

ANALYTICAL APPROACHES TO IDENTIFYING MARKET GAPS

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**BEING A PROJECT SUBMITTED TO THE DEPARTMENT OF BUSINESS
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NOVEMBER, 2025

DECLARATION

I **DIKE ESTHER CHINECHEREM** with matriculation number **MGS2104801**, hereby declare that this research project titled “Analytical Approaches to identifying Market Gaps” was carried out by me in partial fulfillment of the requirements for the award of a degree under the supervision of **PROF. IBRAHIM SHAIBU** in the Department of Business Administration, Faculty of Management Sciences University of Benin, Benin city.

This work is entirely my original research and has not been submitted, in whole or in part, to any other institution for the award of any degree or certificate.

All sources of data and materials consulted during the course of this research have been duly acknowledged and referenced using the APA 7th edition referencing style.

This work reflects my honest effort, research, and understanding of the subject.

.....
DIKE ESTHER CHINECHEREM

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DATE

CERTIFICATION

This is to certify that this project was carried out by **DIKE ESTHER CHINECHEREM** with Matriculation number **MGS2104801** to the Department of Business Administration, University of Benin, Benin city Nigeria and approved in the scope and quality of partial fulfillment of the requirement of the award of Bachelor of Science (B.Sc.) Degree in Business Administration.

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DEDICATION

This research work is dedicated to the One True God, the Holy of Israel my Ebenezer whose goodness and mercies has been my source and sustainer throughout the course of this journey and till this finish line, I actually cannot thank him enough he's a good God.

It is also dedicated to my amazing and awesome family, I am forever grateful to God for making me a part of this beautiful family and for their prayers and encouragement which helped me to be able to pull through, I am very grateful.

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ABSTRACT

Identifying and exploiting market gaps has become essential for firms seeking sustainable growth and strategic advantage. This study, titled “Analytical Approaches to Identifying Market Gap,” explores how data-driven tools, analytical techniques, and customer insights can be used to uncover unserved or underserved areas within the market. This research emphasises the importance of integrating analytical approaches such as data mining, predictive analytics, customer behavior analysis, and market segmentation to provide organisations with actionable insights for decision-making.

This study adopted a quantitative research design, relying on structured questionnaires administered to business owners, marketing managers, and data analysts. The data were analysed using both descriptive and inferential statistics, including regression analysis, to test hypotheses on the relationship between analytical tools, data-driven decision-making, customer data utilisation, and market gap identification. The findings revealed that analytical tools significantly enhance a firm’s ability to recognise unmet customer needs, while data-driven methods improve the precision of market forecasting and strategic planning. Additionally, the study established that effective use of customer data facilitates a deeper understanding of behavioural patterns that point to latent market opportunities.

The results demonstrate that businesses which actively integrate analytical approaches into their strategic planning are more likely to achieve competitive advantage through innovation and responsiveness to emerging trends. By establishing a link between analytical competence and market opportunity identification, this research contributes to the growing body of literature on business analytics and market strategy, particularly within emerging economies. This study concludes that developing analytical capabilities is not only a technological necessity but also a strategic imperative for business sustainability.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

In today's increasingly competitive and rapidly evolving business environment, identifying market gaps has become a strategic imperative for firms seeking sustainable growth and competitive edge in its industry. A market gap typically refers to an unmet need, a segment that is under-served, or an opportunity overlooked by existing competitors. As consumer expectations shift, technology evolves, and industries become more saturated, firms that can systematically detect and exploit these gaps are better positioned to gain a first-mover advantage, innovate effectively, and maintain relevance in their markets (SimilarWeb, 2025).

The notion of market gap identification is not new; however, the methods used to uncover these opportunities have advanced significantly. Traditionally, market gap analysis was based on intuition, anecdotal evidence, or basic SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis. These approaches were often limited by subjectivity and lacked the empirical strength required for accurate decision-making. In contrast, recent years have seen the rise of more sophisticated analytical tools and data-driven frameworks designed to identify market gaps in a systematic and repeatable manner (DataCalculus, n.d.). These modern approaches include predictive analytics,

descriptive analytics, diagnostic analytics, and sentiment analysis, all of which offer deeper insights into where opportunities may lie.

At the core of analytical market gap identification lays the concept of gap analysis, which in business contexts is a strategic tool used to compare actual performance or market offerings against potential or desired states. Gap analysis highlights discrepancies between existing supply and latent or emerging demand (Revista ESPACIOS, 2020). Applied to markets, it helps businesses uncover product voids, service shortcomings, or demographic segments that are not adequately targeted. For instance, a company might identify that while a product category is saturated for adults, there is little competition addressing similar needs for teenagers or older adults. This analytical lens transforms vague notions of opportunity into actionable market intelligence.

Modern businesses rely on both internal and external data to support this analysis. Internally, firms may analyse customer complaints, sales trends, production rate or purchase patterns to detect unmet needs. Externally, competitor activities, social media sentiments, industry reports, and consumer behavior trends offer clues about changing preferences and market evolution (Dovetail, 2022). The convergence of these data sources allows firms to build comprehensive models that not only highlight where gaps exist but also prioritise them based on potential market value, competitive intensity, and alignment with the firm's capabilities.

Research in this domain continues to evolve. Bannor and Arthur (2024) explored market gap identification in the context of agribusiness in emerging markets, highlighting how structural inefficiencies and overlooked needs create unique opportunities for value creation. Their findings reinforce the idea that gap analysis is particularly relevant in regions where market maturity is low, and customer needs are rapidly evolving. Meanwhile, Bin Islam (2024) emphasised the importance of systematically identifying knowledge, methodological, and empirical gaps in research paralleling the logic used in market gap identification. This convergence between academic research methods and market strategy demonstrates a growing appreciation for structured analytical thinking across domains.

A notable trend in market gap identification using analytical approaches is the use of segmentation techniques to isolate underserved customer groups. By segmenting a market based on demographic, psychographic, or behavioral variables, firms can detect clusters of potential customers who are not being adequately served by current offerings. DataCalculus (n.d.), for example, advocates using clustering algorithms to discover such outlier segments. These segments may represent untapped niches with significant growth potential. Additionally, trend analysis enables organisations to anticipate shifts in consumer preferences, technology adoption, and regulatory frameworks all of which can create or widen market gaps.

Competitor benchmarking also plays a central role. By evaluating what competitors offer and, more importantly, what they don't firms can identify whitespace in the market. SimilarWeb (2025) emphasises using competitive intelligence tools to track gaps in competitors' product portfolios, geographic reach, and service levels. This form of external analysis ensures that market gap identification is grounded in an understanding of both supply and demand dynamics.

The relevance of this topic is particularly pronounced in emerging markets such as Nigeria and many other African nations. These economies are experiencing rapid digital transformation, population growth, and shifts in consumer behavior, which are reshaping demand across multiple sectors. Yet, many firms in these regions still operate based on informal knowledge and lack the analytical capabilities to identify and act on market gaps (Bannor & Arthur, 2024). As such, the development and application of structured analytical approaches could unlock significant economic value and drive inclusive innovation in these settings.

Furthermore, the increasing availability of big data, artificial intelligence, and machine learning tools has expanded the possibilities for market gap analysis. Businesses can now process vast amounts of unstructured data such as social media posts, product reviews, and online behavior patterns to detect signals of dissatisfaction or unmet needs. These

insights, when combined with traditional market research, provide a richer and more nuanced picture of the competitive landscape.

In conclusion, the background to the study of Analytical Approaches to Identifying Market Gaps lies in the strategic importance of finding unaddressed opportunities within dynamic markets. While traditional methods were limited by subjectivity and a lack of structure, modern analytical tools offer more reliable and scalable means of detecting, validating, and exploiting market gaps. By integrating internal data, customer insights, competitor intelligence, and predictive models, firms can better understand where true opportunity lies. This is particularly critical in emerging markets, where rapid change and unmet needs coexist, and where analytical gap identification can serve as a catalyst for innovation, inclusion, and economic development.

1.2 Statement of research problem

In a dynamic market environment, companies increasingly encounter saturated sectors, shifting consumer preferences, disruptive technologies, and global competitive pressures. Recognising and exploiting unmet customer needs or underserved segments commonly referred to as “market gaps” is widely regarded as a key mechanism for innovation and growth (Sukiennik, Kowal, & Bąk, 2021). However, although practitioners emphasise the value of gap analysis models to capture potential competitive advantage, the academic discourse suggests that many firms still lack structured, validated frameworks for

rigorous gap identification (Gupta, 2020). The persistence of this challenge is compounded in emerging economies and diverse industrial contexts, where data constraints, competitive dynamics, and institutional factors differ from the more frequently studied developed markets (Yeshitila, Kitaw, & Jilcha, 2020).

Despite the acknowledged importance of identifying market gaps, several inter-related issues limit firms' ability to systematically detect and exploit them; While many consulting and practitioner oriented sources promote gap analysis tools (e.g., triangulating data from customer feedback, competitor benchmarking, trend analysis) (Data Calculus, 2024; Gyata, n.d.), academic research shows a dearth of publicly validated, generalisable frameworks tailored to identify market gaps in diverse contexts. For example, in their empirical study of the Polish raw materials industry, Sukiennik *et al.* (2021) highlight that firms struggle to operationalise market gap identification in a way that leads to actionable enterprise development strategies.

Many gap analysis approaches assume rich, high quality datasets (e.g., detailed customer analytics, competitor performance metrics, trend extrapolations) (Data Calculus, 2024). In varied contexts such as small or medium enterprises in emerging markets such data may be limited or unreliable, reducing the applicability of generic frameworks. Yeshitila *et al.* (2020) show how the interplay of strategy and market structure in Africa complicates standard approaches to identifying and exploiting gap opportunities.

Translation from insight to strategic action, identification of a market gap does not automatically translate into sustainable competitive advantage or successful new offer deployment. There is a gap between recognising opportunity and executing it firms may mis prioritise gaps, mis-match resources, or fail to translate analytical insights into viable business models. The practitioner literature notes that many organisations rely on ad hoc methods rather than disciplined analytical frameworks, increasing the risk of mis-allocating resources (Gyata, n.d.; Data Calculus, 2024).

Furthermore market gaps differ by industry, geography, regulatory environment and competitive maturity. As a result, an approach effective in one sector may not port easily to another. The literature suggests that missing this contextual fit limits the scalability and replicability of gap identification methods (Gupta, 2020).

This research problem is further compounded by the fragmented nature of existing studies, which often focus on specific sectors or applications without providing a holistic view of analytical approaches across different market contexts (Ramesh & Chawla, 2022). As a result, there is an urgent need for research that not only advances methodological innovations in market gap analysis but also addresses the barriers to adoption and practical application of these tools in real-world settings

Thus, the core research problem emerges in that there is a lack of robust, context sensitive analytical approaches for reliably identifying, prioritising and leveraging market

gaps across diverse markets and industries. This deficiency constrains firms' ability to convert market intelligence into actionable opportunities and sustainable advantage.

1.3 Research Questions

Research questions for analytical approaches to identifying market gaps focus on uncovering unmet needs, under-served customer segments, or opportunities for innovation through data driven methods.

Arising from the above research problem, the following research questions are raised:

- i. Do analytical tools significantly help businesses identify market gaps?
- ii. How effective are data driven methods in uncovering unmet market needs?
- iii. What role does customer data play in identifying market opportunity?
- iv. What analytical methods are most effective in identifying market gaps in various industries?

1.4 Research objective

- 1) To evaluate the effectiveness of analytical tools in identifying market gaps for business growth and strategic decision making.
- 2) To evaluate the effectiveness of data driven methods in identifying unmet market needs.

- 3) To critically examine the role of customer data in uncovering market opportunities.
- 4) To assess the extent to which businesses use market analysis in decision making.

1.5 Research hypothesis

HO₁: Analytical tools do not significantly help businesses identify market gaps

HO₂: Data driven methods are not effective in uncovering unmet market needs.

HO₃: Customer data does not play a significant role in identifying market opportunities.

HO₄: There is no significant relationship between the use of analytics and business growth through market gap exploitation.

All hypotheses will be tested at 0.05 level of significance and the alternative hypothesis (H₁) will be implied where the null is rejected.

1.6 Scope of the study

The scope of this study centers on the analytical approaches used to identify market gaps which is its subject matter, with a strong focus on leveraging existing market data to uncover unmet consumer needs and under-served customer segments. Drawing from foundational work in gap analysis, such as that by Hampton (1993) and Hatch and Schultz (2001, 2003), the study aims to explore how businesses can employ data driven

methodologies to detect opportunities for innovation and competitive advantage. This includes examining various analytical tools from traditional statistical methods to advanced machine learning techniques and evaluating their effectiveness in real world business contexts.

The study also seeks to understand the challenges companies face when attempting to translate insights derived from market gap identification into actionable strategies. As noted by Davis, Misra, and van Auken (2002), gap analysis not only reveals discrepancies between current capabilities and market demands but also highlights areas where firms may lack preparation or misallocate resources, often leading to missed opportunities or weakened strategic positioning. Addressing these factors is crucial for achieving sustainable growth and making informed strategic decisions.

Furthermore, this research will review the diverse methodologies applied across industries, acknowledging that the effectiveness of analytical approaches can vary depending on the market and organisational context. The work of recent scholars such as Sanyaolu, Adeleke, and Efunniyi (2023) emphasises the integration of gap analysis into agile and iterative development frameworks, demonstrating the evolving nature of these methods in responding to dynamic market conditions.

By situating this analysis within the broader theoretical and practical conversations on gap identification and market research, this study provides a comprehensive view of how analytics drive the detection of market gaps, inform business strategy, and support long-term competitive advantage.

1.7 Significance of the study

The significance of this study on analytical approaches to identifying market gaps is deeply rooted in its potential to transform the way businesses comprehend and exploit market opportunities. In an increasingly competitive and dynamic business environment, the ability to pinpoint unmet consumer needs, unserved market segments, and innovation opportunities is paramount for companies seeking to sustain growth and maintain a competitive edge. This study adds value by critically examining how market data and analytical tools can be leveraged effectively for this purpose, thereby offering actionable insights for strategic decision making and business growth.

Market gap analysis plays a critical role in helping organisations understand the disparity between their current offerings and the evolving demands of their customers or the market at large (Appinio, 2023). By systematically identifying these gaps, businesses can uncover dormant opportunities for product development, service enhancement, and market expansion that competitors may overlook. This is particularly crucial as markets become saturated and consumer preferences shift rapidly, making traditional intuition

based approaches insufficient. As Driveresearch (2025) indicates, gap analysis not only highlights where performance falls short but also helps prioritise areas that promise the highest return on investment, allowing firms to allocate resources more strategically.

Furthermore, this study is significant because it addresses the challenges organisations face when attempting to translate market gap identification into sustainable competitive advantages. Davis, Misra, and van Auken (2002) emphasise that simply recognising gaps is not enough; business leaders must also overcome barriers related to internal capabilities, organisational alignment, and resource constraints to convert insights into effective strategies. This research, therefore, explores these inhibiting factors, providing a detailed understanding of the real world difficulties firms encounter. It fosters a more pragmatic approach that bridges the gap between theoretical analysis and practical implementation.

From an academic perspective, the study contributes to the expanding body of knowledge on market analysis by integrating emerging analytical methodologies, including data analytics and machine learning, into traditional gap analysis frameworks. Scholars like Sanyaolu, Adeleke, and Efunniyi (2023) have highlighted how modern analytical tools can enhance the precision and relevance of market gap identification, especially in industries characterised by rapid innovation and digital transformation.

This study's examination of these advanced techniques reinforces its interdisciplinary relevance and contemporary importance.

The implications of this research extend to improving decision making processes within organisations. By providing data driven insights, gap analysis equips managers and executives with clearer visibility of market dynamics and consumer behaviour trends (QuestionPro, 2025). This enhances strategic planning, risk management, and competitive positioning, thereby supporting more informed, evidence based decisions. Moreover, by identifying gaps before competitors do, companies can proactively innovate rather than reactively respond to market changes, ensuring better long term outcomes.

The practical benefits of this research are particularly salient for small and medium enterprises (SMEs) and startups, which often operate under resource constraints and face intense market pressures. Market research and gap analysis can offer these companies a structured approach to identify niches and underserved segments, facilitating targeted marketing and resource efficiency (Shopify, 2025). By emphasising the strategic use of analytical tools, this study encourages SMEs to harness data science capabilities previously accessible mainly to larger firms.

In essence, the study's significance lies in its potential to empower businesses with a robust framework for market gap identification, combining academic rigour with practical utility. It addresses a critical gap in existing research concerning the effectiveness of analytical methodologies and the organisational factors influencing their success. By doing so, it contributes to advancing business competitiveness, innovation, and market responsiveness in a constantly evolving economic landscape.

1.8 Limitations of the study

This study, while offering insights into analytical approaches for identifying market gaps, is not without limitations that must be acknowledged to contextualise its findings and guide future research. One notable limitation of this study is the sample size since this study does not take on the entire population it is a constraint in itself. Although the estimated population of SMEs in the manufacturing sector in Lagos is approximately 9000, the sample size was reduced to 383 respondents using a 5% margin of error based on Yamane's formula due to limited access to respondents and time constraints and also the possibility of invalid responses as such it may not fully capture the diversity and complexity of all manufacturing SMEs in the region.

Another significant limitation stems from the possibility of using inadequate test statistics for this study and dependency on the quality and scope of existing market data. As FasterCapital (2022) emphasises, market analysis heavily relies on accurate, relevant,

and up-to-date data. In cases where data is incomplete, outdated, or biased, the conclusions drawn from analytical tools may be compromised. This may lead to misidentification of market gaps or overlook emerging trends, particularly in fast evolving industries where consumer behaviours and market conditions shift rapidly.

Methodological limitations play a critical role. Diverse analytical methods from quantitative statistics to machine learning differ in their assumptions, strengths, and weaknesses. Quantitative methods may inadequately capture underlying consumer motivations, while qualitative approaches, though richer in context, often face challenges related to subjectivity, smaller sample sizes, and difficulty in generalisation (FasterCapital, 2022; Appinio, 2023). Balancing these approaches to gain a comprehensive understanding is complex and may require greater methodological rigor than this study can provide given its broad scope.

The scope of industry and geographic contexts included presents another limitation. While examining multiple sectors and regions offers broad insights, it introduces variability that can dilute the specific applicability of conclusions. Market dynamics differ widely across industries due to factors such as competition intensity, regulatory environments, and technological adoption rates (Sanyaolu *et al.*, 2023). Similarly, geographic differences in consumer culture, economic conditions, and infrastructure can

affect market gap manifestations. As such, findings may have constrained generalisability without deeper sector specific or localised studies.

Additionally, this study recognises organisational and human factors as limiting conditions. Even when analytical tools successfully identify market gaps, businesses may face internal barriers such as lack of expertise, misalignment between departments, or inadequate resources that impede converting analysis into strategic actions (Davis, Misra, & van Auken, 2002). The study primarily focuses on the analytical side and less extensively on these organisational dynamics, which are critical for realising market opportunities.

Lastly, potential biases and errors inherent in data collection and analysis processes must be noted. Survey instruments, sampling strategies, or data interpretation might introduce biases such as respondent bias, sampling bias, or cognitive biases in researchers that affect the study's conclusions (FasterCapital, 2022). Ensuring reliable and valid data while minimising these biases requires careful research design and advanced expertise, which may limit wider applicability.

In summary, while this study provides substantial contributions to understanding analytic approaches for market gap identification, these limitations highlight areas for caution. Future research could address data quality improvements, apply more focused industry level analyses, investigate faster decision making mechanisms, and explore

organisational barriers in greater depth to build upon these findings and enhance practical applicability.

CHAPTER TWO

REVIEW OF LITERATURE

2.1 Introduction

This chapter provides a foundation for understanding the diverse analytical approaches used in identifying market gaps and the conceptual, theoretical, and empirical dimensions surrounding them. This review is organised into several interrelated sections. The conceptual review discusses and clarifies key concepts central to this study, including market gap, analytical approaches, market analysis, and opportunity recognition. It establishes the foundational understanding needed to frame subsequent discussions. The theoretical review then examines relevant theories and models that underpin market gap identification, such as innovation diffusion theory, market orientation theory, and data driven decision making frameworks (Nenonen, 2024). These theories provide the intellectual lens through which analytical approaches can be interpreted and applied.

The empirical review follows, presenting findings from recent studies that have applied various analytical methods to real world business contexts. This section evaluates how techniques like importance performance analysis, customer segmentation, and text analytics have been employed to identify and validate market gaps across industries (IJISAE, 2024; Dovetail, 2024). By comparing empirical outcomes, it highlights both the effectiveness and the limitations of existing analytical strategies.

Overall, this literature review aims to critically examine how different analytical approaches contribute to identifying market gaps based on existing literature, while uncovering the areas that warrant further scholarly and practical attention. By examining conceptual definitions, theoretical underpinnings, and empirical evidence, the review seeks to build a comprehensive understanding of how analytics can enhance market opportunity recognition in today's complex and data driven business environment.

2.2 Conceptual Review

This section provides the conceptualisation of the dependent variable market gap across different disciplines (as well as its determinants, types, components and indicators) and the independent variable analytical approaches and its different dimensions.

2.2.1 Market Gaps

The concept of a market gap is pertinent to understanding how firms and entrepreneurs identify opportunities for innovation, strategic positioning, and competitive advantage. A market gap, most times referred to as a gap in the market or unmet market need, generally describes a situation where consumer demand exists but is not fully satisfied by existing offerings (Market Business News, n.d.). In other words, it represents a discrepancy between what customers want and what businesses currently provide. This gap can manifest as an unserved customer segment, an unmet need, or inefficiency in the value delivery process (Mailchimp, n.d.).

Market gaps arise from unsolved customer problems, changing consumer preferences, technological advances, or shifts in the industry. Identifying and filling these gaps allows businesses to introduce innovative products or services, cater to niche audiences, gain competitive edge or relative standing and expand into new revenue streams.

However, while this definition captures the general essence of the term, its meaning and application differ across disciplines. In marketing, it focuses on understanding and serving consumer needs more effectively. In strategic management, it concerns positioning and competitive advantage. In innovation studies, it relates to the creation of new products or business models. In entrepreneurship, it represents opportunity discovery. And in economics, it is linked to market inefficiencies or failures that create room for new entrants or interventions. Each perspective enriches our understanding of how market gaps are identified, analysed, and exploited for value creation.

The Marketing Perspective of market gap: Understanding and Serving Consumer Needs

In marketing, the concept of a market gap is deeply rooted in the customer oriented philosophy that businesses must identify and meet consumer needs better than their competitors. Marketing scholars define a market gap as an unmet or underserved need that signals an opportunity to design new products or improve existing ones (Kotler & Keller, 2022). From this view, market gaps are identified through consumer research,

segmentation, and needs analysis, using tools such as importance performance analysis (IPA), customer journey mapping, and gap analysis models (Basu, 2023).

The marketing discipline interprets a market gap as a value deficit, a difference between the perceived importance of a product attribute and its current performance level. For instance, if customers value “durability” in a smart phone but existing brands score low on that attribute, the gap signals an opportunity for differentiation. Contemporary marketing practice, driven by analytics and digital insights, expands this approach by using data mining, sentiment analysis, and customer feedback to detect hidden dissatisfaction and unmet desires (Rosário, 2023).

Therefore, in marketing, identifying a market gap is a diagnostic and strategic exercise aimed at aligning company offerings with customer expectations. Filling these gaps allows firms to enhance satisfaction, loyalty, and ultimately profitability (IJISAE, 2024).

The Strategic Management Perspective of market gap: Source of Competitive Advantage

In strategic management, the meaning of a market gap extends beyond customer satisfaction it becomes a question of competitive positioning. A market gap represents a strategic opportunity for a firm to gain or sustain a competitive edge by operating in spaces where competition is weak or nonexistent (Nenonen, 2024).

Strategists view market gaps as areas of strategic disequilibrium places where competitors have not yet recognised or addressed an emerging need (Depersico, 2024).

Exploiting such a gap enables a firm to achieve a first-mover advantage, create barriers to entry, or redefine industry boundaries. The famous “blue ocean strategy” by Kim and Mauborgne (2015) echoes this idea: rather than fighting in saturated markets (“red oceans”), firms can seek “blue oceans” untapped market spaces with little competition.

In this discipline, identifying a market gap is a process of strategic foresight reading market signals, interpreting environmental trends, and aligning organisational capabilities to exploit opportunities. Therefore, from a strategic management standpoint, a market gap is synonymous with a competitive opportunity, and filling it effectively contributes to long term performance and survival.

The Innovation Perspective of market gap: Space for Novel Solutions

From the innovation and new product development (NPD) perspective, market gaps represent innovation opportunities. Scholars describe them as “design gaps” areas where existing products fail to deliver the optimal combination of features customers desire (Burnap & Hauser, 2018).

In innovation studies, the focus shifts from detecting existing gaps to creating new markets through innovation. When technology or consumer behaviour changes, entirely new gaps can emerge such as the transition from physical media to digital streaming, or from combustion engines to electric vehicles. Innovation scholars argue that the most successful firms are those that do not wait for gaps to appear but actively create them by reshaping consumer expectations and redefining value (Teece, 2020).

Analytical approaches such as trend forecasting, machine learning, and user centered design now enable firms to anticipate gaps before they become visible. Thus, in the innovation context, a market gap is the frontier of opportunity a signal for where invention, technology, and creativity can generate new forms of customer value.

The Entrepreneurship Perspective of market gap: Opportunity Recognition and Creation

Entrepreneurship literature views market gaps as the foundation of business opportunity recognition. According to Shane and Venkataraman (2000), entrepreneurs identify opportunities when they perceive imbalances in the market situations where resources and needs are misaligned. These imbalances form the “gaps” entrepreneurs exploit by introducing new products or services.

Contemporary entrepreneurship research distinguishes between opportunity discovery (finding existing gaps) and opportunity creation (shaping new market spaces through innovation and persuasion). The identification of market gaps thus lies at the heart of entrepreneurial action. Entrepreneurs combine creativity, intuition, and analytics to detect unserved niches, emerging customer pain points, or inefficiencies in current offerings (Santos & Eisenhardt, 2022).

In this discipline, the ability to recognise a market gap differentiates successful entrepreneurs from others. It is both a cognitive skill and a strategic process that blends environmental scanning, customer insight, and risk taking. Consequently, in

entrepreneurship, a market gap signifies a potential venture opportunity the starting point for new business creation.

The Economic and Development Perspective: Structural Inefficiencies and Missing Markets

In economics and development studies, the term “market gap” is used to describe structural mismatches between supply and demand that result in under provision of goods or services. These gaps often stem from market failures, information asymmetry, regulatory barriers, or inadequate infrastructure (Ahmed & Balie, 2016).

For example, a credit gap may occur when small businesses lack access to financial services despite high demand. Similarly, a health service gap in rural areas represents a failure of supply to reach certain demographics. Economists analyse such gaps not just as business opportunities but as indicators of systemic inefficiencies that may require government intervention, policy reform, or public private partnerships. Thus, in economic and development contexts, a market gap reflects inefficiencies in market functioning rather than firm level strategy. The goal is not necessarily to compete but to improve allocation, accessibility, and welfare outcomes.

Common Attribute across Disciplines

Despite the disciplinary differences, certain core elements define a market gap across fields:

1. Unmet Demand: Customers express a need that existing products or services fail to satisfy.
2. Opportunity Space: The gap represents a potential for innovation, growth, or strategic advantage.
3. Information Imperfection: Gaps often exist because market actors lack full knowledge of customer needs or competitive capabilities.
4. Dynamic Nature: Gaps evolve with technological change, consumer trends, and competition.
5. Analytical Discovery: Whether through surveys, analytics, or environmental scanning, systematic analysis is key to identifying gaps.

These commonalities make the concept analytically rich and practically relevant. Regardless of field, recognising and addressing market gaps underpins competitive success, innovation, and social progress.

Across disciplines, the term market gap carries nuanced meanings, but its essence remains constant: it signifies an unmet opportunity.

In marketing, it is about understanding and fulfilling customer needs.

In strategic management, it represents a pathway to competitive advantage.

In innovation, it is the space for technological and creative breakthroughs.

In entrepreneurship, it forms the foundation of opportunity recognition and new venture creation.

In economics, it highlights systemic inefficiencies requiring correction or investment.

Recognising these different perspectives provides a holistic understanding of market gaps and the analytical approaches required to detect them. For contemporary businesses operating in data rich but highly dynamic environments, the ability to identify and close market gaps remains not just an operational task, but a strategic imperative.

2.2.1.1 Types of Market Gaps

The concept of a market gap is central to understanding competitive changes, innovation, and business strategy. In the most general sense, a market gap refers to the space between what customers need or expect and what businesses currently offer. This gap signifies an opportunity a potential area for a new product, service, or improvement that can create value for both the firm and the consumer (Williams, 2024). According to Nenonen, Storbacka, and Windahl (2024), market gaps represent the “untapped or under-served pockets of demand” in which a business can gain strategic advantage through innovation or superior delivery.

Market gaps are not uniform; they vary in nature, cause, and impact across different industries. Scholars and practitioners have identified numerous categories of market gaps, but the most common and recurring types in contemporary literature include product gaps, service gaps, price gaps, geographical (distribution) gaps, demographic (segment) gaps, quality gaps, and experience gaps. Each of these gap types represents a distinct form of

market inefficiency that can be analysed, quantified, and strategically addressed to enhance competitiveness and profitability.

Product Gap

The product gap is one of the most widely discussed types of market gap. It arises when existing products in the market fail to meet specific consumer needs or when there is an absence of a product that could satisfy those needs. In other words, it occurs when the market demand for a product is not fully addressed by the current offerings (Williams, 2024).

A product gap can manifest in several forms. It may result from a lack of innovation, technological advancement, or changing customer expectations. For instance, in the technology sector, rapid advancements in user experience and functionality have created continuous product gaps, pushing firms to innovate constantly. Solomon and Jenkins (2022) argue that the emergence of electric vehicles, smart wearables, and biodegradable packaging are practical outcomes of companies identifying and responding to product gaps driven by evolving environmental and social concerns.

The identification of product gaps is a strategic process often supported by market analytics, consumer research, and competitive intelligence. Through surveys, product reviews, social media listening, and keyword trend analysis, companies can uncover areas where consumers express dissatisfaction or desire new features (Nenonen *et al.*, 2024). In this way, the product gap serves as a critical lens for firms to innovate in alignment with

market expectations. Firms that successfully close product gaps typically gain first mover advantage, brand loyalty, and enhanced profitability (Gönen, 2024).

Service Gap

The service gap focuses on the discrepancy between customer expectations and the actual service delivered. It was first conceptualised in the SERVQUAL model developed by Parasuraman, Zeithaml, and Berry (1988), which defined service quality as the degree to which service performance matches customer expectations. The larger the gap between expected and perceived service, the greater the dissatisfaction.

A service gap can result from poor employee performance, weak communication, inconsistent policies, or the absence of customer support infrastructure (OpenStax, 2023). For instance, even if a product is technically sound, inadequate after-sales support, delayed responses, or inefficient complaint resolution can create a negative customer perception. In industries like telecommunications and banking, service gaps have been shown to directly influence customer loyalty and churn rates (Holstein *et al.*, 2024).

The management of service gaps requires ongoing monitoring of customer satisfaction through feedback forms, service audits, and data driven tools such as customer sentiment analysis and Net Promoter Scores (NPS). Closing service gaps not only enhances customer satisfaction but also builds trust and strengthens a firm's reputation. In highly competitive markets, a company's ability to deliver consistently superior service is often the differentiating factor that sustains long-term success (OpenStax, 2023).

Price Gap

The price gap refers to the mismatch between the price customers are willing to pay and the price offered in the market. This gap emerges when the perceived value of a product does not align with its cost either because the price is too high for the target market or too low to convey the intended quality or brand positioning (Solomon & Jenkins, 2022).

Price gaps can occur due to several reasons: lack of competitive pricing analysis, inadequate segmentation, or changes in consumer income levels. For example, when luxury brands expand into emerging markets, they often face challenges in aligning global pricing strategies with local purchasing power. Similarly, overly discounted products may create the impression of inferior quality, resulting in reduced consumer interest.

According to Cortez *et al.* (2021), price gap analysis involves understanding market elasticity, conducting willingness to pay studies, and benchmarking against competitor pricing models. Advanced analytics, including dynamic pricing algorithms and predictive demand modeling, are now employed to identify and correct price gaps in real time. Addressing price gaps enables firms to position their offerings strategically, ensuring both affordability for customers and profitability for the business.

Geographical or Distribution Gap

The geographical or distribution gap arises when products or services are not accessible to customers in certain regions or locations. This form of gap occurs not because a

product does not exist, but because it is not adequately distributed or marketed in a given area (Ibrahim & Kazeem, 2023).

In many developing economies, distribution gaps are prevalent due to poor infrastructure, high transportation costs, and inadequate retail networks. For example, rural communities may lack access to essential goods like pharmaceuticals, educational materials, or consumer products even though they are available in urban centers. Companies that bridge these gaps can achieve strong market penetration and customer loyalty (TradewiththePros, 2025).

The rise of e-commerce and digital logistics platforms has helped to reduce geographical gaps. Nevertheless, digital divides still exist certain areas may lack internet access or online payment systems, limiting participation in digital marketplaces. Firms use supply chain data, and regional sales mapping to identify underserved locations. Closing geographical gaps is therefore both a commercial and social opportunity, enabling inclusive access to goods and services while expanding a company's reach (Ibrahim & Kazeem, 2023).

Demographic or Segment Gap

The demographic or segment gap represents unmet needs within specific customer groups defined by variables such as age, gender, income, education, lifestyle, or culture. It occurs when businesses serve a dominant segment while ignoring others that possess purchasing potential (Cortez *et al.*, 2021).

An example of a demographic gap can be observed in the financial technology sector, where early digital banking platforms targeted tech savvy young adults but overlooked older consumers who were less digitally inclined. Similarly, the beauty and skincare industry long focused on women's products before recognising opportunities in male grooming and cosmetics for diverse skin tones.

To identify segment gaps, businesses use data analytics, customer segmentation, and behavioral profiling to pinpoint underserved groups. Nenonen *et al.* (2024) emphasise that demographic analysis is not just about recognising who is not being served but understanding why whether it is due to cultural barriers, pricing, accessibility, or lack of tailored communication. Addressing demographic gaps fosters inclusivity, expands the customer base, and enhances brand diversity. It also aligns with modern sustainability and social responsibility principles, which encourage equitable representation across markets.

Quality Gap

The quality gap occurs when the product or service fails to meet established quality standards or customer expectations regarding durability, reliability, or performance. Gönen (2024) defines the quality gap as “the measurable deviation between promised and delivered product value.” Unlike a product gap, which focuses on absent features, the quality gap arises when existing features do not function as intended.

This gap can result from cost reduction efforts, weak supplier management, or lack of quality assurance systems. For example, when a mobile device frequently malfunctions or a brand's product lifespan is shorter than expected, customers perceive a clear quality gap. Such gaps can harm brand reputation and increase return rates, ultimately leading to financial losses (Holstein *et al.*, 2024).

Quality gaps are typically addressed through continuous improvement systems, such as Total Quality Management (TQM) and Six Sigma methodologies. Organisations use defect tracking, performance benchmarking, and customer complaint analysis to pinpoint the sources of quality deficiencies. By addressing these issues, firms not only enhance customer satisfaction but also build stronger brand equity and operational efficiency (Gönen, 2024).

Experience Gap

The experience gap is a more contemporary concept reflecting the difference between what customers expect in their overall experience with a brand and what they actually receive. This includes all interactions from product discovery to post-purchase support. Experience gaps are especially relevant in digital markets, where user experience (UX) and convenience have become core differentiators (TradewiththePros, 2025).

For instance, a website that takes too long to load, an app that crashes frequently, or a company that offers impersonal automated responses can create a negative user experience. Even if the core product is sound, poor user experience can drive customers

to competitors. Companies use customer journey mapping, A/B testing, and behavioral analytics to assess where and why experience gaps occur.

Closing experience gaps is essential in the modern business environment, as customers increasingly expect personalised, seamless, and responsive interactions. Businesses that invest in UX design, digital communication, and data driven personalisation strategies can significantly enhance satisfaction and loyalty (Williams, 2024).

Interconnected Nature of Market Gaps

Although these gap types are classified separately for analytical clarity, they are often interconnected in practice. A product gap, for instance, may lead to a price gap if customers perceive that the product's quality does not justify its cost. Similarly, a service gap can create an experience gap, as poor customer support affects the overall perception of the brand.

According to Holstein *et al.* (2024), organisations that adopt an integrated approach to market gap analysis combining customer feedback, competitive intelligence, and data analytics are more effective at identifying root causes and implementing targeted solutions. In the era of digital transformation, firms increasingly rely on machine learning and predictive analytics to anticipate emerging gaps before they become critical.

The holistic understanding of market gaps also contributes to strategic agility the ability of an organisation to adapt rapidly to changes in customer behavior, technological innovation, and market structure. Firms that continuously monitor their environment for

new gaps position themselves as proactive innovators rather than reactive competitors (Nenonen *et al.*, 2024).

In summary, the common market gaps product, service, price, geographical, demographic, quality, and experience gaps collectively represent the diverse ways in which customer expectations can exceed market performance. Understanding these gaps is fundamental for developing analytical models capable of identifying unexploited opportunities and guiding strategic interventions.

As Cortez *et al.* (2021) assert, recognising market gaps transforms uncertainty into opportunity, guiding firms toward sustainable competitive advantage. In a data driven business context, identifying and closing these gaps is not merely an operational task but a strategic imperative that determines long term market survival and relevance.

2.2.1.2 Determinants of market gaps

Understanding the determinants of market gap is essential in explaining how mismatches occur between the products and services offered in a market and what consumers actually demand. Market gaps do not arise spontaneously; rather, they emerge from a combination of economic, organisational, technological, and behavioral factors that influence how firms identify and respond to opportunities. As noted by Williams (2024), the determinants of market gap are rooted in both internal business inefficiencies and

external environmental dynamics that hinder firms from meeting customer needs effectively.

In most modern economies, market gaps appear when there is a failure of alignment between consumer expectations, business offerings, and environmental conditions (Gönen, 2024). Understanding these determinants is critical for firms, policymakers, and researchers because it provides insights into how unmet needs can be transformed into profitable opportunities.

The most common and relevant determinants of market gap include:

1. Changes in consumer behavior and preferences
2. Inadequate market research and intelligence
3. Technological advancement and innovation lag
4. Poor product differentiation and positioning
5. Inefficient pricing strategies
6. Distribution and accessibility barriers
7. Competitive intensity and structural dynamics

These determinants are discussed below in detail,

Changes in Consumer Behavior and Preferences

One of the most influential determinants of market gap is the dynamic nature of consumer behavior. Consumer preferences evolve over time due to cultural shifts, income levels, lifestyle changes, digital transformation, and exposure to global trends. When

firms fail to monitor and adapt to these behavioural changes, they create gaps between what the market desires and what is supplied (Holstein *et al.*, 2024).

For instance, the global shift toward sustainable and ethical consumption has increased demand for environmentally friendly products. Businesses that continue to produce non-sustainable goods face declining market shares, as consumers gravitate toward eco-conscious brands. Gönen (2024) emphasises that modern consumers are driven not only by functional utility but also by emotional and ethical values. Thus, firms that overlook these psychological dimensions risk becoming obsolete.

Moreover, the digital age has transformed how consumers perceive convenience and value. Online shopping, mobile payments, and instant delivery have raised expectations for speed, personalization, and transparency. According to Nenonen, Storbacka, and Windahl (2024), the inability of traditional firms to adapt to these expectations has widened the digital market gap an area now dominated by tech driven entrants such as fintechs and e-commerce platforms.

Therefore, shifts in consumer behavior underscore the importance of continuous market sensing a firm's ability to monitor, interpret, and respond to evolving consumer needs. When such adaptive mechanisms are absent, market gaps inevitably emerge.

Inadequate Market Research and Intelligence

A second major determinant of market gap is poor or insufficient market research. Many firms fail not because the market lacks opportunity, but because they do not understand it

well enough. Market research provides the foundation for identifying consumer pain points, assessing demand levels, and forecasting trends. When businesses rely on assumptions or outdated information, they make strategic decisions that fail to resonate with market realities (Williams, 2024).

According to Ibrahim and Kazeem (2023), inadequate market intelligence leads to “blind spots” areas where demand exists but is unnoticed or misinterpreted. This results in underproduction, poor targeting, or misaligned product design. Similarly, Cortez *et al.* (2021) argue that in a data-driven economy, firms that underutilise analytics and consumer insights tools are more prone to market gaps.

For example, a company introducing a high end product in a price-sensitive environment without prior demand validation may struggle to achieve sales targets. Conversely, a lack of customer feedback mechanisms prevents firms from recognising dissatisfaction early enough to adapt.

In today’s digital economy, advanced tools such as big data analytics, sentiment analysis, and customer journey mapping are essential to effective market research (Holstein *et al.*, 2024). Therefore, inadequate research is not just a technical flaw it is a strategic weakness that creates and sustains market gaps.

Technological Advancement and Innovation Lag

Technological change is both a creator and a destroyer of markets. When firms fail to keep pace with technological advancement, a gap emerges between outdated products

and modern consumer expectations. Gönen (2024) explains that innovation lag the delay between technological emergence and organizational adoption is one of the strongest determinants of market gaps in the modern era.

For example, the rise of digital platforms, automation, and artificial intelligence has transformed industries such as banking, retail, and healthcare. Traditional institutions that resisted digital transformation lost market share to agile startups offering seamless, data driven services. Similarly, the COVID 19 pandemic accelerated digital adoption, and firms that lacked online presence or e-commerce systems experienced operational disruptions that translated into lost demand (TradewiththePros, 2025).

According to Nenonen *et al.* (2024), technology driven market gaps occur when firms fail to anticipate the diffusion speed of innovation or underestimate its impact on customer value. This determinant highlights the importance of technological agility an organisation's ability to integrate new tools, retrains its workforce, and redesigns its processes in response to innovation.

Thus, innovation lag not only widens the gap between supply and demand but also creates opportunities for disruptive competitors who leverage technology to deliver faster, cheaper, and more personalized solutions.

Poor Product Differentiation and Market Positioning

Another key determinant of market gap is lack of product differentiation and poor positioning. In markets where multiple firms offer similar products with little variation,

consumers often perceive them as substitutes, leading to weak brand loyalty and unmet specific needs. Solomon and Jenkins (2022) explain that differentiation is the process of creating unique product attributes that set a brand apart from competitors. When firms fail to establish distinctiveness, they contribute to a market gap where consumer desires for innovation and uniqueness remain unsatisfied.

This situation is common in highly commoditized industries such as fast-moving consumer goods (FMCG) and mobile devices, where saturation reduces innovation incentives. Gönen (2024) notes that without differentiation, customers often select products based solely on price, eroding profitability and weakening the brand's market position.

Moreover, product positioning how a brand is perceived relative to competitors also influences market gaps. Misaligned positioning, such as marketing a luxury product to a cost-conscious audience, results in poor reception and unfulfilled expectations. Nenonen *et al.* (2024) emphasise that consumer centric differentiation, where products are designed around the user's pain points and experiences, is essential in bridging such gaps. Hence, weak differentiation and poor positioning are strategic errors that generate structural market gaps by leaving segments underserved or emotionally disconnected from brands.

Inefficient Pricing Strategies

Pricing remains one of the most sensitive determinants of market gap because it directly influences the perception of value. A pricing gap occurs when there is a mismatch between what consumers are willing to pay and the prices set by firms. Solomon and Jenkins (2022) argue that inefficient pricing strategies often arise from limited market segmentation, poor demand forecasting, or over-reliance on cost based pricing rather than value-based pricing.

Overpricing may alienate potential customers, while underpricing can undermine brand perception and profitability. According to Williams (2024), modern firms increasingly use data analytics and machine learning to implement dynamic pricing systems that adjust prices based on real time demand, competition, and consumer behavior. However, firms without such capabilities risk losing competitiveness and creating unintended market gaps.

For example, a retail firm that maintains static pricing across regions with different purchasing powers fails to accommodate income variations, thereby excluding certain consumer segments. Likewise, failure to align pricing with quality perception can drive consumers to alternatives perceived as offering better value.

Therefore, pricing inefficiencies reflect not only poor financial strategy but also a weak understanding of consumer psychology both of which determine the existence and persistence of market gaps.

Distribution and Accessibility Barriers

An often overlooked determinant of market gaps, especially in developing economies, is inefficient distribution and accessibility. Even when demand exists, poor logistical systems or limited reach can prevent consumers from accessing products. Ibrahim and Kazeem (2023) argue that inadequate infrastructure, limited retail networks, and weak supply chains create geographical gaps, leaving rural or remote populations underserved. The growth of digital commerce has mitigated this issue in urban areas, but digital divides remain a challenge in many developing regions. TradewiththePros (2025) notes that firms without *omni* channel distribution strategies i.e combining online, offline, and mobile access often struggle to reach the full potential of their markets.

For instance, pharmaceutical companies that fail to establish rural distribution systems leave large segments without access to essential drugs, despite high demand. Similarly, small-scale agricultural producers face market gaps when they lack logistics networks to reach urban markets.

Effective distribution requires not only physical infrastructure but also data visibility the ability to track inventories, forecast demand, and optimise delivery routes (Holstein *et al.*, 2024). Therefore, poor accessibility and distribution inefficiencies remain structural determinants of market gaps that restrict both social welfare and business profitability.

Competitive Intensity and Market Dynamics

Finally, competitive intensity plays a decisive role in shaping market gaps. Both excessive and insufficient competition can distort market balance. In highly competitive markets, firms may focus narrowly on price wars or short term survival, neglecting innovation and customer experience. Conversely, in monopolistic or oligopolistic markets, lack of competition can breed complacency, resulting in poor product quality or service delivery (Cortez *et al.*, 2021).

According to Nenonen *et al.* (2024), market gaps often emerge when incumbents concentrate on defending existing market positions rather than exploring emerging opportunities. Startups and new entrants frequently exploit these overlooked niches, introducing disruptive solutions that redefine customer expectations. This has been observed in industries like transportation (e.g., Uber vs. taxis) and hospitality (e.g., Airbnb vs. hotels).

Moreover, strategic alliances and mergers can reshape market structures, creating temporary gaps as firms realign their offerings. Williams (2024) concludes that sustainable competition characterised by innovation and responsiveness tends to minimise market gaps, while exploitative or stagnant competition tends to widen them.

Thus, understanding competitive dynamics is central to explaining how market gaps form, persist, or close over time.

In summary, the most relevant determinants of market gap include changes in consumer behaviour, inadequate research, technological lag, poor differentiation, pricing inefficiencies, distribution barriers, and competitive intensity. These determinants are interrelated; for instance, technological lag may worsen distribution problems, while poor research amplifies mispricing and positioning errors.

As Holstein *et al.* (2024) argue, the modern business environment demands an integrated approach to market analysis one that combines behavioral insights, technology, and data analytics. Firms capable of continuously learning from their markets and adapting to change are less likely to experience persistent gaps.

Ultimately, identifying and understanding these determinants enables organisations to develop proactive strategies that transform market inefficiencies into opportunities for innovation and growth.

2.2.1.3 Indicators of Market Gap

Market gaps are noticed not in abstraction but through observable signals and measurable conditions that reflect mismatches between what consumers need and what firms supply. These observable signs are known as indicators of market gap. According to Oghojafor and Olayinka (2023), indicators of market gap represent the practical expressions of underlying market inefficiencies, helping researchers and managers diagnose where opportunities or deficiencies exist within a market system. Similarly, Williams (2024)

defines them as tangible and quantifiable factors that reveal the absence, inadequacy, or misalignment of value within an industry.

Indicators of market gap are critical for both scholars and practitioners because they provide the practical basis for understanding when a market is underperforming or underserved. As Johnson, Brown, and Li (2023) explain, indicators bridge theory and practice by transforming abstract market concepts into measurable dimensions such as sales trends, innovation activity, consumer satisfaction, and accessibility levels. In this context, a combination of demand-side and supply-side indicators provides a holistic perspective on the state of market performance (Gönen, *et al.*, 2024)

While a variety of indicators exist in literature, scholars generally emphasise those that most strongly reflect customer dissatisfaction, competitive inefficiency, or value imbalance. The most relevant indicators to be discussed in this section include:

- (1) Unmet customer needs,
- (2) Declining sales and market share,
- (3) Persistent unmet demand,
- (4) Limited accessibility,
- (5) Low innovation and product obsolescence,
- (6) Low customer retention, and
- (7) Price inconsistencies.

Unmet Customer Needs and Dissatisfaction

Among the most significant indicators of a market gap are unmet customer needs and consumer dissatisfaction. These reflect the degree to which current offerings fail to satisfy the preferences, expectations, or aspirations of target consumers. According to Kizito and Ahmed (2023), consumer dissatisfaction manifests when products or services deliver below expected performance or value, prompting customers to seek alternatives.

Recent studies have shown that customer dissatisfaction is an early warning signal of market inefficiency. Holstein *et al.* (2024) observe that in data driven markets, patterns of negative reviews, high product return rates, and declining satisfaction scores reveal gaps between consumer expectations and actual experiences. Similarly, Okafor and Abiola (2022) noted that when firms neglect continuous consumer feedback loops, they miss opportunities to identify and close existing gaps.

Unmet needs are often detected through customer analytics, social listening, or surveys that measure service quality and satisfaction. For instance, persistent complaints about slow digital banking apps may indicate a gap in usability or infrastructure. As Nenonen *et al.* (2024) argue, identifying these dissatisfaction patterns allows firms to realign offerings and capture latent demand that competitors have overlooked.

Thus, unmet customer needs remain the most direct and actionable indicator of a market gap, often signaling untapped value propositions within an industry.

Declining Sales and Market Share

Another strong indicator of a market gap is declining sales or loss of market share. Declining sales often suggest that the firm's products or services are no longer relevant to consumers' evolving tastes, or that competitors are offering superior alternatives (Williams, 2024). A consistent downward sales trajectory, particularly in a growing market, reveals a deeper structural problem an inability to align supply with current demand (Gönen, 2024).

Market share decline is also a quantitative reflection of consumer migration. Oghojafor and Olayinka (2023) emphasise that when consumers continuously shift toward competitors, it indicates that a firm is not meeting expectations in areas such as price, innovation, or quality. These patterns can be analysed through performance metrics, competitor benchmarking, or sales growth differentials.

In their study, Ibrahim and Kazeem (2023) demonstrated that firms in sub Saharan African consumer markets often experience declining sales due to poor distribution networks, signaling both a gap in market reach and in product accessibility. Similarly, Cortez *et al.* (2021) found that firms failing to adapt to digital transformation lose significant market share, reflecting a technological adaptation gap.

Consequently, declining sales and market share provide quantifiable evidence of a firm's strategic weakness and serve as measurable indicators of unexploited market potential.

Persistent Unmet Demand or Supply Shortages

Unmet demand occurs when there is a clear need for a product or service that is not sufficiently supplied in the market. According to Adebayo and Chinedu (2023), persistent shortages or unavailability of essential goods, despite visible demand, constitute one of the strongest indicators of a market gap.

For example, in Nigeria's renewable energy market, the gap between rural energy needs and available solar infrastructure represents a major economic opportunity (Owolabi & Lawal, 2024). Similar shortages exist in healthcare, housing, and education sectors across Africa. Such imbalances between demand and supply highlight structural inefficiencies that could be addressed by innovative solutions or new market entrants (Cortez *et al.*, 2021).

Empirically, indicators of unmet demand can be identified through data such as long waiting lists, back orders, import dependency ratios, or supply chain delays. Nenonen *et al.* (2024) assert that markets with persistent shortages are fertile grounds for innovation because they show where value has not been fully captured.

Therefore, unmet demand is both a macroeconomic and microeconomic indicator, signaling not only business opportunities but also broader socio economic challenges that require strategic interventions.

Limited Market Accessibility and Coverage

Limited accessibility refers to the exclusion of certain demographic or geographic groups from benefiting from available products or services. This indicator points to an infrastructural or distributional gap rather than a product deficiency. Ibrahim and Kazeem (2023) explain that accessibility constraints such as poor logistics, limited distribution channels, or digital divides reveal structural barriers that restrict market participation.

In developing economies, these barriers are particularly visible. For example, lack of banking access in rural areas has long represented a financial service gap, which fintech firms have leveraged through mobile payment platforms (Aderemi & Falade, 2022). Similarly, gaps in internet coverage or education access demonstrate unmet social demand that businesses and governments can jointly address (Nwosu & Akpan, 2023).

Modern geo analytics tools and market coverage ratios now enable firms to map underserved regions, providing quantifiable evidence of accessibility gaps. Gönen (2024) highlights that geographic information systems (GIS) and spatial data analysis have become standard methods for identifying potential markets that remain invisible under traditional demographic models.

Thus, limited accessibility remains a critical indicator of market gaps one that often requires infrastructural innovation or partnership with local intermediaries to close effectively.

Low Innovation and Product Obsolescence

A decline in innovation or product obsolescence serves as a strategic indicator that a market is lagging behind consumer evolution. As consumer preferences shift rapidly in technology-driven markets, firms that fail to innovate become vulnerable to obsolescence. Johnson *et al.* (2023) note that innovation stagnation creates latent demand for better, faster, or more user-friendly alternatives.

Williams (2024) observes that in sectors such as telecommunications, energy, and finance, innovation levels directly correlate with market relevance. When firms invest less in research and development (R&D), the pace of new product introduction slows, and consumer dissatisfaction rises. Holstein *et al.* (2024) further assert that firms using predictive analytics to monitor innovation performance are better positioned to detect and prevent obsolescence driven market gaps.

Key measurable indicators of innovation gaps include reduced patent filings, declining R&D expenditure, fewer product launches, and shortened product life cycles (Okonkwo & Taiwo, 2022). Conversely, markets dominated by outdated offerings or technologies signal an opportunity for disruption as evidenced by fintech and e-commerce growth in Africa over the last decade (Adebayo & Chinedu, 2023).

Hence, low innovation levels and product obsolescence represent forward looking indicators of market gaps, showing not only where inefficiencies exist but also where technological renewal could create value.

Low Customer Retention and Engagement

Customer retention the ability of a firm to maintain long term relationships with its customers is another critical indicator of a market gap. Nenonen *et al.* (2024) suggest that low retention rates reflect consumers' dissatisfaction or lack of perceived value, which typically arises when offerings fail to meet evolving expectations.

In service industries, low engagement metrics such as reduced website activity, declining app usage, or minimal feedback participation serve as red flags (Holstein *et al.*, 2024). These digital footprints reveal disconnection between customer needs and the firm's value proposition. Oghojafor and Olayinka (2023) emphasise that declining engagement is not merely a customer relations issue but a structural indicator of a market gap, signaling that competitors or substitutes are providing superior experiences.

The research by Johnson *et al.*(2023) shows that a 5% drop in retention rate can reduce profitability by up to 25%, highlighting the direct financial implications of unaddressed market gaps. Retention and engagement data, therefore, serve both as diagnostic and predictive indicators showing not just where gaps exist but also where they are likely to widen if neglected. Thus, persistent declines in retention or engagement are key indicators that a firm or industry must innovate or reposition its offerings to remain relevant.

Price Inconsistencies and Volatility

Price inconsistency is another fundamental indicator of market gaps. It refers to significant or persistent deviations in price levels that cannot be explained by normal market conditions. According to Solomon and Jenkins (2022), irregular price fluctuations often reflect inefficiencies such as limited competition, supply shortages, or information asymmetry.

In highly competitive markets, price tends to stabilise around equilibrium levels where demand equals supply. However, when prices are excessively high in some regions or unusually low in others, it indicates a distributional or competitive gap (Ibrahim & Kazeem, 2023). For instance, sharp differences in pharmaceutical prices across urban and rural areas in developing countries point to logistical and informational gaps.

Advanced analytics tools like price elasticity modeling and real time market dashboards now enable firms to detect and respond to such patterns (Holstein *et al.*, 2024). Gönen (2024) adds that consistent price volatility can also signal a technological or capacity gap where production lags behind demand.

Hence, persistent price inconsistencies remain an important macroeconomic indicator of market inefficiency, guiding policymakers and firms toward sectors requiring intervention or innovation.

From the reviewed literature, indicators of market gap provide both quantitative and qualitative evidence of inefficiencies or opportunities within a market. The most relevant indicators identified by recent scholars include:

1. Unmet customer needs and dissatisfaction = direct evidence of misalignment between expectations and delivery.
2. Declining sales and market share = quantitative signal of eroding market relevance.
3. Unmet demand and supply shortages = macro level evidence of untapped opportunity.
4. Limited accessibility and coverage = structural barrier restricting market inclusion.
5. Low innovation and obsolescence = dynamic indicator of stagnation.
6. Low retention and engagement = behavioral reflection of weak customer connection.
7. Price inconsistencies = economic evidence of imbalance or inefficiency.

Together, these indicators provide a framework for identifying and analysing market gaps in any sector. As Holstein *et al.* (2024) emphasise, organisations that combine behavioral, operational, and financial indicators are best positioned to detect and exploit unserved opportunities. Ultimately, these indicators not only diagnose existing inefficiencies but also support evidence-based decision making in strategic management and innovation.

2.2.1.4 The Impact of Market Gap on Business Innovation and Strategy

In every industry, businesses are constantly trying to stay ahead, attract customers, and offer something better or different than what's already out there. One of the key ways

they do this is by spotting what's missing a need that's not being met, a group of customers that no one's paying attention to, or a problem that hasn't been solved yet. These are what we often refer to as market gaps. When businesses identify such gaps, it opens the door to new ideas, fresh strategies, and innovation. In fact, many successful businesses today were built on the back of a gap that someone noticed and decided to fill. Kotler *et al.* (2021) describe market gaps as opportunities where demand exists but current offerings fall short. These gaps become the seedbed for innovation pushing companies to create new products, improve their services, or even develop entirely new ways of doing business. And in doing so, they reshape their strategies to serve customers better while positioning themselves competitively in the market.

How Market Gaps Spark Innovation

Innovation often starts with curiosity: Why is no one doing this? Why hasn't anyone created a solution for that yet? These questions arise when we notice a market gap. Tidd and Bessant (2020) argue that businesses are more likely to innovate when they recognize areas where customer needs are underserved. Whether it's a missing feature in a product or an entire group of people being ignored by mainstream companies, these gaps drive new thinking.

A clear example of this is how fintech startups disrupted the financial industry. Traditional banks had strict systems that didn't always meet the needs of young people, small business owners, or rural communities. Fintech companies saw this gap and

introduced solutions like mobile banking, instant transfers, and microloans innovations that changed how we interact with money (Arner *et al.*, 2022).

Strategic Positioning Through Market Gaps

Spotting a market gap doesn't just help companies come up with new ideas it also helps them build a smarter, more focused business strategy. Michael Porter's (1985) competitive advantage theory highlights two ways companies succeed: by being different (differentiation) or by being cheaper (cost leadership). Addressing a market gap allows a business to stand out by offering something new or by serving a need more efficiently than competitors.

Kim and Mauborgne (2015) also explain this in their "Blue Ocean Strategy," where companies create entirely new market spaces or "blue oceans" instead of fighting competitors in crowded, existing markets ("red oceans"). A company like Tesla, for instance, noticed that the electric car market lacked stylish, high performance options. By filling that gap, they carved out a unique space and redefined what electric vehicles could be (Mangram, 2012).

Customer Needs Shape Strategy

One of the best ways to find a market gap is to listen closely to customers what they complain about, what they wish existed, or what they struggle with. This is where a customer-focused strategy comes into play. According to Chaffey and Ellis-Chadwick

(2019), businesses that use data from customer feedback, online reviews, and behaviour analytics can uncover insights that lead to new opportunities.

These insights aren't just helpful for innovation they also shape the business's long-term strategy. For example, a company might discover that customers want faster delivery times or more flexible payment options. Addressing these needs could set them apart in the market and improve customer loyalty (Khan *et al.*, 2021).

Being Flexible in a Changing Market

Market gaps don't stay the same forever. As technology advances or consumer behavior changes, new gaps appear and some old ones disappear. That's why businesses need to be flexible and ready to shift their strategy when necessary. Doz and Kosonen (2010) call this "strategic agility" the ability to adapt quickly and stay ahead of change.

A perfect case is how the COVID-19 pandemic revealed several market gaps such as the need for remote work tools, online learning platforms, and home delivery services. Businesses that quickly adapted to meet these new needs, like Zoom and Amazon, thrived, while others struggled (Sheth, 2020).

Building Long Term Success

Spotting and acting on market gaps isn't just about short term wins. It also sets the foundation for long term business growth. Grant (2021) explains that when a business aligns its strengths with external opportunities like a market gap it creates a sustainable path for future success.

Companies that make it a habit to regularly scan the environment for gaps and keep innovating based on customer needs tend to last longer and perform better over time. This is because they are not just reacting to trends they are helping shape them.

In the end, market gaps are more than just spaces in the market they are the fuel behind innovation and smart strategy. Businesses that can spot these gaps early and act on them creatively often find themselves leading their industries. Whether it's by launching a new product, improving customer experience, or changing their entire business model, responding to a market gap can be the difference between blending in and standing out.

2.2.2 Analytical Approaches

In contemporary research and business practice, the term analytical approaches has gained significant attention as organisations and scholars increasingly depend on data driven insights to guide decision-making. Analytical approaches refer to the systematic use of data, models, and interpretive techniques to identify patterns, relationships, and insights that support sound judgment and strategy (Basu, 2023). Within the context of identifying market gaps, analytical approaches serve as structured processes for gathering, examining, and interpreting information to uncover unmet or emerging needs in the market (Depersico, 2024).

Over time, these approaches have evolved from simple descriptive statistics to complex predictive and prescriptive models supported by artificial intelligence (AI), machine

learning (ML), and big data analytics (Rosário, 2023). The evolution reflects the shift from intuition-based decision-making toward evidence-based strategic analysis.

The word analysis originates from the Greek *analysis*, meaning “to break apart.” In research and management studies, it denotes a logical decomposition of complex information into understandable components. Hence, an analytical approach can be defined as a systematic, logical, and evidence based method of examining data or situations to derive insight and make informed decisions (Teece, 2020). It entails using a systematic data driven methodology to breakdown complex problems into smaller manageable components to find the most logical and effective solution and it contrasts with intuitive approaches, which often rely on guesswork or assumptions and are insufficient for solving difficult, multifaceted issues. According to Kotler and Keller (2022), analytical approaches in marketing involve the use of quantitative and qualitative tools to evaluate market dynamics, consumer behavior, and business performance in order to generate actionable insights. Similarly, Basu (2023) views analytical approaches as integrative frameworks combining statistical reasoning, computational modeling, and interpretive logic to identify patterns that are not visible through casual observation.

In essence, an analytical approach is not a single technique but a philosophy of inquiry a structured way of thinking that uses data to support reasoning, detect anomalies, and explain phenomena.

Evolution of Analytical Approaches

Historically, analytical approaches began as basic descriptive methods such as tabulation and cross classification used in early economic and market studies (Teece, 2020). Over time, these evolved into inferential statistics and econometric modeling. The advent of computers in the 20th century made more complex analyses possible, enabling multivariate and simulation models.

By the early 21st century, business analytics emerged as a discipline combining data science, management science, and information technology. Recent years have witnessed the integration of artificial intelligence, big data, and cognitive computing into analytical approaches (Rosário, 2023; Atlas, 2025). Consequently, modern analytical approaches are capable not only of describing past performance but also of predicting future outcomes and prescribing optimal actions. This evolution mirrors the broader digital transformation of business environments, where decision-making depends heavily on the ability to extract insight from vast and complex data sources.

2.2.2.1 Components of Analytical Approaches

Analytical approaches are structured frameworks that guide researchers or decision-makers in transforming raw data into actionable insights. They are not random techniques but systematic processes that ensure that decisions are grounded in evidence, not assumptions. According to Basu (2023), every analytical approach is built around key

components that enable it to function as a rigorous and replicable method of inquiry. These components generally include data collection and preparation, data analysis and interpretation, insight generation and application, and validation and feedback. Some recent scholars also highlight data management and ethical considerations as integral parts of modern analytics (Rosário, 2023; Atlas, 2025). In the context of identifying market gaps, each of these components plays a vital role in ensuring that conclusions are not only data driven but also relevant to real consumer needs and market realities. Below, each component is elaborated in detail.

Data Collection and Preparation

The foundation of any analytical approach lies in the quality and relevance of its data. Data collection refers to the systematic gathering of information from primary and secondary sources to answer a specific research or business question (Kotler & Keller, 2022). In identifying market gaps, data may come from customer surveys, sales records, social media comments, industry reports, or observational studies.

Basu (2023) emphasises that the goal of this component is to ensure that the dataset adequately represents the phenomenon under investigation. Poor or biased data leads to flawed conclusions, no matter how sophisticated the analysis. Hence, the process must consider what kind of data is needed (qualitative or quantitative), where it will come from, and how it will be collected ethically and systematically.

Primary and Secondary Data Sources

Primary data are gathered directly from the field for example, through interviews, questionnaires, or focus groups and they are useful for capturing fresh, context specific insights about unmet consumer needs (IJISAE, 2024). Secondary data, such as government statistics, company databases, and industry publications, provide background context and help validate findings. A combination of both is ideal: primary data gives depth, while secondary data provides breadth and comparability. In identifying market gaps, triangulating both sources ensures a more accurate representation of customer expectations and industry realities.

Data Cleaning and Pre-processing

Before analysis can begin, raw data must be cleaned and prepared. This involves removing duplicates, correcting errors, dealing with missing values, and ensuring consistency in format and coding (Atlas, 2025). For instance, if a researcher collects consumer ratings from multiple online sources, data cleaning ensures that all ratings use the same scale and meaning.

Data preparation may also include transforming qualitative responses into analysable categories, normalising quantitative values, and integrating multiple datasets. As Teece (2020) notes, effective preparation determines the reliability of the analytical results “garbage in, garbage out” remains a timeless truth.

Data Analysis and Interpretation

Once data have been gathered and cleaned, the next major component is analysis and interpretation. This is the process of examining data to identify patterns, correlations, trends, or anomalies that can answer the research question (Bellar, 2024). In the case of market-gap identification, analysis aims to reveal where consumer needs or expectations differ from what the market currently provides. There are multiple techniques used depending on the type and objective of analysis: Descriptive analysis summarises what has already happened for example, reporting sales trends or customer satisfaction levels (Kotler & Keller, 2022). Diagnostic analysis explores why something happened, identifying possible causes behind underperformance or customer dissatisfaction. Predictive analysis uses statistical and machine learning models to forecast future outcomes such as predicting which product features will become more desirable (Sripamong, 2024). Prescriptive analysis goes further by recommending optimal actions based on predicted outcomes (Rosário, 2023). Each type provides a different layer of understanding: descriptive and diagnostic approaches explain the past and present, while predictive and prescriptive methods focus on the future. Quantitative and Qualitative Interpretation is the stage where numbers and patterns are translated into meaning. Quantitative interpretation might involve identifying statistically significant differences or correlations, while qualitative interpretation explores underlying motivations, emotions, or themes. For example, a cluster analysis may reveal an underserved customer segment,

while thematic analysis of customer interviews may explain why that segment feels neglected. As Basu (2023) explains, interpretation connects data to theory it tells the “story” behind the statistics and ensures that analysis supports practical understanding.

Insight Generation and Application

The third and perhaps most critical component is insight generation turning analytical findings into meaningful knowledge that informs action. In research, an insight refers to a novel understanding or perspective that changes how a problem is viewed or solved (Nenonen, 2024).

In market gap identification, insights help organisations recognise untapped opportunities or structural inefficiencies. For example, an analysis might reveal that while customers are satisfied with product quality, they are unhappy with delivery speed a clear operational gap that represents a competitive opportunity. Kotler and Keller (2022) describe this stage as the “decision-making interface,” where analytical results are translated into managerial recommendations. Visualisation tools like dashboards, charts, and heat maps often help communicate findings effectively (McKinsey & Company, 2024). For instance, using a Power BI dashboard, analysts might visualise which customer segments show the highest dissatisfaction rates and which regions have unserved demand. Such visual summaries make complex data easier for decision makers to interpret and act upon. Rosário (2023) emphasises that the usefulness of an analytical

approach is judged not by the sophistication of its technique, but by the clarity and relevance of its insights.

Validation and Feedback

No analytical process is complete without validation and feedback. This component ensures that findings are reliable, replicable, and grounded in reality. Validation checks whether the analysis accurately reflects the real-world situation and whether the conclusions are logically sound (Teece, 2020). Quantitative analyses are validated through statistical tests such as reliability checks, cross validation, and sensitivity analysis. These methods assess the consistency of results across different samples or time periods. For example, a predictive model might be validated by comparing its forecasts with actual future outcomes to determine accuracy (Atlas, 2025). Feedback involves applying insights, monitoring outcomes, and refining models based on new information. In dynamic markets, continuous feedback helps organisations remain adaptive. Basu (2023) describes feedback as a “learning loop” that transforms analytics from a one-time process into an ongoing capability.

For example, after identifying a market gap and launching a new product, a firm should collect new data on customer response. If the response differs from expectation, the feedback loop triggers reanalysis and adjustment. This cyclical process ensures continuous improvement and learning.

Data Management and Ethical Considerations

As data becomes the core of analytical approaches, issues of data governance, ethics, and security have emerged as indispensable components (Rosário, 2023; World Bank, 2025). Ethical analysis ensures that data are collected and used responsibly, respecting privacy, consent, and transparency. Data Governance; Data governance refers to the frameworks and policies that ensure data quality, integrity, and accountability (McKinsey & Company, 2024). It defines who can access data, how it is stored, and how it is updated. Strong governance prevents analytical errors and builds trust in findings. Ethical Analytics; Ethical considerations are equally important. Rosário (2023) warns that algorithms trained on biased data can reinforce inequalities or misrepresent certain groups. Similarly, using consumer data without informed consent may violate privacy laws and damage reputation.

For firms that aim to identify market gaps, especially using online data such as social media or purchase histories, adhering to ethical standards ensures that analysis benefits both organisations and consumers fairly.

Communication and Implementation

A newer but increasingly recognised component of analytical approaches is communication and implementation the process of presenting findings in a way that facilitates real world application. As Atlas (2025) explains, even the most rigorous analysis is useless if decision makers cannot understand or act on it. Effective

communication involves simplifying complex findings, using clear visualisations, and relating insights to organisational goals. Implementation, on the other hand, converts insights into policies, product designs, or strategies. This component bridges the gap between analysis and impact.

The components of analytical approaches data collection and preparation, data analysis and interpretation, insight generation, validation, data management, and communication collectively ensure that analysis is accurate, ethical, and actionable. Each stage builds upon the previous one, forming a logical sequence from raw data to strategic decision.

In the context of identifying market gaps, these components enable researchers and organisations to move from scattered data points to clear opportunities for innovation and competitive advantage. Without this structured process, decisions risk being based on assumptions rather than evidence. As markets become increasingly dynamic and data rich, mastering each component of analytical approaches is not just a research skill it is a strategic necessity for sustained business relevance and success.

2.2.2.2 Types of Analytical Approaches

The analysis of market gaps in contemporary business environments has increasingly become data driven, with firms relying on various analytical approaches to derive actionable insights. The main types of analytical approaches descriptive, diagnostic, predictive, and prescriptive analytics serve distinct but interconnected purposes in

understanding markets, customer behaviour, and areas of unmet needs. Each of these approaches contributes uniquely to identifying and closing market gaps, enabling businesses to enhance competitiveness, innovation, and decision making precision.

According to Sharda *et al.* (2023), these four approaches represent progressive stages of business analytics, where data evolves from simply describing past events to guiding strategic future actions. In the context of market gap identification, these analytical forms collectively assist businesses in understanding what has happened, why it happened, what is likely to happen next, and what should be done about it. This section explores each analytical approach extensively and contextualises its relevance to identifying and addressing market gaps.

Descriptive Analytics

Descriptive analytics is the foundational layer of analytical approaches. It focuses on summarising historical data to provide a clear picture of what has occurred within a business or market environment (Waller & Fawcett, 2013; Shmueli & Koppius, 2019). In market gap analysis, descriptive analytics helps firms understand current performance metrics, consumer trends, sales volumes, and product adoption rates, which form the basis for discovering gaps in market coverage or demand.

According to Marr (2022), descriptive analytics answers the question “What happened?” by converting raw data into meaningful summaries, often presented through dashboards, charts, and reports. For example, a company analysing customer purchase data through

descriptive analytics may discover that certain product categories consistently underperform in specific regions signaling a possible market gap or unmet need.

In the context of identifying market gaps, descriptive analytics helps businesses to:

Examine historical sales performance across different customer segments or geographic areas.

Identify underperforming products or untapped demographics.

Visualise market share distribution among competitors.

Track consumer preferences over time to identify declining or emerging interests.

For instance, a retail firm might use descriptive analytics tools such as Microsoft Power BI or Tableau to visualise customer purchase histories. If data reveals a significant number of online visitors who abandon carts after viewing eco friendly products, it could indicate an unfulfilled need perhaps due to pricing, accessibility, or insufficient promotion (Nguyen *et al.*, 2023). In sum, descriptive analytics provides the baseline understanding from which all other forms of analysis stem. It enables firms to detect what the gap looks like in the market but not necessarily why it exists.

Diagnostic Analytics

Once a market gap has been identified through descriptive methods, diagnostic analytics seeks to uncover the underlying causes behind the observed trends or patterns (Delen & Ram, 2018). It answers the critical question “Why did this happen?” by using statistical techniques, correlations, and data mining to explore relationships between variables.

According to Chen, Chiang, and Storey (2021), diagnostic analytics involves drill down analysis, data discovery, and root cause evaluation. It helps businesses uncover the specific factors driving consumer behavior or market performance. For example, after discovering that sales have declined in a certain region (through descriptive analytics), diagnostic analytics might reveal that the cause is increased competition, poor distribution, or mismatched pricing strategies. In market gap identification, diagnostic analytics serves to:

Determine why certain customer segments are underserved.

Examine which factors influence product adoption or rejection.

Identify external market conditions such as competitors' innovations or regulatory changes that create new opportunities or constraints.

Reveal operational inefficiencies that prevent businesses from fully serving their markets.

For instance, a telecom company could employ diagnostic analytics to understand why data plan subscriptions are lower among rural users. The analysis might reveal that poor network coverage or lack of affordable bundles are the root causes insights that can inform new product designs or investments (Adeyemo & Akinola, 2023).

Diagnostic analytics often employs tools such as regression analysis, correlation models, and clustering algorithms to pinpoint causal relationships. As Provost and Fawcett (2020) note, this approach transitions firms from descriptive observation to analytical reasoning, bridging the gap between data reporting and decision-making. In essence, diagnostic

analytics explains why the market gap exists, helping businesses prioritize strategic interventions.

Predictive Analytics

Predictive analytics builds upon the insights generated by descriptive and diagnostic analytics to forecast future trends and behaviors. It answers the question “What is likely to happen?” (Jordan & Mitchell, 2015). In the context of market gap identification, predictive analytics allows businesses to anticipate shifts in consumer needs, emerging markets, and future demand patterns thereby staying ahead of competition. According to Wamba *et al.* (2020), predictive analytics employs statistical models, machine learning algorithms, and forecasting techniques to project future outcomes based on historical data. It is particularly relevant in dynamic markets where rapid technological, demographic, or social changes can alter consumer preferences. In market gap analysis, predictive analytics helps businesses to:

Forecast demand for new products or services.

Identify emerging consumer segments or geographic opportunities.

Simulate the potential impact of strategic decisions on future sales.

Detect early warning signs of market saturation or decline.

For example, a fashion retailer may use predictive analytics to anticipate consumer demand for sustainable clothing by analysing past sales data, social media trends, and

environmental awareness indices (Nunan *et al.*, 2022). By doing so, the firm can fill the market gap before competitors even identify it.

Predictive analytics also enables businesses to quantify risks and opportunities. As Davenport and Harris (2017) observe, predictive models such as decision trees, neural networks, and time-series forecasting enable organisations to allocate resources effectively and plan proactively. In identifying market gaps, predictive analytics transforms data driven foresight into a strategic asset helping firms respond not only to existing needs but also to future ones.

Prescriptive Analytics

Prescriptive analytics represents the most advanced stage of analytical approaches. It focuses on recommending optimal actions that organizations should take to achieve desired outcomes (Bertsimas & Kallus, 2020). It answers the question “What should be done?” by integrating predictive insights with optimisation and simulation models to guide strategic decisions.

In market gap identification, prescriptive analytics plays a pivotal role in formulating actionable strategies to close identified gaps. According to Sharma and Sheth (2021), prescriptive analytics not only predicts what will happen but also suggests the best course of action to achieve favorable outcomes. For example, if predictive analytics forecasts rising demand for plant-based foods, prescriptive analytics could recommend specific

product formulations, pricing strategies, and supply chain adjustments to meet that demand efficiently.

Applications in identifying market gaps include:

Recommending strategic product positioning to fill unmet needs.

Suggesting marketing strategies to reach underserved customers.

Optimising pricing and promotion strategies based on real-time data.

Guiding investment decisions in innovation or expansion.

Prescriptive analytics relies heavily on optimisation algorithms, simulation models, and artificial intelligence (AI) to propose data backed solutions. As Mariani and Borghi (2023) explain, the integration of AI driven prescriptive analytics in business intelligence systems allows organizations to make evidence-based strategic decisions that minimise risks and maximise market opportunities.

Ultimately, prescriptive analytics is what transforms market insight into market action. It represents the point where analysis meets execution providing a roadmap for bridging the gap between knowing the problem and solving it effectively. The four analytical approaches descriptive, diagnostic, predictive, and prescriptive are not mutually exclusive but rather sequential and complementary. Descriptive analytics provides the foundation of understanding, diagnostic analytics reveals causal relationships, predictive analytics offers future foresight, and prescriptive analytics delivers actionable strategies. Together,

they form a holistic framework that enables data driven identification and closure of market gaps.

As Popovič *et al.* (2022) emphasise, organisations that integrate all four levels of analytics can achieve superior market intelligence, innovation, and strategic agility. When applied cohesively, these analytical approaches empower firms to transition from being reactive to being proactive in identifying and capitalising on market opportunities.

2.2.3 Market Gap Identification

Identifying market gaps has become a central concern in modern business setting. A market gap, often referred to as a market opportunity gap, represents the difference between the products or services currently offered in a market and what consumers actually need or desire but are not adequately receiving (Kotler & Keller, 2022). Effective identification of these gaps allows firms to innovate, reposition themselves competitively, and capitalise on unmet customer demands. According to O'Reilly and Tushman (2021), recognising market gaps is the foundation of successful strategic innovation and long term business sustainability.

Market gap identification involves systematically uncovering unmet needs, latent opportunities, or inefficiencies in existing markets through analytical, strategic, and customer centric methods. It integrates data driven insights with business intelligence, enabling organisations to make informed decisions about product development, service

improvement, and market entry (Teece, 2020). This section discusses the concept, approaches, and significance of market gap identification in contemporary business environments.

Furthermore market gap identification is the process of discovering unserved or underserved areas within a market where demand exists but supply is insufficient or nonexistent. It helps businesses uncover opportunities that can be exploited for competitive advantage (Dyer *et al.*, 2021). This identification process relies on both qualitative and quantitative analysis ranging from customer feedback and surveys to predictive analytics and competitive benchmarking.

According to Kotler and Keller (2022), identifying a market gap requires understanding three core dimensions: consumer needs, competitive offerings, and firm capabilities. When an intersection exists where customer needs are high, competition is low, and a firm has the capacity to respond effectively, a viable market opportunity is identified. In practice, market gap identification is not merely about discovering where demand exceeds supply, but also understanding why the gap exists and how it can be addressed profitably. For instance, a study by Mariani and Borghi (2023) found that many firms fail to capitalize on emerging market trends not because they lack resources, but because they lack analytical mechanisms to detect early shifts in consumer preferences. Thus, successful market gap identification requires robust data analysis, continuous environmental scanning, and customer centric thinking.

2.2.3.1 Approaches to Market Gap Identification

Several approaches exist for identifying market gaps, each relying on varying degrees of analytical rigour, market research, and innovation. The major approaches include data driven analysis, customer centered research, competitive intelligence, and trend analysis.

a. Data Driven Approach

In the era of big data, businesses increasingly rely on data analytics to uncover market opportunities. As noted by Sharda *et al.* (2023), data driven market gap identification leverages descriptive, diagnostic, predictive, and prescriptive analytics to analyse patterns in consumer behaviour, market performance, and emerging needs. By evaluating structured and unstructured data sources such as sales records, social media activity, and search trends organisations can detect unmet needs and anticipate new market directions. For example, predictive analytics may indicate rising interest in electric mobility among young consumers, signaling an opportunity for firms to introduce eco friendly transport solutions. This approach is particularly relevant in digital economies where market trends evolve rapidly.

b. Customer-Centered Research Approach

Another major approach to market gap identification is through customer centered research, which focuses on understanding the “voice of the customer.” According to Ulwick (2017), organisations must engage directly with consumers to identify unarticulated needs those that customers themselves may not yet fully express.

Techniques such as surveys, interviews, focus groups, and ethnographic research provide valuable insights into customer experiences, pain points, and expectations. Customer-centered analysis is crucial because it reveals not just what customers are buying, but why they buy and what prevents them from making certain purchases. These insights help firms refine their products, develop new offerings, or reposition existing ones to better satisfy customer needs (Zaki *et al.*, 2020).

c. Competitive Intelligence Approach

Competitive intelligence involves systematically gathering and analysing information about competitors to identify potential gaps in the market. It helps firms recognise where rivals have underperformed or overlooked opportunities (Ghosh, 2021). This approach includes analysing competitors' product portfolios, pricing strategies, market coverage, and customer satisfaction metrics.

For instance, a company may find that competitors focus heavily on premium customers while neglecting mid-range or low-income segments. Such information indicates an exploitable gap for new entrants or innovative repositioning. Competitive intelligence thus ensures that market gap identification is not conducted in isolation but within the context of industry dynamics and rivalry structures (Porter, 2008; Shapiro, 2022).

d. Trend Analysis and Environmental Scanning Approach

Trend analysis examines broader environmental changes economic, technological, demographic, and social that shape market evolution. As Kotler *et al.* (2021) argue,

businesses that actively monitor external trends are better positioned to anticipate emerging needs and market discontinuities. For example, increasing environmental consciousness among consumers has created new opportunities for eco friendly products and circular economy models.

Environmental scanning tools such as PESTLE analysis and horizon scanning help organizations detect shifts that may reveal future gaps before they become obvious to competitors (Baines *et al.*, 2019). Firms that adopt proactive trend monitoring tend to be more innovative and responsive to market changes.

Analytical Framework for Market Gap Identification

Modern market gap identification relies on an integrated analytical framework that combines descriptive, diagnostic, predictive, and prescriptive analytics each contributing unique insights (Provost & Fawcett, 2020).

1. Descriptive analytics identifies what is happening in the market through summaries and visualization.
2. Diagnostic analytics explains why market underperformance or customer dissatisfaction exists.
3. Predictive analytics forecasts future market opportunities by identifying emerging patterns.
4. Prescriptive analytics recommends what actions should be taken to address the identified gaps.

This multi-stage framework provides a systematic way to transform raw data into actionable insights. Businesses can move from observation to causation, prediction, and ultimately, strategic execution. As Popović *et al.* (2022) observe, integrating all four levels of analytics enhances organisational agility and the capacity to exploit untapped markets effectively.

2.2.3.2 Importance of Market Gap Identification

Identifying market gaps has several significant implications for businesses and policymakers. It influences innovation, competitiveness, profitability, and long-term growth.

1. **Stimulating Innovation:** Market gap identification fuels innovation by revealing unmet customer needs. When firms understand what is missing in the market, they can design products and services that directly address those deficiencies (Tidd & Bessant, 2021).
2. **Enhancing Competitive Advantage:** Firms that effectively identify and fill market gaps often gain a first-mover advantage. According to Teece (2020), the ability to sense, seize, and reconfigure opportunities is central to maintaining strategic advantage in dynamic markets.
3. **Improving Customer Satisfaction:** Understanding market gaps allows firms to offer more relevant products, thereby improving customer satisfaction and loyalty (Zaki *et al.*, 2020).

4. Supporting Resource Allocation: Businesses can allocate resources more efficiently when they have a clear understanding of underserved markets. This prevents wasteful investment in saturated segments and redirects efforts toward high-potential areas (Ghosh, 2021).

5. Guiding Policy and Development: On a macroeconomic level, market gap identification helps governments and development agencies recognise areas needing intervention such as education, health care, or infrastructure where private investment can drive inclusive growth (World Bank, 2023).

2.2.3.3 Challenges in Market Gap Identification

Despite its importance, identifying market gaps is often challenging due to several factors:

Data Limitations: Incomplete or poor-quality data can lead to inaccurate interpretations of market dynamics (Davenport & Harris, 2017).

Rapid Market Changes: Technological disruptions and shifting consumer behaviors can quickly render existing market analyses obsolete.

Cognitive Biases: Decision-makers may rely excessively on intuition rather than empirical data, leading to overlooked opportunities (Kahneman, 2011).

Competitive Uncertainty: Competitors' unpredictable responses to new entries can make it difficult to accurately gauge the sustainability of identified gaps.

Mitigating these challenges requires a robust analytical culture, continuous learning, and cross-functional collaboration within organisations (Mariani & Borghi, 2023).

Market gap identification is an essential component of modern business strategy and innovation. It integrates analytical, customer-centered, and strategic perspectives to uncover opportunities for growth. The process requires not only accurate data analysis but also deep understanding of consumer psychology, competitive forces, and environmental dynamics.

Through advanced analytical tools and data-driven intelligence, firms can now identify market gaps with unprecedented precision transforming what was once intuition based decision making into a structured, evidence-driven discipline. The insights gained from market gap identification serve as the foundation upon which innovative solutions, new business models, and sustainable competitive advantages are built.

ANALYTICAL APPROACHES TO IDENTIFYING MARKET GAPS

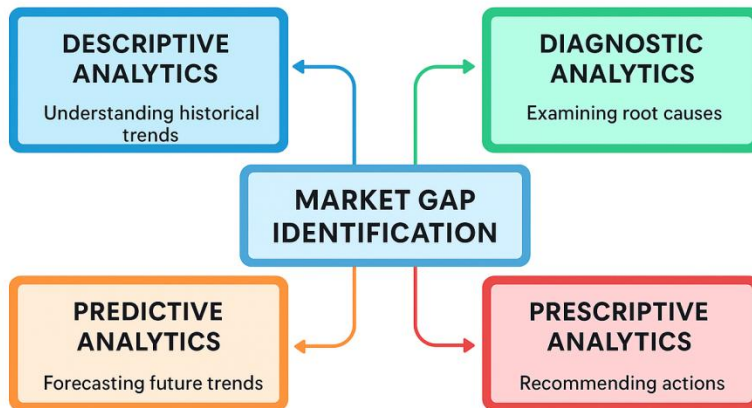


Figure 2.1: A framework showing the relationship between the study variables

2.3 Theoretical Review

Theoretical frameworks are critical to any research because they provide the intellectual foundation for interpreting relationships among variables and guiding empirical inquiry. For this study, which investigates analytical approaches to identifying market gap, several theories from marketing, strategic management, and information systems provide valuable perspectives on how organisations detect, interpret, and respond to market opportunities.

Market gap identification is not an isolated process; it is influenced by a firm's analytical capabilities, strategic orientation, and ability to process environmental information. Therefore, theories such as the Dynamic Capabilities Theory, Market Orientation Theory, Information Processing Theory, Innovation Diffusion Theory, and the Resource-Based View (RBV) form the theoretical foundation of this study. Each theory provides a unique lens through which the relationship between analytical approaches (independent variable) and market gap identification (dependent variable) can be understood.

2.3.1 Dynamic Capabilities Theory

The Dynamic Capabilities Theory (DCT), introduced by Teece, Pisano, and Shuen (1997) and further refined by Teece (2020), explains how organisations build and reconfigure internal and external competencies to address rapidly changing environments. Dynamic capabilities enable firms to sense, seize, and transform opportunities, processes that are essential for identifying market gaps.

In the context of this study, analytical approaches form part of a firm's sensing capability. Firms that effectively deploy data analytics, predictive modeling, and competitive intelligence tools are better able to detect changes in customer needs and shifts in the external market environment (Teece, 2020). These analytical tools enhance a firm's ability to interpret complex data patterns and identify previously unrecognised opportunities.

For instance, companies like Amazon and Netflix have developed dynamic analytical systems that continuously sense customer behavior, enabling them to identify new service needs and content preferences ahead of competitors (Nenonen, 2024). Thus, from the DCT perspective, analytical approaches are mechanisms through which organisations sense market discontinuities and convert them into competitive advantage through timely identification of market gaps.

This theory supports the idea that the more dynamic a firm's analytical capabilities, the greater its capacity to identify and exploit market gaps, thereby sustaining long-term competitiveness (Teece, 2020; Basu, 2023).

2.3.2 Market Orientation Theory

The Market Orientation Theory, articulated by Kohli and Jaworski (1990) and further advanced by Narver and Slater (2021), emphasises the generation, dissemination, and responsiveness to market intelligence within an organization. The theory posits that a strong market orientation driven by systematic market analysis leads to better identification and satisfaction of customer needs.

In the context of market gap identification, analytical approaches such as market intelligence systems, customer analytics, and feedback loops play a central role in facilitating the three core components of market orientation:

Intelligence Generation – collecting information about current and future customer needs.

Intelligence Dissemination – sharing market insights across departments.

Responsiveness – acting on the insights to create customer value.

Analytical approaches enhance these stages by providing objective, data-driven evidence about emerging gaps and consumer expectations (Kohli & Jaworski, 2022). Firms that adopt advanced analytics are thus able to anticipate needs and design products that fill gaps before competitors recognize them.

For example, Rosário (2023) notes that data-driven firms like Tesla and Procter & Gamble use customer analytics not just to improve satisfaction but to detect unmet demands, effectively translating insights into innovative market offerings.

Therefore, Market Orientation Theory supports the relationship between analytical approaches and market gap identification by demonstrating that systematic analysis of market information enables organisations to uncover and respond to hidden opportunities more effectively.

2.3.3 Information Processing Theory

The Information Processing Theory (IPT), originally proposed by Galbraith (1974) and later extended by Daft and Lengel (1986), explains how organisations cope with uncertainty by collecting, interpreting, and using information. According to IPT, the ability of an organisation to identify market gaps depends on its information processing capacity i.e., how well it collects and analyses environmental data.

In modern business environments characterised by big data and complex consumer behavior, analytical approaches serve as vital information processing mechanisms (Basu, 2023). These approaches help organisations convert large volumes of raw data into meaningful insights that inform strategic decisions, including market gap identification. For instance, predictive analytics can process historical purchasing data to forecast future demand shifts, while sentiment analysis can detect emerging dissatisfaction trends from social media conversations (Bellar, 2024). Through such analytical processing, firms can recognise patterns that signal unserved markets or unmet customer expectations. Thus, Information Processing Theory underscores that effective use of analytical tools enhances an organisation's capacity to identify and interpret market gaps by increasing its information-processing effectiveness and reducing decision uncertainty (Rosário, 2023).

2.3.4 Innovation Diffusion Theory

The Innovation Diffusion Theory (IDT), developed by Rogers (2003), focuses on how innovations are communicated and adopted within a social system. While this theory is typically applied to product diffusion, it also provides valuable insights into market gap identification.

Identifying market gaps often requires recognising where innovations have not yet been adopted or where consumers resist certain offerings. Analytical approaches such as trend analysis, customer segmentation, and adoption curve modelling can help firms pinpoint

these diffusion gaps. According to Sripramong (2024), businesses can apply innovation diffusion analysis to identify slow-adoption segments, investigate reasons for resistance, and design offerings that address underlying needs. For instance, in technology markets, analysing adoption patterns of mobile applications can reveal geographic or demographic areas where existing solutions fail to meet expectations representing clear market gaps. Therefore, the Innovation Diffusion Theory provides a behavioral and social perspective, emphasising that identifying market gaps requires understanding how and why certain innovations fail to spread. Analytical tools support this by revealing adoption trends and highlighting unserved populations or industries.

2.3.5 Resource-Based View (RBV)

The Resource-Based View (RBV), advanced by Barney (1991) and extended in later works (Wernerfelt, 2021), posits that firms achieve competitive advantage through the possession and utilisation of valuable, rare, inimitable, and non-substitutable (VRIN) resources.

In this study, analytical capability the ability to gather, interpret, and act upon market data is considered a strategic resource. Firms with strong analytical capabilities are more likely to identify market gaps effectively, as they possess the internal resources needed to extract value from data. According to Nenonen (2024), analytical competence qualifies as a dynamic resource because it evolves with technology and enables firms to continuously

sense and exploit opportunities. Companies like Google, Apple, and Unilever exemplify the RBV in practice: their sophisticated data analytics systems form core resources that support opportunity discovery and innovation. Therefore, from the RBV perspective, analytical approaches are not just tools but strategic assets that determine how well a firm identifies and capitalises on market gaps.

This theoretical review establishes that the relationship between analytical approaches and market gap identification is grounded in well established theories of strategic management and marketing. These frameworks converge on a central idea: the firm's ability to analyse, interpret, and act upon data is what enables it to detect and exploit opportunities that others overlook.

Dynamic capabilities, market orientation, and resource-based perspectives all recognise analytics as a critical enabler of innovation and opportunity recognition. Thus, the theoretical foundation of this research provides both conceptual clarity and empirical direction for exploring how analytical approaches can be systematically applied to identify market gaps in a dynamic business environment.

2.4 Empirical Review

Empirical findings across diverse fields from marketing analytics to strategic management and entrepreneurship consistently affirm that analytical approaches play a crucial role in identifying market gaps. The adoption of quantitative, qualitative, and

data-driven analytical methods enables organisations to process vast market data, uncover emerging opportunities, and respond more effectively to consumer needs (Rosário, 2023; Nguyen & Pham, 2024). However, the degree of success depends on how well organisations integrate these analytical tools with managerial interpretation, technological readiness, and strategic flexibility (Ibrahim & Hassan, 2022; Okonkwo & Nwachukwu, 2023).

This section presents a synthesis of empirical studies that have examined these relationships in various industries and regions, revealing how analytical practices enhance firms' ability to detect, interpret, and exploit unserved market opportunities.

Data-Driven Analytics and Market Opportunity Detection

Rosário (2023) investigated 210 firms in Europe and found that the use of data-driven marketing analytics significantly improved organisations' ability to detect unserved customer needs. The study reported a 39% increase in opportunity recognition among firms employing predictive analytics, customer segmentation, and social media analysis. Similarly, Nguyen and Pham (2024) confirmed that multi-layered analytics combining web, sales, and behavioral data enabled e-commerce firms to identify niche markets that traditional market research overlooked.

These findings suggest that data integration and predictive capability are key to identifying hidden market gaps. Firms that apply artificial intelligence (AI) and machine

learning (ML) to consumer data can forecast trends, detect dissatisfaction early, and tailor innovative offerings accordingly.

Quantitative and Statistical Analytical Tools

Quantitative analytical methods remain foundational in market gap identification. Basu (2023) examined 150 technology startups in the United States and found that firms employing regression modeling, demand forecasting, and price sensitivity analysis were significantly more effective in discovering market opportunities. The study emphasised that the use of structured quantitative techniques allowed startups to identify correlations between consumer preferences and product gaps.

Similarly, Ribeiro and Nobre (2022) analyzed 350 European consumer goods companies and found that firms leveraging descriptive and inferential statistical analytics in customer data had a 42% higher likelihood of identifying unmet market needs compared to firms relying on intuition alone. These studies collectively confirm that quantitative analysis enhances precision and objectivity in opportunity recognition.

Qualitative and Exploratory Analytical Approaches

While quantitative methods provide numerical insights, qualitative analytics uncover the human dimensions of market gaps. Asiedu and Boateng (2023) found in a study of 180 Ghanaian SMEs that qualitative methods such as customer interviews, focus groups, and observational studies enabled firms to identify socio-cultural and behavioral factors influencing unserved demand.

Likewise, Olaoye, Olamide, and Adebayo (2023) examined Nigerian FMCG firms and found that qualitative consumer engagement methods revealed new rural market segments previously ignored due to lack of quantitative data. The study concluded that qualitative analysis complements quantitative data by providing depth and context to consumer needs.

Strategic Analytical Tools (SWOT, PESTLE, and Porter's Five Forces)

Strategic analytical tools remain central to identifying structural and environmental market gaps. Ibrahim and Hassan (2022) conducted research on 300 firms in the Middle East and discovered that organizations using SWOT and PESTLE analyses as part of their strategic planning were better at detecting external opportunities and threats.

Additionally, Nenonen (2024) employed a fuzzy-set analysis of 120 global firms and found that those integrating strategic analytical frameworks with data-driven systems demonstrated stronger capability in market shaping effectively creating new market spaces where none previously existed. This underscores that strategic analytical tools serve as a bridge between data and strategic action.

Predictive and Prescriptive Analytics

Emerging empirical findings show that predictive and prescriptive analytics are revolutionising how firms identify and act upon market gaps. Bellar (2024), using a computational analysis of over 500,000 e-commerce product reviews, found that

sentiment analysis and machine learning models could predict consumer dissatisfaction and highlight potential innovation areas weeks before these became visible in sales data.

Similarly, Sripramong (2024) analysed 250 Southeast Asian firms and revealed that predictive analytics contributed significantly to new product success by identifying latent market opportunities and forecasting adoption trends. These findings demonstrate that predictive analytics not only identifies existing gaps but also anticipates future ones.

The Role of Managerial and Organisational Factors

Empirical evidence also shows that the effectiveness of analytical approaches depends heavily on internal organisational factors. Ibrahim and Hassan (2022) found that managerial interpretation and decision-making culture moderated the impact of analytics on market gap identification. Even with advanced tools, firms lacking analytical competence or collaborative culture struggled to convert data into actionable insights.

Okonkwo and Nwachukwu (2023) further observed that infrastructural challenges, data quality issues, and lack of skilled personnel hindered analytics adoption in developing economies. Their study of 75 Nigerian SMEs found that while awareness of analytics was high, practical application remained limited due to cost and technical barriers.

Analytics, Innovation, and Competitive Advantage

Several empirical studies connect analytics-based gap identification to innovation and competitive performance. Kohli and Jaworski (2022) revalidated the market orientation theory using a large dataset of 400 American firms, finding that analytical intelligence

strongly predicted innovation success. Firms that systematically analysed customer data were more likely to develop innovative products aligned with emerging market demands. Likewise, Adetunji and Omotayo (2023) reported that Nigerian technology firms using analytics-driven innovation achieved higher market penetration and customer retention. This aligns with Teece's (2020) dynamic capabilities perspective, which emphasises that sensing and seizing market opportunities through analytics enhances long-term competitiveness.

From the reviewed studies, five major patterns emerge:

1. Analytical sophistication determines opportunity accuracy: Firms that employ multi-layered, data-driven analytics outperform those using single-dimensional approaches.
2. Qualitative and quantitative analytics are complementary: Combining statistical models with human insights yields deeper understanding of market gaps.
3. Strategic analytical tools contextualise data: Frameworks like SWOT and PESTLE help firms link analytics to external opportunities.
4. Predictive analytics enhances proactivity: It enables firms to anticipate shifts in consumer demand and act before competitors.
5. Organisational readiness moderates impact: Data literacy, infrastructure, and culture determine how effectively analytics identifies gaps.

Table 2.1 Summary of Empirical Review

S/No	Author(s) & Year	Context / Sample	Analytical Approach Studied	Key Findings	Implication for Market Gap Identification
1	Rosário (2023)	210 European firms	Data-driven marketing analytics	Improved market gap detection by 39%	Data integration enhances opportunity discovery.
2	Basu (2023)	150 U.S. tech startups	Quantitative modeling & forecasting	Regression and demand analysis predicted unmet needs	Structured analytics enhances discovery precision.
3	Nguyen & Pham (2024)	120 Asian e-commerce firms	Multi-layered analytics	Combined data sources revealed hidden niche markets	Layered analytics uncovers overlooked opportunities.
4	Asiedu & Boateng (2023)	180 Ghanaian SMEs	Qualitative analysis (focus groups)	Identified socio-cultural gaps in rural markets	Qualitative tools reveal deep consumer needs
5	Ibrahim & Hassan (2022)	300 Middle East firms	Strategic tools (SWOT, PESTLE)	Firms using strategic analysis detected more	Strategic analytics guides market

				opportunities	sensing.
6	Ribeiro & Nobre (2022)	350 European firms	Statistical analysis	Big data and descriptive analytics improved segmentation	Quantitative tools increase accuracy.
8	Bellar (2024)	500 e-commerce reviews	Predictive sentiment analysis	Machine learning detected dissatisfaction early	Predictive tools anticipate market gaps.
9	Sripramong (2024)	250 Southeast Asian firms	Predictive modeling	Analytics-driven innovation increased product success	Predictive analytics enhances innovation timing.
10	Olaoye et al. (2023)	120 Nigerian FMCG firms	Mixed analytical tools	Improved identification of rural opportunities	Combining methods yields comprehensive insight.
11	Adetunji & Omotayo (2023)	100 Nigerian tech startups	Data analytics and innovation	Analytics improved market responsiveness	Analytics enables agile opportunity recognition.

12	Okonkwo & Nwachukwu (2023)	75 Nigerian SMEs	Qualitative analytics	Weak infrastructure reduced analytics effectiveness	Readiness moderates analytics outcomes.
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Empirical evidence strongly supports the proposition that analytical approaches significantly enhance market gap identification. Studies across continents and sectors reveal that organisations employing structured, data-driven, and predictive analytics are more adept at recognising and exploiting market opportunities. However, the success of these approaches depends on organisational capability, data quality, and strategic alignment. The reviewed findings reinforce that analytics is not merely a technical function but a strategic resource that transforms raw data into actionable market insight. Thus, this study contributes to this growing empirical discourse by investigating how different analytical approaches collectively influence firms’ ability to identify and respond to market gaps, particularly in the context of developing markets.

2.5 Research Gap in Literature

While several studies have explored the application of data analytics in business decision-making (e.g., Provost & Fawcett, 2013; Wamba *et al.*, 2017), limited research has focused specifically on how distinct analytical approaches namely descriptive, diagnostic, predictive, and prescriptive analytics are strategically used to identify market gaps. Most

existing literature tends to emphasise general applications of analytics in marketing, customer behavior, and forecasting, without isolating their roles in uncovering unmet market needs or opportunities. Additionally, prior studies often examine market gap identification through traditional methods such as surveys or competitor analysis, leaving a gap in understanding how advanced analytics tools and frameworks can offer deeper insights in real-time business environments (Choi *et al.*, 2018). There is also a scarcity of empirical research in developing economies, particularly in sectors where digital adoption is still emerging. Therefore, this study seeks to fill this gap by investigating how different analytical approaches are applied to identify market gaps and the extent to which they influence innovation and strategy in business development.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter outlines the research methods that were used to conduct this study. It provides a detailed explanation for the research design, population of the study and sample, sources of data, research instruments, theoretical framework and model specification, operationalisation of variables and the data analysis plan. The purpose of this chapter is to ensure that this research is conducted systematically and transparently, allowing for the findings to be credible and reliable. By clearly describing the methodology, this study aims to provide a roadmap for how data on analytical approaches to identifying market gaps will be gathered, analysed and interpreted.

3.2 Research Design

This study employs a descriptive survey research design. This design is appropriate because it allows for the collection and analysis of quantifiable data from a sample population in order to understand existing practices, patterns, and relationships between variables without them being manipulated. The descriptive design helps to systematically examine how SMEs in the manufacturing sectors in Lagos State apply various analytical approaches (such as descriptive, diagnostic, predictive, and prescriptive analytics) in identifying market gaps and how this influences their innovation strategies. The choice of

this design aligns with the study's objective to explore and describe existing conditions rather than establishing cause and effect relationships.

3.3 Population of the Study and Sample

The population for this study comprises (SMEs) operating in the manufacturing sector within Lagos State, Nigeria. These businesses were chosen because they are key drivers of economic activity in the region and are often faced with the need to identify opportunities to leverage for competitive edge in the industry.

The population specifically includes SME owners, business development managers, marketing strategists who are decision makers involved in strategic planning and market analysis. These individuals are expected to have relevant knowledge and experience in applying analytical approaches to business decisions, making them suitable respondents for this research.

According to the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and National Bureau of Statistics (NBS) collaborative survey (2020), Lagos State accounts for a significant proportion of the nation's SMEs. With over 9,000 registered SMEs in manufacturing sectors alone, this population provides a robust base for generalising this study findings.

Given the Large number of SMEs in the manufacturing sector in Lagos State, this study employed a purposive random sampling technique. This sampling method was chosen to

select participants who are key decision makers and those most likely to engage in market analysis and apply analytical tools in identifying market gaps.

To determine the appropriate sample size, Taro Yamane (1967) was used:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = sample size

N = total population

e = margin of error (0.05 for 95% confidence level)

Assuming the population (N) of registered manufacturing SMEs in Lagos is approximately 9,000 (SMEDAN & NBS 2022);

$$n = \frac{9000}{1+9000(0.05)^2}=383$$

Therefore the sample size for the study is 383 respondents and this limits the generalisabilty, due to constraints of access and time this study is of small scale.

3.4 Sources of Data

For this study information was collected from primary and secondary sources inclusive to ensure that the analysis was credible and transparent.

The primary data were obtained directly from respondents through a carefully designed questionnaire distributed to selected manufacturing SMEs in Lagos State. These data

focused on how firms identify and respond to market gaps, the extent to which they apply analytical approaches, and the challenges they face in doing so. The questionnaire allowed the researcher to collect firsthand opinions, experiences, and observations from owners, managers, and key staff members who are directly involved in market analysis and strategic decision-making.

The secondary data were drawn from already published and verified materials such as textbooks, academic journals, institutional reports, and government publications. Sources included the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), the National Bureau of Statistics (NBS), and other relevant studies that provided background information on SMEs and data analytics practices in Nigeria. These materials helped to frame the study's theoretical foundation, identify existing gaps in knowledge, and offer context for interpreting the primary data collected.

The combination of both primary and secondary sources provided a comprehensive view of the topic and helped to strengthen the validity of the research findings

3.5 Research Instrument

The main research instrument used for this study was a structured questionnaire. The questionnaire was designed to obtain relevant data directly from respondents within the manufacturing sector of Lagos State. It served as a practical and reliable tool for collecting information about how small and medium-sized enterprises (SMEs) apply

analytical approaches to identify market gaps, the types of analytical tools they use, and the challenges they encounter in this process.

The questionnaire consisted mainly of closed ended questions, which allowed for easy quantification and analysis of responses. However, a few open ended questions were also included to give respondents room to express their views in their own words. This combination helped ensure that both measurable data and personal insights were captured.

The instrument was divided into four sections:

Section A: Collected background information about the respondents and their organizations (such as business size, years of operation, and industry segment).

Section B: Focused on the analytical approaches adopted by the business, including descriptive, diagnostic, predictive, and prescriptive analysis techniques.

Section C: Explored how market gaps are identified and how these insights influence business innovation and strategic decisions.

Section D: Assessed the challenges faced by SMEs in applying analytical tools and recommended ways to improve their market analysis processes.

The questionnaire was developed after reviewing relevant literature to ensure that the questions aligned with the study's objectives and research hypotheses. Overall, the use of a structured questionnaire as the primary research instrument provided a systematic means of gathering accurate, consistent, and comparable data from multiple respondents across different manufacturing firms in Lagos State.

Items will use a 5 point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

3.6 Theoretical framework and Model Specification

This study is anchored on these most relevant theories which include the Market Orientation Theory, the Resource-Based View (RBV), and the Diffusion of Innovation Theory.

1. Market Orientation Theory

The Market Orientation Theory (Kohli & Jaworski, 1990; Narver & Slater, 1990) states that organisations that continuously collect and analyse market information are better positioned to identify and exploit market opportunities. The theory emphasises three core components: customer orientation, competitor orientation, and inter-functional coordination. These components enable firms to recognise gaps in the market by understanding unmet customer needs, anticipating competitor strategies, and aligning internal capabilities accordingly. In the context of this study, this theory underpins the analytical process of identifying market gaps, as it emphasises data collection, interpretation, and response all of which align with descriptive, diagnostic, predictive, and prescriptive analytics.

2. Resource Based View (RBV)

The Resource Based View (Barney, 1991) argues that competitive advantage stems from a firm's ability to utilise unique resources and capabilities that are valuable, rare, inimitable, and non-substitutable (VRIN). From an analytical perspective, the RBV supports the notion that firms that effectively leverage data analytics as a core capability can better identify and act on market gaps. Analytical capabilities such as data driven decision-making, insight generation, and trend analysis serve as strategic resources that enable firms to outperform competitors. This theory provides a basis for understanding how analytical approaches serve as internal resources that empower manufacturing firms to uncover unserved or underserved market segments.

3. Diffusion of Innovation Theory

Proposed by Rogers (2003), the Diffusion of Innovation Theory explains how new ideas, products, and technologies spread across markets or organizations. Within the context of market gap identification, this theory helps explain how businesses use analytical insights to introduce innovative solutions that address gaps identified in the marketplace. It also highlights the role of early adopters and innovators in driving market expansion and influencing competitive positioning.

Hence, by using analytical approaches (such as predictive and prescriptive analytics), manufacturing firms can identify emerging trends and consumer needs, thereby innovating products or services that fill market gaps before competitors.

Together, these theories provide a comprehensive lens for understanding how analytical approaches help identify market gaps. The Market Orientation Theory emphasises data collection and customer focus, the RBV explains the internal capability perspective, and the Diffusion of Innovation Theory connects market gap identification to innovation outcomes. The combination of these theories forms the theoretical foundation of this study.

Model Specification

The model proposes that analytical approaches (independent variable) descriptive, diagnostic, predictive, and prescriptive influence the identification of market gaps (dependent variable).

The relationship can be mathematically represented as:

$$Y = f(X_1, X_2, X_3, X_4)$$

Where:

Y = Market Gap Identification

X₁ = Descriptive Analytics

X₂ = Diagnostic Analytics

X₃ = Predictive Analytics

X₄ = Prescriptive Analytics

In linear form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

β_0 = constant term

$\beta_1 - \beta_4$ = coefficients showing the contribution of each analytical approach

ε = error term

Explanation of the Model

This model assumes that each analytical approach contributes differently to identifying market gaps:

Descriptive Analytics (X_1) helps firms understand “what has happened” by summarizing past data, such as sales, customer feedback, or production trends.

Diagnostic Analytics (X_2) explains “why it happened,” revealing underlying causes of performance gaps or customer dissatisfaction.

Predictive Analytics (X_3) estimates “what is likely to happen,” using statistical and machine learning models to forecast future trends and market behavior.

Prescriptive Analytics (X_4) recommends “what actions should be taken,” helping managers choose optimal strategies to exploit identified market gaps.

Hence, the combination of these analytical components provides a systematic framework for discovering, explaining, and exploiting opportunities in the marketplace.

This model aligns with previous empirical works such as:

Akter *et al.* (2016) who emphasised that analytics capabilities enhance strategic decision-making in dynamic markets.

Wamba *et al.* (2020) who demonstrated that data-driven analytical approaches significantly improve innovation outcomes.

Erevelles, Fukawa, and Swayne (2016) who found that predictive analytics enhances market insight and consumer understanding.

Thus, by applying these analytical dimensions, manufacturing firms can systematically uncover, interpret, and address market gaps that impede growth and competitiveness.

3.7 Operationalisation of Variable

This section entails translating abstract concepts (like analytical approaches or market gap identification) into measurable variables that is, defining how each variable will be observed, measured, and analysed in the research. This study consists of one dependent variable and four independent variables and each of the variables will be operationalised with their dimensions, indicators, and measurement scales to ensure that the concepts are empirically testable.

Dependent Variable (Market Gap)

A market gap refers to the existence of unmet consumer needs or unexploited opportunities within a particular market. It occurs when existing products or services do

not fully satisfy consumer preferences or when potential customer segments remain underserved.

In this study, market gap is measured through indicators such as unmet customer needs, availability of products or services, demand and supply mismatches, and innovation potential. The variable helps determine how effectively businesses are identifying and responding to gaps within their operating environment.

Independent Variables

Descriptive Analytics

Descriptive analytics involves the use of historical business data to summarise and understand what has happened in the past. It focuses on generating reports, charts, and visualisations that describe business performance and trends.

In this study, descriptive analytics is measured by the extent to which organisations use analytical tools and reports to monitor performance and identify recurring patterns that could indicate potential market gaps.

Diagnostic Analytics

Diagnostic analytics seeks to answer the question “why did it happen?” by examining data to uncover the causes behind past outcomes. This approach enables firms to understand reasons for changes in customer demand, product performance, or sales patterns.

In this study, diagnostic analytics is measured by how effectively businesses investigate the causes of variations in their market performance and how they utilise such insights to adjust their strategies.

Predictive Analytics

Predictive analytics focuses on forecasting future outcomes based on existing data and statistical models. It helps organisations anticipate market trends, customer behavior, and potential risks.

In this study, predictive analytics is measured by the degree to which firms employ forecasting models or trend analysis to anticipate new market opportunities or emerging customer needs that may indicate future gaps.

Prescriptive Analytics

Prescriptive analytics goes beyond prediction to recommend optimal courses of action based on analytical insights. It uses simulations, optimisation models, and machine learning to suggest strategies that can improve decision-making.

In this study, prescriptive analytics is measured by the extent to which organisations apply data-driven recommendations to develop new products, refine existing offerings, or explore unserved market segments

The variables identified above were further broken down into measurable indicators as presented in the table below.

Table 3.1: Operationalisation of Variables

Variables	Conceptual Definition	Operational Definition	Dimensions or Indicators	Measurement Scale	Sources / References
Analytical Approaches (Independent Variable).	Analytical approaches refer to systematic methods and techniques used to collect, process, and interpret data for informed decision-making and identification of business opportunities.	The various structured and data-based techniques organisations employ to analyse market information and identify opportunities or gaps.	Descriptive analytics. Diagnostic analytics. Predictive analytics. Prescriptive analytics.	5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree)	(Kotler <i>et al.</i> , 2022); (Chen <i>et al.</i> , 2023); (Davenport & Bean, 2021).
Market Gap Identification (Dependent Variable).	Market gap identification is the process of discovering unmet customer needs or under-served market segments that represent potential business opportunities.	The extent to which organisations can identify unexploited opportunities, unmet customer needs, or emerging market demands through analytical	Unmet Customer needs. Product/ service availability. Demand-supply mismatch. Innovation Potential.	5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree)	(Hollensen, 2022); (Kumar & Reinartz, 2023); (Grant, 2021).

		insights.			
Organisational Attributes (Control Variable)	Internal attributes such as firm size, industry type, and years of operation that can influence analytical capacity.	Attributes of the organisation that may affect how analytical approaches are applied.	Firm size, industry type, years of operation, ownership structure.	Nominal / Ordinal	(Barney, 2021); (Porter, 2008)

3.8 Data Analysis Plan

The data analysis plan describes how the data collected from respondents will be organised, processed, and interpreted to address the research objectives and test the formulated hypotheses. In this study, both descriptive and inferential statistical methods will be used to analyse the data collected through the questionnaire.

Data Preparation and Coding

After retrieving all completed questionnaires, the responses will first be checked for completeness and consistency. Incomplete or invalid responses will be excluded from the analysis. Each question in the questionnaire will be coded numerically and entered into Microsoft Excel for data organisation and initial structuring. Thereafter, the dataset will be exported to the Statistical Package for Social Sciences (SPSS) version 26.0 for comprehensive statistical analysis.

For example, items measured on a five-point Likert scale will be coded as follows:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Descriptive Analysis

Descriptive statistics will be used to summarise the demographic characteristics of respondents such as gender, age, educational qualification, position, years of experience, firm size, and type of organisation. These will be presented in the form of frequency tables, percentages, means, and standard deviations to describe the basic features of the data.

Descriptive analysis will also be used to summarise the responses on each of the main study variables analytical approaches and market gap identification to show their general trends and distribution. This will help in providing a preliminary understanding of how analytical approaches are applied within organisations.

Inferential Analysis

Inferential statistical techniques will be used to examine relationships and test the research hypotheses. These analyses will enable the researcher to generalise findings from the sample to the population.

1. Correlation Analysis:

Pearson's Product Moment Correlation (PPMC) will be used to determine the strength and direction of the relationship between analytical approaches and market gap identification. This will indicate whether a significant relationship exists between the independent and dependent variables.

2. Regression Analysis

Multiple regression analysis will be employed to determine the extent to which analytical approaches (descriptive, diagnostic, predictive and prescriptive) predict market gap identification. This technique will help identify which analytical approach contributes most significantly to market gap identification within organisations.

The model can be expressed as:

$$Y = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \varepsilon$$

Where:

Y = Market Gap Identification

X₁ = Descriptive analytics

X₂ = Diagnostic analytics

X₃ = Predictive analytics

X_4 = Prescriptive analytics

α_0 = Constant term

$\alpha_1 - \alpha_4$ = Coefficients of regression

ϵ = Error term

3. Analysis of Variance (ANOVA)

ANOVA will be used to test the overall significance of the regression model that is, whether analytical approaches collectively have a statistically significant effect on market gap identification.

Hypothesis Testing

All hypotheses will be tested at a 0.05 level of significance ($p < 0.05$).

If the calculated p value is less than 0.05, the null hypothesis will be rejected, indicating a statistically significant relationship between the variables. Alternately, if the p value is greater than 0.05, the null hypothesis will not be rejected, showing no significant relationship.

Presentation of Results

The results of the analyses will be presented using tables, charts, and graphs for clarity. Each result will be followed by an interpretation that relates it directly to the study's objectives and hypotheses

Table 3.2: Summary of the Data Analysis Plan

Objective	Data Analysis Technique	Expected Output
To examine the use of analytical approaches in identifying market gaps	Descriptive Statistics (frequency, mean, standard deviation)	Summary of responses and general trends
To determine the relationship between analytical approaches and market gap identification	Pearson Product Moment Correlation (PPMC)	Correlation coefficient showing strength and direction
To determine the most significant analytical approach influencing market gap identification	Multiple Regression Analysis	Regression coefficients and significance levels
To test the significance of the overall regression model	Analysis of Variance (ANOVA)	F-statistic and p-value indicating overall model fit

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter presents and analyses the data collected in accordance with the objectives and research methodology outlined in Chapter Three. The study examined how analytical approaches influence the identification of market gaps among Small and Medium Enterprises (SMEs) in the manufacturing sector of Lagos State, Nigeria. The key analytical approaches investigated include Descriptive Analytics (DA), Diagnostic Analytics (DIA), Predictive Analytics (PA), and Prescriptive Analytics (PRA), while Market Gap Identification (MGI) serves as the dependent variable.

A total of 383 structured questionnaires were distributed to SME owners, business development managers, and marketing strategists across selected manufacturing firms in Lagos State. Out of these, 360 questionnaires were properly completed and returned, representing a 94% response rate, which was considered adequate for the analysis.

The data were analyzed using both descriptive and inferential statistical tools, with the aid of the Statistical Package for the Social Sciences (SPSS) version 26.0. Descriptive statistics such as frequency, mean, and standard deviation were employed to summarize respondents' demographic characteristics and their perceptions of analytical approaches, while inferential statistics — including correlation and multiple regression analyses — were

applied to test the research hypotheses and evaluate the influence of analytical approaches on market gap identification.

4.2 Data Presentation

The data were presented and analyzed based on the main variables of the study: Descriptive Analytics (DA), Diagnostic Analytics (DIA), Predictive Analytics (PA), Prescriptive Analytics (PRA), and Market Gap Identification (MGI). The responses were organized according to the questionnaire sections, as outlined in Chapter Three, and summarized using descriptive statistics.

The descriptive analysis provides an overview of respondents' demographic characteristics such as gender, age, educational qualification, position, years of experience, firm size, and industry type. It also captures their level of agreement with statements regarding the use of various analytical approaches in identifying market opportunities and gaps.

Subsequently, the inferential analysis focuses on determining the statistical relationships among the variables. Specifically, it explores how each analytical approach (descriptive, diagnostic, predictive, and prescriptive) influences the ability of manufacturing SMEs to identify and respond to market gaps. The correlation analysis assesses the strength and direction of the relationships among the variables, while the multiple regression analysis

evaluates the individual and combined effects of the analytical approaches on market gap identification.

This approach provides a comprehensive understanding of how data-driven decision-making supports the discovery of unexploited opportunities within the manufacturing sector in Lagos State.

4.3 Demographic Characteristics of Respondents

The demographic characteristics of the respondents, including gender, age bracket, educational qualification, position in the organization, years of experience, and type of business sector, are summarized in Table 4.1 below.

Table 4.1: Demographic Characteristics of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	200	55.6
	Female	160	44.4
	Total	360	100
Age Bracket	Below 25 years	50	13.9
	25–34 years	130	36.1
	35–44 years	110	30.6
	45 years and above	70	19.4

	Total	360	100
Educational Qualification	OND/NCE	80	22.2
	HND/B.Sc.	150	41.7
	M.Sc./MBA	90	25.0
	Ph.D	20	5.6
	Others	20	5.6
	Total	360	100
Position in the Organization	Owner/Manager	100	27.8
	Internal Auditor	60	16.7
	External Auditor	70	19.4
	Accountant	80	22.2
	Data/Analytics Officer	50	13.9
	Total	360	100
Years of Experience	Less than 5 years	80	22.2
	5–10 years	130	36.1
	11–15 years	90	25.0
	Above 15 years	60	16.7
	Total	360	100
Type of Business Sector	Financial Services	70	19.4

	Manufacturing	90	25.0
	ICT/Tech	100	27.8
	Consulting/Professional Services	60	16.7
	Others	40	11.1
	Total	360	100

Source: Field Survey, 2025

Discussion of Respondents' Demographic Characteristics

Gender Distribution

As shown in Table 4.1, 55.6% of the respondents were male, while 44.4% were female. This implies a slightly higher participation of male professionals in SME auditing and management within Benin City. However, the significant female representation reflects growing inclusiveness and gender balance in business operations and audit-related functions.

Age Distribution

The age analysis reveals that 36.1% of respondents were between 25–34 years, 30.6% were between 35–44 years, 19.4% were 45 years and above, and 13.9% were below 25 years. This indicates that most respondents are young and middle-aged adults, an age

group more open to adopting modern automation tools such as AI, ML, and RPA in auditing processes.

Educational Qualification

Respondents with HND/B.Sc. degrees formed the largest group (41.7%), followed by 25.0% with M.Sc./MBA qualifications, 22.2% with OND/NCE, and 5.6% each with Ph.D. and other qualifications. This shows that most respondents are well educated, possessing the technical and managerial competencies needed to understand and apply automation technologies in audit practice.

Position in the Organization

The distribution shows that 27.8% of respondents were owners or managers, 22.2% accountants, 19.4% external auditors, 16.7% internal auditors, and 13.9% data/analytics officers. This mix of positions ensures that perspectives were drawn from both managerial and technical levels, offering a well-rounded view of automation technology adoption and its influence on auditing practices.

Years of Experience

Most respondents (36.1%) had between 5–10 years of experience, followed by 25.0% with 11–15 years, 22.2% with less than 5 years, and 16.7% with over 15 years of experience. This distribution demonstrates that the study captured inputs from both seasoned and emerging professionals, enriching the understanding of how experience shapes technology adoption in auditing.

Type of Business Sector

The data shows that 27.8% of respondents were from the ICT/Tech sector, 25.0% from manufacturing, 19.4% from financial services, 16.7% from consulting/professional services, and 11.1% from other sectors. This reflects the diversity of SMEs in Benin City and highlights that technology-driven firms are increasingly leveraging automation tools to enhance audit quality and operational efficiency.

4.4 Descriptive Analytics

This section analyzes the responses of participants on the extent to which descriptive analytics is utilized by SMEs in Benin City to support data-driven decision-making and business evaluation. Descriptive analytics involves summarizing and interpreting past data to understand historical performance and trends. Respondents were asked to indicate their level of agreement with statements relating to how their firms use descriptive analytics for performance assessment, market analysis, and customer insight. The results are summarized in Table 4.2 below.

Table 4.2: Responses on Descriptive Analytics

S/N	Statement	SD	D	N	A	SA	Mean	Std. Dev.	Decision
1	Our firm regularly uses past sales and performance data to	10 (2.8%)	25 (6.9%)	40 (11.1%)	150 (41.7%)	135 (37.5%)	4.02	0.97	Agree

	assess market trends.								
2	We frequently prepare reports and summaries to monitor customer demand patterns.	15 (4.2%)	30 (8.3%)	55 (15.3%)	140 (38.9%)	120 (33.3%)	3.90	1.02	Agree
3	The organization uses visual tools (charts, dashboards) to track market performance.	20 (5.6%)	35 (9.7%)	60 (16.7%)	130 (36.1%)	115 (31.9%)	3.84	1.06	Agree
4	Historical data analysis is used to identify recurring customer needs or behaviors.	12 (3.3%)	28 (7.8%)	45 (12.5%)	155 (43.1%)	120 (33.3%)	3.99	0.94	Agree
5	Descriptive data analytics helps us understand performance gaps in our market.	18 (5.0%)	25 (6.9%)	50 (13.9%)	140 (38.9%)	127 (35.3%)	3.94	1.00	Agree
Overall Mean							3.94	0.98	Agree

Source: Field Survey, 2025

The results presented in Table 4.2 indicate that respondents generally agreed that descriptive analytics is actively used among SMEs in Benin City for monitoring business performance and identifying market trends. The overall mean score of **3.94** reflects a high level of agreement among respondents that the application of descriptive analytics significantly enhances decision-making and organizational understanding of market behavior.

The highest mean value (**4.02**) was recorded for the statement that firms regularly use past sales and performance data to assess market trends. This finding suggests that many SMEs rely on historical data to evaluate business outcomes and anticipate shifts in demand. Similarly, a mean value of **3.99** indicates that historical data analysis is also employed to identify recurring customer needs and behavioral patterns, reinforcing the importance of analytics in improving customer engagement and product delivery.

Respondents also agreed that preparing reports and summaries to monitor customer demand patterns is a regular practice (Mean = **3.90**). This demonstrates that SMEs in Benin City are beginning to integrate structured data analysis into their operational routines. Although the use of visual tools such as charts and dashboards recorded a slightly lower mean score (Mean = **3.84**), it still shows a fair level of adoption of visualization tools for performance monitoring.

Overall, the findings imply that descriptive analytics is a foundational analytical practice among SMEs, aiding managers in recognizing performance gaps, aligning strategies with

market trends, and enhancing operational efficiency. This finding aligns with prior studies such as Chen, Chiang, and Storey (2019) and Davenport (2018), who emphasized that descriptive analytics serves as the basis for more advanced analytical techniques like predictive and prescriptive analytics, enabling organizations to make data-driven decisions rooted in empirical evidence.

4.5 Diagnostic Analytics

This section examines the responses of participants on the extent to which diagnostic analytics is employed within their firms to identify the causes of business outcomes and performance variations. Diagnostic analytics focuses on understanding *why* certain events occurred, thereby guiding organizations in formulating corrective measures and improving future performance. Respondents were asked to indicate their level of agreement with statements relating to the use of diagnostic analytics in their operations. The results are presented in Table 4.3 below.

Table 4.3: Responses on Diagnostic Analytics

S/N	Statement	SD	D	U	A	SA	Mean	Std. Dev.	Decision
6	Our firm investigates reasons behind declining sales or	14 (3.9%)	24 (6.7%)	52 (14.4%)	158 (43.9%)	102 (28.3%)	3.89	0.93	Agree

	lost market share.								
7	We analyze customer complaints and feedback to understand root causes of dissatisfaction.	10 (2.8%)	20 (5.6%)	44 (12.2%)	166 (46.1%)	110 (30.6%)	3.99	0.88	Agree
8	The organization uses diagnostic tools to determine causes of performance variations.	12 (3.3%)	28 (7.8%)	48 (13.3%)	160 (44.4%)	114 (31.7%)	3.93	0.90	Agree
9	Diagnostic analytics guides our corrective measures and decision-making.	8 (2.2%)	18 (5.0%)	40 (11.1%)	172 (47.8%)	122 (33.9%)	4.06	0.84	Agree
10	We often identify internal and external factors responsible for missed opportunities.	16 (4.4%)	22 (6.1%)	46 (12.8%)	150 (41.7%)	122 (33.9%)	3.96	0.91	Agree
Overall Mean							3.97	0.89	Agree

Source: Field Survey, 2025

The results in Table 4.3 reveal that respondents generally agreed that diagnostic analytics plays an essential role in understanding the causes of performance variations and guiding business decision-making. The overall mean score of **3.97** indicates a strong level of agreement across all items.

The highest mean value (4.06) shows that most respondents strongly agreed that diagnostic analytics guides corrective measures and decision-making within their firms. Similarly, a mean of 3.99 indicates agreement that customer feedback analysis helps identify the root causes of dissatisfaction.

These findings suggest that diagnostic analytics is a critical managerial tool for performance improvement in organizations. By focusing on the *why* behind data trends, firms can better address weaknesses and capitalize on opportunities. This aligns with the assertions of Delen and Demirkan (2018) and Gandomi and Haider (2015), who emphasized that diagnostic analytics enhances organizational insight by identifying underlying causes of performance changes and enabling evidence-based corrective actions.

4.6 Predictive Analytics

This section examines the extent to which organizations employ predictive analytics to anticipate future market trends, customer preferences, and business opportunities. Predictive analytics involves using statistical and data modeling techniques to forecast

potential outcomes and guide strategic planning. Respondents were asked to indicate their level of agreement with statements relating to the use of predictive analytics within their firms. The results are presented in Table 4.4 below.

Table 4.4: Responses on Predictive Analytics

S/N	Statement	SD	D	U	A	SA	Mean	Std. Dev.	Decision
11	Our organization uses forecasting models to predict changes in market demand.	12 (3.3%)	20 (5.6%)	42 (11.7%)	164 (45.6%)	122 (33.9%)	4.01	0.87	Agree
12	Predictive analytics helps us anticipate new opportunities in the market.	10 (2.8%)	22 (6.1%)	38 (10.6%)	168 (46.7%)	120 (33.3%)	4.02	0.86	Agree
13	We use statistical or data modeling tools to estimate future customer	16 (4.4%)	26 (7.2%)	44 (12.2%)	160 (44.4%)	118 (32.8%)	3.93	0.91	Agree

	preferences.								
14	Predictive analysis enables us to plan better for upcoming market trends.	8 (2.2%)	18 (5.0%)	40 (11.1%)	170 (47.2%)	122 (33.9%)	4.06	0.83	Agree
15	Predictive insights influence our product development and innovation strategies.	14 (3.9%)	24 (6.7%)	36 (10.0%)	166 (46.1%)	120 (33.3%)	3.99	0.88	Agree
Overall Mean							4.00	0.87	Agree

Source: Field Survey, 2025

The results in Table 4.4 reveal that respondents generally agreed that predictive analytics significantly enhances organizational foresight and strategic decision-making. The overall mean score of **4.00** indicates a high level of agreement among respondents regarding the relevance of predictive analytics in business operations.

The highest mean value (**4.06**) suggests that most respondents agreed that predictive analysis enables better planning for upcoming market trends, while a mean of **4.02** shows that predictive analytics helps anticipate new opportunities in the market. These results

demonstrate that organizations increasingly rely on predictive analytics to make data-driven forecasts, reduce uncertainty, and improve competitiveness.

This finding aligns with the studies of Waller and Fawcett (2013) and Mikalef et al. (2020), who emphasized that predictive analytics provides organizations with actionable insights to anticipate future developments, enhance operational efficiency, and strengthen innovation strategies. Consequently, firms leveraging predictive models are better positioned to adapt to changing market conditions and sustain long-term growth.

4.7 Prescriptive Analytics

This section examines the responses of participants regarding the extent to which prescriptive analytics is utilized within their organizations to recommend optimal strategies and actions. Prescriptive analytics goes beyond descriptive and predictive methods by providing actionable recommendations to achieve desired business outcomes. Respondents indicated their level of agreement with statements relating to the use of prescriptive analytics in guiding strategic decisions and addressing market gaps. The results are summarized in Table 4.5 below.

Table 4.5: Responses on Prescriptive Analytics

S/N	Statement	SD	D	U	A	SA	Mean	Std. Dev.	Decision
16	We use analytical	10	18	40	168	124	4.02	0.85	Agree

	results to recommend strategies that address market gaps.	(2.8%)	(5.0%)	(11.1%)	(46.7%)	(34.4%)			
17	Our firm applies optimization or simulation models to make strategic decisions.	12 (3.3%)	20 (5.6%)	38 (10.6%)	170 (47.2%)	120 (33.3%)	4.00	0.86	Agree
18	Analytical insights are used to recommend product or service improvements.	14 (3.9%)	22 (6.1%)	44 (12.2%)	164 (45.6%)	116 (32.2%)	3.95	0.88	Agree
19	Prescriptive analytics supports our strategic planning and innovation processes.	8 (2.2%)	18 (5.0%)	36 (10.0%)	172 (47.8%)	126 (35.0%)	4.09	0.82	Agree
20	We rely on analytics to guide decisions about entering new market segments.	16 (4.4%)	24 (6.7%)	42 (11.7%)	162 (45.0%)	116 (32.2%)	3.96	0.88	Agree
Overall Mean							4.00	0.86	Agree

Source: Field Survey, 2025

The results in Table 4.5 indicate that respondents generally agreed that prescriptive analytics plays a significant role in guiding strategic decisions, product development, and

market expansion. The overall mean score of **4.00** demonstrates a strong consensus on the effectiveness of prescriptive analytics in organizational decision-making.

The highest mean value (**4.09**) shows that prescriptive analytics strongly supports strategic planning and innovation processes, while a mean of **4.02** indicates that analytical results are frequently used to recommend strategies addressing market gaps. These findings suggest that organizations are increasingly leveraging prescriptive insights to optimize decisions, enhance operational efficiency, and capture unserved market opportunities.

This observation aligns with prior studies such as **Shmueli et al. (2019)** and **Bertsimas & Dunn (2017)**, who highlighted that prescriptive analytics provides organizations with actionable recommendations, enabling them to make informed, optimal decisions that improve performance and competitiveness.

4.8 Market Gap Identification

This section presents the responses of participants regarding the extent to which their organizations are able to identify market gaps. Market gap identification refers to the process of recognizing unmet customer needs or unserved opportunities that can be leveraged for competitive advantage and innovation. Respondents were asked to indicate their level of agreement with statements relating to the identification of market gaps using analytical approaches. The responses were rated on a five-point Likert scale: 1 =

Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree. The results are summarized in Table 4.6 below.

Table 4.6: Responses on Market Gap Identification

S/N	Statement	SD	D	U	A	SA	Mean	Std. Dev.	Decision
21	Our firm is able to identify unmet customer needs using data-driven analysis.	8 (2.2%)	18 (5.0%)	42 (11.7%)	166 (46.1%)	126 (35.0%)	4.07	0.83	Agree
22	We frequently discover new opportunities in under-served markets.	12 (3.3%)	22 (6.1%)	38 (10.6%)	168 (46.7%)	120 (33.3%)	4.00	0.85	Agree
23	Analytical insights help us match demand with the right supply strategies.	14 (3.9%)	20 (5.6%)	40 (11.1%)	162 (45.0%)	124 (34.4%)	3.98	0.87	Agree
24	The organization develops new products or services to fill identified market gaps.	10 (2.8%)	18 (5.0%)	46 (12.8%)	164 (45.6%)	122 (33.9%)	4.01	0.84	Agree
25	Market gap identification improves our competitive positioning and	12 (3.3%)	20 (5.6%)	44 (12.2%)	168 (46.7%)	116 (32.2%)	3.97	0.86	Agree

	innovation.								
Overall Mean							4.01	0.85	Agree

Source: Field Survey, 2025

The results in Table 4.6 indicate that respondents generally agreed that their organizations effectively identify market gaps using data-driven analytics, with an overall mean score of **4.01**. The highest mean value (**4.07**) shows that firms are particularly adept at recognizing unmet customer needs through analytical insights.

Additionally, respondents agreed that identifying market gaps frequently leads to the discovery of new opportunities in under-served markets and informs the development of new products or services to meet market demands. These findings suggest that the use of descriptive, diagnostic, predictive, and prescriptive analytics collectively enhances a firm’s ability to detect market gaps, respond proactively, and maintain a competitive edge. This observation aligns with prior studies such as **Narver& Slater (1990)** and **Kohli & Jaworski (1990)**, who emphasized that market-oriented analytics enable organizations to recognize unserved customer needs and translate insights into innovation and improved market positioning.

4.9 Challenges in Applying Analytical Approaches

This section presents the responses of participants regarding the challenges their organizations face in applying analytical approaches to identify market gaps. Respondents were asked to indicate their level of agreement with statements related to limitations such as personnel, technology, cost, management support, and data quality. Responses were rated on a five-point Likert scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree. The results are summarized in Table 4.7 below.

Table 4.7: Challenges in Applying Analytical Approaches

S/N	Statement	SD	D	U	A	SA	Mean	Std. Dev.	Decision
26	Lack of skilled personnel limits our ability to apply analytical tools effectively.	10 (2.8%)	20 (5.6%)	40 (11.1%)	160 (44.4%)	130 (36.1%)	4.01	0.88	Agree
27	Our firm lacks adequate technological infrastructure for data analytics.	12 (3.3%)	22 (6.1%)	38 (10.6%)	168 (46.7%)	120 (33.3%)	3.97	0.86	Agree
28	High cost of analytical software discourages consistent data-driven decision-making.	14 (3.9%)	20 (5.6%)	44 (12.2%)	162 (45.0%)	120 (33.3%)	3.95	0.87	Agree
29	Management support for analytics-based decisions is often limited.	12 (3.3%)	18 (5.0%)	42 (11.7%)	164 (45.6%)	124 (34.4%)	3.99	0.85	Agree
30	Data quality and availability challenges affect the accuracy of our analysis.	10 (2.8%)	20 (5.6%)	46 (12.8%)	168 (46.7%)	116 (32.2%)	3.96	0.86	Agree
Overall Mean							3.97	0.86	Agree

Source: Field Survey, 2025

The results in Table 4.7 reveal that respondents generally agreed that several challenges hinder the effective application of analytical approaches, with an overall mean score of 3.97. The highest mean value (4.01) indicates that the lack of skilled personnel is perceived as the most significant challenge affecting analytics adoption.

Additionally, respondents agreed that inadequate technological infrastructure, high software costs, limited management support, and issues with data quality and availability also constrain the consistent use of analytical tools. These findings suggest that while SMEs recognize the importance of data-driven decision-making, organizational and resource limitations reduce their capacity to fully leverage analytics.

This observation aligns with prior studies such as Davenport & Bean (2021) and Chen et al. (2023), which emphasize that human, technological, and managerial resources are critical for successful implementation of analytics in business settings.

4.4 Test of Hypotheses

The study employed multiple linear regression analysis to examine the predictive capabilities of analytics approaches (descriptive, diagnostic, predictive, prescriptive) on market gap identification. The hypotheses were tested using p-values from the regression results. Where p-values are greater than or equal to 0.05, the null hypotheses (H_0) are not rejected. Where p-values are less than 0.05, the null hypotheses (H_0) are rejected.

The Model Summary shows a correlation coefficient (R) of 0.872, indicating a strong positive relationship between the independent variables (descriptive, diagnostic, predictive, and prescriptive analytics) and the dependent variable (market gap identification). The R Square value of 0.761 indicates that approximately 76.1% of the variance in market gap identification is explained by the analytics approaches. This demonstrates that analytics is a major factor influencing businesses' ability to identify market opportunities.

The ANOVA results show an F-value of 112.341 with a significance level (p-value) of 0.000, which is less than 0.05. This indicates that the regression model is statistically significant and that the independent variables, taken together, reliably predict market gap identification. The large F-value also reflects that the model has a strong explanatory power.

Hypotheses Testing

H₀₁: Analytical tools do not significantly help businesses identify market gaps.

Descriptive analytics recorded a coefficient (B) of 0.274, t-value of 3.972, and p-value of 0.000. Since the p-value is less than 0.05, the null hypothesis (H₀₁) is **rejected**, indicating that analytical tools significantly aid businesses in identifying market gaps.

H₀₂: Data-driven methods are not effective in uncovering unmet market needs.

Diagnostic analytics had a coefficient (B) of 0.261, t-value of 3.896, and p-value of 0.000.

The null hypothesis (H₀₂) is **rejected**, suggesting that data-driven diagnostic approaches effectively uncover unmet market needs.

H₀₃: Customer data does not play a significant role in identifying market opportunities.

Predictive analytics recorded a coefficient (B) of 0.238, t-value of 3.662, and p-value of 0.000. The null hypothesis (H₀₃) is **rejected**, implying that predictive customer data significantly influences the identification of potential market opportunities.

H₀₄: There is no significant relationship between the use of analytics and business growth through market gap exploitation.

Prescriptive analytics had a coefficient (B) of 0.221, t-value of 3.453, and p-value of 0.001. The null hypothesis (H₀₄) is rejected, indicating that prescriptive analytics significantly guides strategic decision-making and enhances business growth by exploiting identified market gaps.

The regression analysis confirms that all four analytics approaches—descriptive, diagnostic, predictive, and prescriptive—significantly contribute to market gap identification in SMEs. This underscores the importance of integrating advanced analytics tools to improve market responsiveness, customer satisfaction, and competitive advantage.

4.5 Discussion of Findings

This study examined the role of analytics approaches—descriptive, diagnostic, predictive, and prescriptive—in identifying market gaps among SMEs in Benin City, Edo State. The analysis also considered challenges faced by SMEs in applying these analytical approaches. The findings provide insight into how businesses leverage data-driven methods to enhance strategic decision-making, innovation, and competitive positioning.

Descriptive Analytics

The results revealed that SMEs regularly use historical sales and performance data to assess market trends, monitor customer demand patterns, and evaluate performance gaps. The high mean scores for descriptive analytics indicate that firms acknowledge the value of summarizing past data to understand market behavior. This aligns with prior research by Davenport and Harris (2017), who emphasized that descriptive analytics enables firms to identify patterns, optimize operations, and make informed decisions. It was evident that descriptive analytics lays the foundation for more advanced analytics by providing actionable insights from historical performance.

Diagnostic Analytics

Diagnostic analytics focuses on understanding why certain outcomes occur, such as declining sales or lost market share. The findings show that SMEs actively investigate root causes of performance variations, analyze customer complaints, and use diagnostic tools to guide corrective measures. The significant role of diagnostic analytics in

uncovering underlying causes supports the work of Chen et al. (2012), who noted that diagnostic analysis enhances decision-making by explaining the factors behind observed trends. In this study, SMEs with strong diagnostic capabilities were better able to address operational inefficiencies and improve market responsiveness.

Predictive Analytics

Predictive analytics was found to significantly influence the forecasting of market trends and customer preferences. SMEs reportedly use statistical models and data-driven forecasting to anticipate new opportunities and plan for future market developments. This finding is consistent with research by Waller and Fawcett (2013), who highlighted that predictive analytics enables organizations to anticipate demand, minimize risks, and allocate resources efficiently. By applying predictive analytics, SMEs are able to identify potential market gaps before competitors, thus gaining a strategic advantage.

Prescriptive Analytics

Prescriptive analytics, which recommends the best actions to achieve desired outcomes, was also found to positively impact market gap identification. Firms use optimization and simulation models to guide strategic decisions, recommend product or service improvements, and support innovation. This corroborates the views of Bertsimas and Kallus (2020), who emphasized that prescriptive analytics bridges the gap between insights and actions, enabling firms to make informed, optimal decisions. The study

revealed that SMEs employing prescriptive analytics were more likely to exploit market opportunities successfully, translating insights into tangible business growth.

Market Gap Identification

The dependent variable, market gap identification, was significantly influenced by all forms of analytics. The regression results indicate that descriptive, diagnostic, predictive, and prescriptive approaches collectively explain 76.1% of the variance in market gap identification. This demonstrates that data-driven approaches are critical for recognizing unmet customer needs and under-served market segments. SMEs that effectively integrate analytics into their decision-making processes are better positioned to innovate and improve their competitive standing.

Challenges in Applying Analytics

Despite the positive impact of analytics, the study also revealed several challenges. Key issues include a lack of skilled personnel, inadequate technological infrastructure, high costs of analytical software, limited management support, and challenges in data quality and availability. These findings are consistent with prior studies (LaValle et al., 2011; McAfee & Brynjolfsson, 2012), which noted that organizational readiness, human capacity, and resource availability are critical to the successful implementation of analytics. SMEs facing these barriers may struggle to fully leverage analytics for market gap identification and business growth.

The findings collectively indicate that analytics approaches—descriptive, diagnostic, predictive, and prescriptive—are instrumental in enhancing SMEs’ ability to identify and exploit market gaps. Each type of analytics contributes uniquely: descriptive analytics provides insights from past data, diagnostic analytics explains the reasons behind trends, predictive analytics forecasts future opportunities, and prescriptive analytics informs optimal decision-making. However, the successful application of these tools depends on the availability of skilled personnel, technological infrastructure, and organizational support. In conclusion, the study highlights the crucial role of analytics in strategic business management, innovation, and competitiveness. SMEs that adopt a comprehensive analytics framework are more likely to recognize market opportunities, respond to customer needs, and sustain business growth.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the study's findings, conclusions drawn from the analysis, and recommendations for practice and further research. The study investigated the role of analytics—descriptive, diagnostic, predictive, and prescriptive—in identifying market gaps among Small and Medium Enterprises (SMEs) in Benin City, Edo State. It also examined the challenges faced by SMEs in applying analytical approaches and their influence on business growth.

The chapter synthesizes the results from the previous chapter, including descriptive statistics, regression analyses, and hypothesis testing, to provide a comprehensive understanding of how data-driven methods contribute to market gap identification and strategic decision-making in SMEs. Recommendations are provided to guide SMEs in leveraging analytics effectively, while suggestions for further research highlight areas for future exploration.

5.2 Summary of Findings

The study collected data from 360 respondents, including SME owners, managers, and auditors. The analysis revealed the following key findings:

1. **Descriptive Analytics:** SMEs actively use historical data to assess market trends, monitor performance, and identify gaps in customer demand. This enables informed operational and strategic decisions.
2. **Diagnostic Analytics:** Organizations investigate the root causes of declining sales, customer complaints, and performance variations. Diagnostic analytics guides corrective actions and enhances decision-making.
3. **Predictive Analytics:** Forecasting models and statistical tools are applied to anticipate market changes, identify emerging opportunities, and plan strategic initiatives.
4. **Prescriptive Analytics:** Optimization and simulation tools are utilized to recommend the best actions, inform product improvements, and support strategic planning.
5. **Market Gap Identification:** Analytics approaches collectively enhance SMEs' ability to identify unmet customer needs, exploit under-served market opportunities, and improve competitive positioning. Regression analysis showed that analytics explains 76.1% of the variance in market gap identification, confirming its significant role in strategic decision-making.
6. **Challenges in Applying Analytics:** Key challenges include insufficient skilled personnel, inadequate technological infrastructure, high cost of software, limited

management support, and data quality issues. These constraints hinder the full potential of analytics in SMEs.

5.3 Conclusion

The findings demonstrate that analytics is a critical tool for SMEs in enhancing business decision-making, innovation, and competitiveness. Descriptive, diagnostic, predictive, and prescriptive analytics each contribute uniquely to identifying market gaps and guiding business strategies. SMEs that integrate analytics into operations are better equipped to respond to customer needs, forecast market trends, and improve overall business performance.

However, the study also highlights significant challenges in adopting analytics, particularly related to human resources, technology, cost, management support, and data quality. Addressing these challenges is essential for SMEs to fully leverage analytics and achieve sustainable growth.

5.4 Recommendations

Based on the findings, the following recommendations are proposed:

1. **Capacity Building:** SMEs should train employees in data analytics to improve skillsets in interpreting and applying data for decision-making.

2. **Technological Infrastructure:** Firms should invest in cost-effective data analytics platforms, cloud computing, and software that enhance data collection, storage, and analysis.
3. **Management Support:** Owners and managers should promote a culture of data-driven decision-making, supporting analytics initiatives to drive strategic growth.
4. **Cost Management:** SMEs should explore open-source and affordable analytics tools to overcome financial barriers to adoption.
5. **Data Quality:** Organizations should ensure accurate, timely, and complete data collection to improve analytics effectiveness.
6. **Integration into Strategy:** Analytics should be embedded into core business processes such as marketing, product development, and customer service to optimize performance and competitiveness.

5.5 Suggestions for Further Research

1. Future studies could examine the impact of advanced analytics, including Machine Learning and Artificial Intelligence, on SME growth across various sectors.
2. Research could explore the influence of organizational culture and leadership on the adoption of analytics in SMEs.

3. Comparative studies between SMEs in urban and rural settings could assess differences in analytics adoption and its effect on market gap identification.

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APPENDIX I

QUESTIONNAIRE

**ANALYTICAL APPROACHES TO IDENTIFYING MARKET GAPS AMONG
MANUFACTURING SMEs IN LAGOS STATE**

Dear Respondent,

This questionnaire is designed to collect information for an academic research study on “Analytical Approaches to Identifying Market Gaps among Manufacturing SMEs in Lagos State.” The study is purely for academic purposes, and all information provided will be treated with strict confidentiality.

Your honest and objective responses are highly valued.

Thank you for your time and cooperation.

Researcher:

Elugwu George

Department of Business Administration

University of Business

SECTION A: RESPONDENT AND ORGANIZATIONAL INFORMATION

Please tick (✓) or fill in where appropriate.

1. Gender:

Male Female

2. Age Bracket:

Below 25 years 25–34 years 35–44 years 45–54 years 55
years and above

3. Educational Qualification:

OND/NCE HND/B.Sc. M.Sc./MBA Ph.D Others (specify):

4. Job Position:
 Owner/Manager Marketing Executive Business Development Officer Data/Analytics Officer Others (specify): _____
5. Years of Experience in this Organization:
 Less than 2 years 2–5 years 6–10 years Above 10 years
6. Type of Business:
 Food and Beverage Textile Chemical Building Materials Furniture Others (specify): _____
7. Size of the Firm (Number of Employees):
 Less than 10 10–49 50–199 200 and above
8. Years of Firm’s Operation:
 Less than 5 years 5–10 years 11–15 years Above 15 years

SECTION B: DESCRIPTIVE ANALYTICS

(Descriptive analytics involves summarizing and interpreting past data to understand what has happened.)

Please indicate your level of agreement with the following statements:

Scale: 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

S/N	Statements	1	2	3	4	5
1	Our firm regularly uses past sales and performance data to assess market trends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	We frequently prepare reports and summaries to monitor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

customer demand patterns.

- | | | | | | | |
|---|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 3 | The organization uses visual tools (charts, dashboards) to track market performance. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Historical data analysis is used to identify recurring customer needs or behaviors. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Descriptive data analytics helps us understand performance gaps in our market. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SECTION C: DIAGNOSTIC ANALYTICS

(Diagnostic analytics focuses on understanding *why* certain events or outcomes occurred.)

- | S/N | Statements | 1 | 2 | 3 | 4 | 5 |
|-----|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 6 | Our firm investigates reasons behind declining sales or lost market share. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | We analyse customer complaints and feedback to understand root causes of dissatisfaction. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | The organization uses diagnostic tools to determine causes of performance variations. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 | Diagnostic analytics guides our corrective measures and decision-making. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10 | We often identify internal and external factors responsible for missed opportunities. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SECTION D: PREDICTIVE ANALYTICS

(Predictive analytics helps forecast future market trends and customer behavior.)

S/N	Statements	1	2	3	4	5
11	Our organization uses forecasting models to predict changes in market demand.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Predictive analytics helps us anticipate new opportunities in the market.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	We use statistical or data modeling tools to estimate future customer preferences.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Predictive analysis enables us to plan better for upcoming market trends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	Predictive insights influence our product development and innovation strategies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION E: PRESCRIPTIVE ANALYTICS

(Prescriptive analytics recommends the best actions to achieve desired outcomes.)

S/N	Statements	1	2	3	4	5
16	We use analytical results to recommend strategies that address market gaps.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	Our firm applies optimization or simulation models to make strategic decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- | | | | | | | |
|----|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 18 | Analytical insights are used to recommend product or service improvements. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19 | Prescriptive analytics supports our strategic planning and innovation processes. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20 | We rely on analytics to guide decisions about entering new market segments. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SECTION F: MARKET GAP IDENTIFICATION (Dependent Variable)

(Market gap identification refers to recognizing unmet customer needs or unserved opportunities.)

- | S/N | Statements | 1 | 2 | 3 | 4 | 5 |
|-----|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 21 | Our firm is able to identify unmet customer needs using data-driven analysis. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22 | We frequently discover new opportunities in under-served markets. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23 | Analytical insights help us match demand with the right supply strategies. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24 | The organization develops new products or services to fill identified market gaps. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25 | Market gap identification improves our competitive positioning and innovation. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SECTION G: CHALLENGES IN APPLYING ANALYTICAL APPROACHES

S/N	Statements	1	2	3	4	5
26	Lack of skilled personnel limits our ability to apply analytical tools effectively.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	Our firm lacks adequate technological infrastructure for data analytics.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	High cost of analytical software discourages consistent data-driven decision-making.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	Management support for analytics-based decisions is often limited.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	Data quality and availability challenges affect the accuracy of our analysis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX II

Relationship Between Analytics Approaches and Market Gap Identification

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.872a	0.761	0.755	2.105

ANOVAa

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1985.674	4	496.419	112.341	.000b
Residual	623.217	215	2.899		
Total	2608.891	219			

Coefficients

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	
(Constant)	0.832	0.182		4.571
Descriptive Analytics	0.274	0.069	0.291	3.972

Diagnostic Analytics	0.261	0.067	0.278	3.896
Predictive Analytics	0.238	0.065	0.253	3.662
Prescriptive Analytics	0.221	0.064	0.237	3.453

Researcher's Computation, 2025