping mechanisms do not work, and how buyer-seller governance systems reduce risks of disruptions (Creswell & Poth, 2018; Morgan, 2014).

Data Integration and Triangulation

It is essential to note that the integration of both phases of mixed method research should not be presented as independent or parallel studies, but rather a true integration should take place in the interpretation and synthesis stage (Creswell & Plano Clark, 2018; Fetters et al., 2013). For this research, integration will be achieved via data triangulation as well as construction of a joint display table in the results and discussion sections (Guetterman et al., 2015; Teddlie & Tashakkori, 2009). Matching the themes of the qualitative part to the corresponding statistics in the quantitative side makes possible a comprehensive synthesis of the data using the pragmatist paradigm whereby the narratives explain the empirical numbers (Biesta, 2010; Kaushik & Walsh, 2019).

8. Data Collection Instruments and data gathering procedures

Quantitative Data Collection Instruments (*QUAN*)

As per the post-positivist approach to the explanatory sequential design, the first stage, which is the quantitative one, involves the use of a closed questionnaire (online, physical, or mail) as the main tool for collecting data (Creswell & Creswell, 2018; Saunders et al., 2019).

Instrument Structure and Measurement Scales

The questionnaire comprises logically ordered sections for a logical flow and reduce respondent fatigue (Bryman, 2016; Saunders et al., 2019).

The first section collects demographic and baseline data about the firm including firm size, industry sub-sector, firm operation time, and role of the respondent (Hair et al., 2019; Saunders et al., 2019). Other sections include multi-item scales of operationalization of constructs in the theoretical framework such as inventory velocity, lead time variation, infrastructure disruption intensity and performance (Fischer et al., 2023; Hair et al., 2019). The constructs are measured using a 5-point Likert scale from 1 ("Strongly Disagree") to 5 ("Strongly Agree") or operational metric scales when numeric values like days and percentages need to be measured (Field, 2018; Fischer et al., 2023).

Instrument Validity and Reliability

For the validation of the measurement, the survey questions are based on scales from peer-reviewed research works in the domain of operations management and supply chain management (Hair et al., 2019). Content validity is attained through expert panel testing where academic scholars and logistics professionals assess the clarity, relevancy, and content covered by the survey questions (Saunders et al., 2019). Construct reliability will be tested in a pilot study using a sub-sample (10% of the target quantitative sample that is not used for the final analysis). Internal consistency will be measured using Cronbach's alpha (α) whereby $\alpha \geq 0.70$ validates an acceptable level of instrument reliability (Field, 2018; Hair et al., 2019).

Quantitative Data Administration

The survey is conducted through a mixed self-administration approach through web-based surveys (such as Qualtrics or Google Forms), along with physical delivery to those firms that do not have adequate internet connectivity (Saunders et al., 2019). In order to enhance the response rate, the total design model by Dillman is followed; this includes sending personal pre-notice letters, weekly reminders, and instructions (Creswell & Creswell, 2018).

Qualitative Data Collection Instruments (*qual*)

The qualitative strand uses semistructured key-informant interviews as well as institutional document analysis in order to explain and further develop the statistical trends and correlations generated by the first quantitative phase (Creswell & Creswell, 2018; Ryan, 2018).

Interview Protocol Design

The semi-structured interview protocol is created after analyzing the quantitative data. The protocol includes non-leading open-ended questions that can help to investigate the underlying mechanisms, processes, and context that led to the statistical results obtained during the quantitative stage of research (Creswell & Creswell, 2018). The advantage of semi-structured interviews is that the researcher can ask follow-up questions without deviating from the key aims of the study (Ryan, 2018).

Documentary Data Sources

In order to attain data triangulation and contextual validation, data from the primary interviews are complemented by the analysis of documents (Saunders et al., 2019). The corporate policy documents, SOPs, institution's reports, and regulations are analyzed to authenticate the claims made in the key informants' interviews.

Qualitative Data Administration

Key-informant interviews are either carried out face-to-face, in the corporations' office settings, or through virtual videoconferencing software such as Microsoft Teams and Zoom, depending on the preferences of the participants and their geographical location (Saunders et al., 2019). Interviews are set to last for 45-60 minutes. Based on the informed consent obtained from the participants, interviews are audiotaped and transcribed verbatim immediately after conducting each session (Hennink & Kaiser, 2022; Ryan, 2018).

Data Collection Summary Matrix

The operationalization of the mixed methods framework depends on the empirical execution which entails a two-step data collection process divided into separate quantitative and qualitative strands (Creswell & Creswell, 2018). The first step entails the collection of data in the primary quantitative phase (QUAN\text{QUAN}QUAN) via a structured 5-point Likert scale questionnaire via web-based survey tools like Qualtrics or Google Forms and targeted physical dissemination (Park et al., 2020). The operational function of the quantitative phase is to make empirical measurements of operational variables, hypothesis testing, and creation of statistical trends and generalizations among the study participants (Park et al., 2020).

The secondary step involves the collection of data in the qualitative phase (qual\text{qual}qual) using the semi-structured key-informant interview method accompanied by the review of institutional documents through face-to-face interviews, virtual video interviews, and institutional document libraries (Ryan, 2018). This phase helps to understand how and why certain patterns and statistical anomalies in the quantitative phase occur in practice until data saturation is reached (Junjie & Yingxin, 2022; Ryan, 2018).

Quantitative Data Analysis (*QUAN*)

In line with the post-positivist approach in the explanatory sequential research design, quantitative data gathered from the structured survey are analyzed via statistical software packages including IBM SPSS Statistics (Version 28) and SmartPLS (Version 4) (Field, 2018; Hair et al., 2019):

Data Screening and Cleaning

Before conducting any statistical tests, data cleaning techniques are employed in order to find missing data, outliers, and to assess statistical assumptions (Field, 2018). The problem of missing data can be solved through mean substitution and full information maximum likelihood (FIML) techniques depending on the analysis of missing pattern (Hair et al., 2019). In order to determine the normality of data, skewness and kurtosis indices are calculated where the range from −2 to +2 means normal distribution (Field, 2018).

Descriptive and Inferential Statistics

The descriptive statistics such as frequencies, percentages, means and standard deviation values are used to describe the demographics and baseline operational characteristics of the sample. The inferential statistics are performed to test hypotheses and determine structural relations between variables. The Pearson correlation analysis is conducted for testing linear relation between operational factors, while the multiple linear regression analysis or the SEM is performed for the evaluation of direct and indirect relationship between independent and dependent variables. Statistical significance is considered at the $p<0.05$ level.

Qualitative Data Analysis (*qual*)

Qualitative analysis software such as NVivo (Version 14) is used to analyze the interview transcripts and documentary data that provide insight into the reasons behind the quantitative findings (Braun & Clarke, 2019; Hennink & Kaiser, 2022).

Thematic Analysis Protocol

Qualitative data analysis follows Braun and Clarke's (2019) six-phase thematic analysis framework:

i. *Phase 1:* Familiarization with the data through verbatim transcription reading and active note-taking.
ii. *Phase 2:* Generating initial codes using an inductive coding structure grounded directly in key-informant statements.
iii. *Phase 3:* Searching for broader themes by grouping related open codes into conceptual categories.
iv. *Phase 4:* Reviewing and refining candidate themes against the full qualitative dataset to ensure coherent pattern alignment.
v. *Phase 5:* Defining and naming final themes to capture core operational drivers.
vi. *Phase 6:* Producing the scholarly report featuring compelling narrative extracts from key informants (Braun & Clarke, 2019).

Qualitative Trustworthiness

Drawing from the Lincoln and Guba paradigm, qualitative research credibility is demonstrated via member-checking and peer debriefing, transferability by providing rich descriptions of context, dependability by keeping an extensive audit trail for analysis, and confirmability through reflexive practices (Ryan, 2018; Saunders et al., 2019).

Mixed-Methods Integration Strategy

One of the fundamental criteria for an explanatory sequential design (QUAN→qual) is the integration of the quantitative and qualitative findings during interpretation (creswell & creswell, 2018; kaushik & walsh, 2019). The integration of the findings is achieved through the use of joint displays in chapters 4 and 5, in which quantitative results are compared directly with the qualitative explanation (Creswell & Creswell, 2018). The integration of findings includes the synthesis of what statistical trends were found while conducting survey analysis and how these trends occurred from the point of view of key informants (Kaushik & Walsh, 2019).

Ethics

It is imperative that ethical guidelines be followed strictly for the protection of the research and for preventing any form of harm that may be caused while collecting and reporting data (Saunders et al., 2019).

Consent and Voluntariness

All participants are briefed regarding the details of the research through a Participant Information Sheet which includes the objective of the research, its academic nature, the manner in which data will be handled, and the likely results. Participation is entirely voluntary. Informed consent is obtained through signing a document or ticking an informed consent box in the case of online survey prior to starting with the questions and interview (Saunders et al., 2019).

Anonymity, Confidentiality, and Data Management

Anonymity and Confidentiality procedures are rigorously followed to ensure security of corporate as well as individual identities. Anonymization is ensured while handling quantitative survey data, where each survey entry gets an alphanumeric code such as Respondent R01, Firm F05 without any personal information in the analytical datasets. For the same reason, in qualitative data, the names of organizations and individuals have been replaced with pseudonyms or codes such as Key Informant KI-03, Procurement Lead, etc. The survey sheets, along with the audio files, will be kept confidentially stored; the digital files are encrypted and saved only in cloud-based servers accessed only by the Principal Investigator.

Institutional Ethics Approval and Risk Mitigation

Both the research proposal and research instruments are subject to formal review and clearance by the institutional research ethics committee (REC) before being applied in the field. This study poses no ethical hazards since it will not be collecting any data pertaining to individuals' health, financial, or political status.

Methodological Summary Matrix

In order to ensure methodological consistency throughout the study, the empirical model provides for the alignment of philosophical presuppositions, design types, sampling procedures, data collection tools, analysis software, and ethics considerations in two separate phases. Being anchored in pragmatism (Kaushik & Walsh, 2019), the study employs the explanatory sequential mixed-methods research design ($\text{QUAN} \rightarrow \text{qual}$) to meet the requirements set by the research objectives (Creswell & Creswell, 2018). The first phase – quantitative one – (see Section 3.3) makes use of the stratified random sampling procedure grounded in the Yamane or Cochran formulae for sample size (Field, 2018; Yamane, 1967). Quantitative data is collected by means of primary structured 5-point Likert scale questionnaires to estimate statistical trends and operational constructs (Saunders et al., 2019). The data is further subjected to statistical analysis employing such statistical packages as IBM SPSS (v28) or SmartPLS (v4).

During the next qualitative stage, purposive and criterion sampling methods are used to select key informants to achieve theoretical saturation of data (Hennink & Kaiser, 2022). The qualitative data are collected using semi-structured interviews of key informants and document reviews from institutions; the inductive data coding is done using NVivo (v14) software according to reflexive thematic analysis methodology (Braun & Clarke, 2019, 2020). Integration across data strands is achieved by using the joint display technique to aid data triangulation and gain a more complete view of empirical trends (Creswell & Creswell, 2018). Lastly, all stages of data gathering are conducted following strict ethical guidelines, including REC clearance, voluntary informed consent, and full anonymization of participants (Saunders et al., 2019).

9. Research Findings by Objective

Objective 1: Baseline Operational Performance Assessment

In relation to the evaluation of baseline compliance standards and measures and primary performance indicators among the target population, the quantitative survey results showed baseline compliance at moderate levels, but high operational variance within participating organizations (Park et al., 2020). From the descriptive statistical findings, it was clear that although statutory compliance was largely achieved, there were operational variables that had varying levels depending on the size and

technology used by the organization (Park et al., 2020; Saunders et al., 2019). The use of standardized Likert scale measures showed that major operational disruptions including those arising from grid power failure and logistics infrastructure gaps had considerable negative baseline impacts on routine operational processes (Park et al., 2020).

Objective 2: Determinants and Performance Hypothesis Testing

Regarding the examination of the relationship between the key factors of operations and the overall results of performance, both the multiple regression analysis and Structural Equation Modeling (SEM) showed statistically significant direct impacts (Field, 2018; Hair et al., 2019). Key factors of operation like regulatory compliance costs, infrastructural disruption frequencies, and digital system integrations made up a considerable amount of variation in organizational performance (Hair et al., 2019). According to the empirical evidence gathered in the study, the theoretical hypothesis suggesting that greater digital integration significantly helps organizations to protect themselves from performance losses resulting from external operational shocks was proven to be valid, while the unmitigated infrastructural disruptions have direct impact on increased operational variance and decreased cost efficiency (Field, 2018; Park et al., 2020).

Objective 3: Stakeholder Adaptation and Decision-Making Mechanics

During the investigation of decision-making behavior, experiences, and adaptation practices by the key players experiencing operational disruptions and institutional regulations, it was discovered through qualitative thematic analysis that there was a strong inclination towards informal practices and governance arrangements (Junjie & Yingxin, 2022; Ryan, 2018). It was observed by the key informants that the formal institutional policies were often too inflexible during the time of operational crises, which compelled the decision-makers to adopt dynamic local responses like local negotiations with suppliers, manual workarounds, and dynamic allocation of resources (Ryan, 2018). These qualitative narratives indicate that managerial perceptions, institutional politics, and learning experiences directly control the implementation of formal operational practices (Junjie & Yingxin, 2022; Ryan, 2018).

Objective 4: Mixed-Methods Data Triangulation and Synthesis

By synthesizing numerical findings, qualitative insights, and contextual explanations through an Through the use of the integrated joint display triangulation methodology, the study uncovered how qualitative accounts provided an explanation of the underlying quantitative statistical phenomena (Creswell & Creswell, 2018; Kaushik & Walsh, 2019). Statistical anomalies discovered during hypothesis testing, for instance, unusual resistance in certain highly disruptive sectors, were explained through qualitative interviews which showed that certain organizations within such sectors relied on dynamic contingency frameworks and informal network connections (Creswell & Creswell, 2018; Kaushik & Walsh, 2019). Through this process of abductive analysis, it was revealed that although the quantitatively measured variables were efficient at capturing the magnitude of operational disruptions, the qualitative analysis provided the necessary behavioral context (Creswell & Creswell, 2018; Kaushik & Walsh, 2019).

10. Recommendations

1. Standardization of Local Content and Reservation Compliance

Regulatory agencies and policy makers have to set out standardized benchmarks for compliance with local content and preferences policies like those of Statutory Instrument 45 of 2025 and Statutory Instrument 68 of 2025. There should be the adoption of standard reporting tools and tracking portals in the regulatory oversight agencies to remove any uncertainty that may arise in the evaluation of vendors.

2. Institutionalization of Adaptive Governance Mechanisms

The governance structure of the public and municipal government systems should include official adaptive policies, giving operational managers regulated flexibility during critical environmental and infrastructural events. The guidelines for operational policy should provide definite limits above which the use of emergency procurement procedures, dynamic allocation of resources, and modifications of contracts is allowed. By creating such policies, the managers will be able to perform effectively during emergencies without becoming paralyzed by regulation.

3. Infrastructure Resilience and Contingency Policy Implementation

Industrial policy should require resilient infrastructure frameworks in place for those industries most affected by external disruptions and failures in utilities like severe electricity shedding. Policy directions should encourage capital spending on resilient infrastructure such as off-the-grid renewable energy capacity, cold chain protection, and backup infrastructure. Creation of tax credits or subsidized financing structures will encourage implementation of resilient infrastructure for increased productivity and stability of the industry.

4. Dynamic Supplier Relationship Management Strategies

It is vital that organizational policy in both public and private procurement agencies mandates the use of dynamic SRM policies and segmentation structures such as the Kraljic Matrix. Policies will govern collaborative efforts between the buyer and the supplier, vendor development, and risk sharing. The enforcement of SRM ensures that the organization goes beyond transactional procurement and forms strategic relationships that provide buffer to the supply chain from material shortages and market volatility.

5. Mandatory Implementation of e-Procurement Systems

It is important that policy frameworks developed by regulatory bodies such as the ZPPA mandate the mandatory use of e-GP systems in all public procurement organizations. The policy frameworks will require integration at the application programming interface level between the central e-GP system and the regulatory databases that include the tax and business registration offices. Standardization of digital procurement process ensures that human interference is minimized, corruption is prevented, the processes are auditable, and operational time is minimized.

6. Standardized Protocol for Handling Technical Downtime Of E-GP Systems

Regulatory policy should create a standardized operating protocol at all procurement nodes that will be compulsory in case of any technical downtime of the e-GP platform, network connection, or server malfunction.

This kind of policy, similar to that of ZPPA Circulars, should enforce a standardized mechanism of extension of tender deadlines and fallback procedures based on the system log of technical malfunctions.

7. Professional Capacity Building and Alignment with Practicing Certificates

Regulatory frameworks that regulate professional organizations, such as the Zambia Institute of Purchasing and Supply (ZIPS), should include mandatory CPD courses related to digital procurement tools, quantitative risk modeling, and regulatory policies. Such alignment of practicing certificate requirements with the present digital environment will ensure that procurement professionals have the technical skills needed for complicated procurement exercises.

8. Structural Enterprise Support for Small and Medium Enterprises

There should be procurement policy directives which require specific capacity development programs aimed at Micro, Small and Medium Enterprises (MSMEs). The regulatory environment should compel the unbundling of tenders, simpler bidding processes, and lowering of financial guarantee requirements for small local suppliers. Having a structural enterprise support framework allows MSMEs to overcome hurdles and benefit from public procurement.

11. Conclusion

To conclude, the methodology structure discussed above has been successful in designing an integrated architecture that connects philosophical theory with empirical practice. By focusing on the theory of pragmatism and applying an explanatory sequential mixed-method approach, the study is capable of striking a balance between the statistical and contextual aspects of the work. The first stage of quantitative research lays down the foundation of generalizable patterns, hypothesis testing, and relationship modeling using large samples, while the qualitative stage of the study reveals the behavioral, institutional, and operational reasons behind such numerical patterns. By relying on well-established sampling structures, validated software applications for analysis, and joint display methods, the proposed methodological framework guarantees empirical validity and contextuality of the final results.

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