

https://dspace.org/

Marketing strategy and business profitability in the South African FMCG industry

Lephoko, Thembelihle Philladelphia

2023
University of the Witwatersrand, Johannesburg
https://hdl.handle.net/10539/40424
Lephoko, Thembelihle Philladelphia. (2023). Marketing strategy and business profitability in the South African FMCG industry [Master's dissertation, University of the Witwatersrand, Johannesburg]. WireDSpace.https://hdl.handle.net/10539/40424

Downloaded from a DSpace repository. https://dspace.org/



MARKETING STRATEGY AND BUSINESS PROFITABILITY IN THE SOUTH AFRICAN FMCG INDUSTRY

Thembelihle Philladelphia Lephoko

Student no: 327716

A research article submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

Johannesburg, 2023

Protocol number: WBS/BA327716/250

28 February 2023

TABLE OF CONTENTS

TABLE OF CONTENTS 2

DEDICATION 6

ACKNOWLEDGMENTS 7

SUPPLEMENTARY INFORMATION 8

ABSTRACT 9

CHAPTER 1 10

OVERVIEW OF THE STUDY 10

1.1 Introduction 10

1.2 Context of and background to the study 10

1.2.1 A FMCG Context in South Africa 11

1.3 Research Conceptualization 14

1.3.1 The Research Problem Statement 14

1.3.2 The Research Purpose Statement 16

1.3.3 Research Questions 16

1.3.4 Research Objectives 17

1.4 Scope of Study 17

1.5 Delimitations of the study 17

1.6 Assumptions of the study 18

1.7 Significance of the Research Study 18

CHAPTER 2 20

LITERATURE REVIEW 20

2.1 Review of Related Literature 20

2.1.1 Marketing Strategy and Company Performance 20

2.1.2 Past Studies on Marketing Strategy and Profit 21

2.2 Introduction of Big Data 23

2.2.1 Big Data as a Business Capability 23

2.3 Theoretical Framework 24
2.3.1 Resource-Based View Theory 24
2.3.2 Conceptual Framework for interpreting research findings 26
2.4 Hypotheses Development 26
2.4.1 Big Data Analytics: 26
2.5.1 Big Data and Marketing Strategy: 32
2.6 Conclusion 34

CHAPTER 3 35

RESEARCH METHODOLOGY 35

3.1 Research Strategy 35
3.2 Research Design 36
3.3 Research Procedure and Methods 37
3.3.1 Target Population 37
3.3.2 Sampling 38
3.3.3 Data Collection Instrument and Process 38
3.3.4 Measuring Instrument 39
3.3.5 Ethical Considerations 39
3.3.4 Data and Information Collection Process 40
3.3.5 Validity and Reliability 40
3.3.6 Data Analysis 40

CHAPTER 4 41

DATA PRESENTATION & ANALYSIS 41

4.1 Introduction 41
4.2 Descriptive Statistics 41
4.2.1 Sample Description 41
4.3 Reliability and Validity Analysis 43
4.4 Analysing whether Big Data has an impact on Profitability. 45
4.4.1 Descriptive Statistics – Multiple Regression Analysis 46
4.5 Assessing whether Using Big Data Analytics is useful in enhancing Customer Segmentation Strategy and Targeting as well as Profitability. 50
4.5.1 Descriptive Statistics – Multivariate simple regression analysis . 51
4.5.2 Statistical Hypothesis Testing – Multivariate Simple Linear Regression Analysis 51

4.6 Assessing whether Using Big Data Analytics is useful in the product innovation process to positively impact profitability among FMCG companies. 53
4.6.1 Descriptive Statistics – Multivariate simple regression analysis 53
4.6.2 Statistical Hypothesis Testing – Multivariate Simple Linear Regression Analysis with Product Innovation 54
4.7 Research Findings Summary 56

CHAPTER 5 57

DISCUSSION OF RESULTS 57

5.1 Accessibility to Big Data in the SA FMCG Industry 57
5.2 Understanding of Big Data in the SA FMCG Industry 57
5.3 Big Data Processing Tools 58
5.4 Big Data-Driven Organizational Culture 59
5.5 Big Data Technical and Managerial Skills 59
5.6 Usefulness of Big Data in Customer Segmentation and Targeting 60
5.7 Usefulness of Big Data in Product Innovation 61

CHAPTER 6 62

CONCLUSION AND RECOMMENDATIONS 62

6.1 Conclusion 62
6.2 Limitations of the study 62
6.3 Recommendations for future research 63

REFERENCES 64

APPENDIX 73

DECLARATION

I **Thembelihle Philladelphia Lephoko**, declare that this research article is my work except as indicated in the references and acknowledgments. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the Graduate School of Business Administration, University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.



_____

(Thembelihle Philladelphia Lephoko)

Signed at **Greenstone Hill, Johannesburg** On the **28 day of February 2023**

DEDICATION

I would like to dedicate this research article to my parents, Mr. Dumisa Clifford Bande Lephoko & Mrs. Bongani Elizabeth Lephoko, who sacrificed more than what I could ever comprehend to ensure I have access to all the opportunities that have brought me to this point and instilled in me the passion for education and continuous learning – Thank you. I'll forever honor you for believing in me. I love you, Mum & Dad!

ACKNOWLEDGMENTS

To my Lord and personal Savior, Jesus Christ, who gives me strength each day to pursue and achieve all I desire to be, I'm eternally grateful!

To my siblings, a very special thank you. It hasn't been easy, there were times I was ready to give it all up, but you pushed & encouraged me to never give up and keep my eye on the prize. I love you!

To my close friends, thank you for the continuous support you showed me through my learning journey. Your patience and understanding didn't go unnoticed.

A very special thanks to my supervisor, Dr. Emmanuel Quaye, thank you for guiding me through this challenging process and always being available. Jean Davids, your statistical knowledge, and willingness to help went a long way - thank you.

SUPPLEMENTARY INFORMATION

Nominated journal:	South African Journal of Business Management
Supervisor / Co-author:	Dr. Emmanuel Quaye
Word count †:	15725
Supplementary files:	Research Participant cover letter
	Research Questionnaire
	Statistical analysis additional tables
	Ethics Clearance Certificate

† Including abstract and references and excluding appendix.

ABSTRACT

This paper reviews the lay of the land of the FMCG Industry and identified technological challenges, intense competitor rivalry, and evolving consumer needs and demands as contributors that need to be considered during decision-making and marketing strategy development; an important force behind companies delivering profits. Big data analytics has gained widespread recognition as a revolutionary technology in both the academic and business arenas. With more companies launching initiatives dedicated to its implementation, there is still a lot of doubt regarding its potential to transform its operations. Through a literature review, the study revealed key factors of big data analytics and marketing strategy that influence profitability for South African FMCG companies, and it was further underpinned by a conceptual framework to test the relationship between the identified factors and profitability, all in the effort to implement the identified factors and constructs effectively. A cross-sectional quantitative study was executed to establish whether big data analytics has a significant relationship to profitability, furthermore, the study tested the usefulness of big data on marketing strategy as well as the rate at which it impacts profitability. The study was conducted on 150 individuals, with 88.1% of them being marketing professionals. SPSS was used as a statistical tool to test the hypotheses that were identified through the literature review. The key findings of this study recommends that FMCG companies focus their efforts on adopting an organizational culture that supports the usage and adoption of big data in decision-making, underpinned by the right technical and managerial skills to extrapolate actionable insights from the data, and forming them part of the marketing strategy process. The findings of the study will open South African FMCG companies' eyes to the capabilities and benefits of big data and how their marketing strategies can be enhanced for greater organizational impact.

Keywords: FMCG; Profitability; Marketing strategy; Decision-making; Big Data

CHAPTER 1

OVERVIEW OF THE STUDY

1.1 Introduction

This research seeks to explore marketing strategy as a key driver of business profitability in the FMCG Industry. This chapter provides a background to the study, focusing on the role of big data in influencing marketing strategy to drive business profitability. Underpinning the study is the explanation of the research problem, as well as the research objectives and research questions. In this chapter, the delimitations and assumptions of the research study are stated while we discuss the significance of the research study.

1.2 Context of and background to the study

Delivering profit is one of the key objectives of a business and is becoming even increasingly important for businesses as it quantifies the success of the products it sells and how the products are performing in the market (Nishanthini & Nimalathasan, 2013). Organizations require the marketing strategies developed by the marketing function to aid in delivering sales revenue and the desired financial objectives. At the core of a business strategy is the marketing strategy which entails putting marketing efforts behind the products the business sells in the market for the products to serve a purpose, satisfy customers and bring in sales volumes that will turn into profit for the business (Daniel, 2018). The rapid emergence and evolution of new data sources and artificial intelligence have created an opportunity for organizations to gain valuable insight into their operations and being able to analyze and use this data to make informed decisions is very important for high-paced organizations that are constantly looking for ways to improve their efficiency (Mikalef, Boura, Lekakos, & Krogstie, 2019). Unfortunately, many marketing managers are not able to identify the proper marketing strategies to improve

the customer experience. Using Big Data, they can then make informed decisions and improve the efficiency of their operations. For instance, by analyzing and using this data, they can anticipate the purchase behavior of their customers (Akmedov & Dzhengisheva, 2018).

1.2.1 A FMCG Context in South Africa

Khumalo (2021), found that, in South Africa, Fast Moving Consumer Goods (FMCG) are products that are regularly consumed by consumers in the mass market population and as such, companies in the Fast-Moving Consumer Industry generally sell their products to this target market due to the size of revenue opportunity it may generate for the company, making mention of companies like Tiger Brands, Premier Foods, Pioneer Foods, Coca Cola Beverage South Africa, Illovo Sugar Limited and Beiersdorf Consumer Products (Pty) Ltd just to mention a few. Consultancy UK, (2018) also listed the top 10 FMCG companies in the world that also operate in South Africa, companies such as Nestle, Procter & Gamble, Pepsico, Unilever, AB in Bev, Coca-Cola, and L'OREAL.

FMCG products deliver low-profit margins because they are generally sold at low prices or prices that are not too over-indexed from the competition. However, they generally sell in large volumes and quantities therefore accumulatively, the profit is substantial. These profits are continuously under threat as this industry has a high number of manufacturers who manufacture similar products and as a result product substitution for consumers is high post the global recession crisis many more people are buying cheaper products. Furthermore, there has been a rise of Private Labels by retailers at much lower prices versus branded products, making it more difficult for these FMCG companies to sustain themselves and have a competitive advantage (Azeez & Dhanalakshmi, 2018).

Companies operating in the FMCG industry need to be able to adapt to the volatile environment they operate in, by constantly monitoring the relevance of

their product and portfolio in the current macro environment as well as in the future. Furthermore, companies shouldn't ignore local nuances, especially in South Africa where consumers are looking for locally relevant products that they can afford, and as such, companies shouldn't adopt a one-size-fits-all strategy when developing and marketing their products (KPMG Africa, 2016).

KPMG Africa, (2016) stated that the Fast-Moving Consumer Goods (FMCG) Industry is one of the largest industries in the world, companies in this sector produce high volumes of products at low-profit margins due to the intensity of competition and customer sensitivity to price changes because of close to identical products competing in the same sector. The report continued to say that FMCG companies in this position employ marketing strategies and tactics that will aid to increase sales and enhance profitability by building loyalty with the customer. Conducting business in this industry has become increasingly challenging due to globalization which has brought in dynamics of cheaper imports making their way into the sector and eating away the sales and profits of more established firms (Somashekar & Kaboor, 2016). The threat not only comes from cheaper imports from international and local retailers that are launching their Private Labels to compete with established brands (Azeez & Dhanalakshmi, 2018). To combat this, established companies in the FMCG Industry are focusing on innovating and customizing their existing products as well as the premium product segment to have a competitive advantage (India Brand Equity Foundation, 2010).

Furthermore, due to the emergence and evolution of new technology, an increasing number of organizations are now able to collect and analyze large amounts of data. This has created a huge opportunity for them to create new capabilities in the areas of knowledge. However, the challenge is still to translate these data into strategic decisions. Most of the recent investments in technology companies such as Google and Facebook have been focused on the development of advanced analytics (Honorato, de Melo, & de Morais, 2021). Another challenge that comes with the increasing merging of machine

learning and big data that is web generated is that organizations struggle to process the information obtained from the big data in a high speed and opportune manner and therefore need big data processing technologies like Hadoop to be able to mine the data and influence business strategy at a rapid rate (Kaur & Monga, 2016).

The fluctuation of the Rand has put the South African FMCG sector in a position of needing to manage profit expectations whilst providing their consumers who have a constrained disposable income, products at very reasonable prices (Noko, 2018). Price Waterhouse Coopers (2012) shared a different light by presenting the growth opportunity for FMCG companies that lies within the middle – class in South Africa which is emerging as the consumer segment that is willing to pay a tad more of a premium for consumer-packaged goods. Opposing Srivastava and Kumar (2013) set out a detailed analysis of the untapped market opportunity of rural communities in India whereby FMCG companies can achieve growth by targeting lower-income groups who were willing to spend on consumer goods products to improve their lifestyle.

Moorman and McCarthy (2020) found that the FMCG Retail sector has been hit with an unprecedented crisis in the form of the global pandemic, COVID–19. This has resulted in a change in consumer behavior whereby consumers are staying home as they become more conservative on how they spend their money as they face risks associated with their jobs, health, and affluence. McKinsey & Company (2020) supports this through a survey that they conducted that showed that the change in consumer and shopping behavior may be the new normal for some time as 3 out of 10 consumers in the study intend on continuing to shop as per COVID restrictions even after COVID-19 infections decreases. As a result of the pandemic, this industry has seen big retailers and manufacturers being hit with massive sales losses and the option of restructuring and minimizing to stay afloat (McKinsey & Company, 2020). On the other hand, in India, sub-sectors of the FMCG such as Health and

Personal Care saw an increase in sales and profits as the consumer demand for hygiene products like sanitizers, hand washes, and disinfection products increased (Mahajan, 20202). Similarly, in South Africa, a study carried out by Nielsen (2020) that due to the spike in COVID-19 cases and the increased need to keep household surfaces clean and protected from germs, consumers have been increasing their spending on home cleaning products such as surface disinfectant sprays, germ kill products, hand sanitizers, and surgical masks.

Effective marketing strategies are those that have converted consumer insights into actionable and executable plans by organizations to drive business profits (Daniel, 2018). An increasing number of organizations are benefitting from the use of big data and AI algorithms and technology to improve their operations as this technology can help them make informed decisions and improve their marketing strategies (Li, 2022). To enrich the conceptualization of this topic, the constructs of customer segmentation & targeting as well as product innovation were focused on. Considering evolving consumer needs and the FMCG operating environment; understanding the accessibility, understanding, processing, role of organizational culture, and skill capability of big data was also focused, as the impact thereof on effective marketing strategy development to deliver positive financial results.

1.3 Research Conceptualization

1.3.1 The Research Problem Statement

The FMCG Industry in South Africa faces numerous macro and technological challenges that make it more challenging to companies to market their products, it is imperative for FMCG marketing companies to have big data capabilities that enable competitiveness in responding to challenges (Akmedov, & Dzhengisheva, 2018).

The environment in which South African Fast-Moving Consumer Goods companies operate is tough, faced with realities of fierce competition and

evolving consumer needs and demands. These companies must develop effective marketing strategies for their products to enable them to win in the marketplace and deliver profits (Nishanthini & Nimalathasan, 2013).

Delivering profit is a key goal for companies who are manufacturing and marketing products to compete, and the marketing function is at the forefront in terms of developing marketing strategies that aid these products to generate revenue for the company (Daniel, 2018). However, the rapid pace of change in the market has caused many companies to rethink their marketing strategies such as segmentation and product innovation. They need new approaches that can help them maintain their competitive advantage (Nasir, 2021). Big Data allows companies to harvest a large pool of information that will improve the efficiency of their operations, improve their products and services, and customer customization and personalization (Tan & Zhan, 2016). Using big data, organizations can now provide their customers with personalized knowledge by analyzing and using analytics to predict their social behavior. This technology can also help them develop effective marketing strategies and improve their customer experience (Saidali, Rahich, Tabaa, & Medouri, 2019).

Furthermore, Big Data is a common technology term that's becoming more prevalent in today's world. Big Data refers to the various types of data, such as variants generated by machines, people, and modern tools, that an organization collects and uses in real time; this data can be used to analyze and improve the efficiency of an organization's operations and provide insight into its consumers as well as help companies identify potential risks and improve their profitability (Akmedov & Dzhengisheva, 2018). It can help companies gain a competitive advantage by providing them with actionable insights, and by gathering the data in ways that could not have been possible with traditional methods (Rejeb, Rejeb, & Keogh, 2020). Due to the increasing number of data types and volumes, companies are looking to harvest data to improve their products and services and although many industries are still evaluating the value of big data, some have already started implementing it

(Mai Le & Liaw, 2017). The rise in digitalization and cloud computing has made it easier for companies to access and use this data (Bottles, Begoli, & Worley, 2014).

A Case Study of the Genesis School of Information Technology and Journalism in Tanzania examined the influence marketing has on improving profitability in the school (King, 2013). It argued that marketing is vital in enhancing the performance of the school, particularly profits, however, the impact of marketing depends on other factors such as the level of competition and how the marketing mix strategy is utilized (King, 2013). Though in a different setting, Chiliya and Roberts-Lombard (2009) in a research study on small grocery shops in South African townships, argued that utilization and manipulation of the marketing mix as part of strategic marketing decisions is necessary for grocery shop owners or managers to attain a profit. Based on this analysis, it can be decided that how a marketing mix strategy is developed and implemented may have an impact on company performance and profits however the FMCG operating environment has become even more competitive and fast-evolving, requiring companies in this sector to act fast to obtain a strong position in the market (Dicey, 2016).

1.3.2 The Research Purpose Statement

This study is important in that it not only contributes to previous research that's been done on marketing strategy and profitability within the FMCG Industry but also provides recommendations for developing effective marketing strategies that are aided by Big Data for remaining competitive in the marketplace and for driving positive business performance.

1.3.3 Research Questions

- Does big data analytics positively impact profitability?
- Is big data analytics useful in enriching marketing strategy to impact profitability?

1.3.4 Research Objectives

1. To investigate the accessibility of big data to impact profitability in South African FMCG companies
2. To investigate the understanding of big data to impact profitability in South African FMCG companies
3. To investigate the usage of big data processing tools to impact profitability in South African FMCG companies.
4. To investigate the technical & managerial skills of big data to impact profitability in South African FMCG companies
5. To investigate big data driven aided organizational culture to impact profitability in South African FMCG companies.
6. To investigate the usefulness of big data in marketing strategy, as well as profitability in FMCG companies

1.4 Scope of Study

This study is going to be limited to individuals who work or have worked for a South African FMCG company and who serve or have served in a professional marketing role. The FMCG Industry is very large and continues to show strong growth in purchasing spend at 15% globally and even at a faster rate in South Africa at 48% between the period of 2016 and 2018, Nielsen Connected Commerce Report, (2018) and has multiple sub-categories & sectors (Section 1.1) that make up the overall FMCG Industry. Covering as many sectors as possible and categories of the FMCG industry in South Africa will cause the study to have robust rich data that will be very useful when putting recommendations forward.

1.5 Delimitations of the study

The study followed a quantitative research design to investigate the key elements of marketing strategy and big data and how they can impact profitability in the South African FMCG industry by collecting data through a

self-administered survey that will only contain close-ended questions. The limitation to this was that, as a researcher, I was not able to gather a deeper understanding of the reasons behind the answers they may select through human interaction to get further insights. Also, there may be some inaccuracies in the responses due to the nature of the survey being self-administered. The survey was also distributed via Social Media platforms and therefore one could not be 100% certain that the survey is reaching the targeted sample size.

1.6 Assumptions of the study

There are a couple of assumptions that have informed this study. It is assumed that Big Data Analytics is a key driver of profitability and this will be tested through different constructs of Big Data, being (1) Access to Big Data (2) Understanding of Big Data (3) Big Data Processing Tools (4) Big Data-Driven Culture and (5) Technical and Managerial Skills. Furthermore, it is assumed usefulness of big data is a key factor in driving (1) Customer Segmentation and Targeting (2) Product Innovation, and (3) Profitability. Another assumption is that respondents to the questionnaire will answer truthfully and correctly and that they are marketing professionals for companies in the South African FMCG Industry.

1.7 Significance of the Research Study

Many studies have been conducted that relate to Marketing Strategy and its impact on the Sales or Profitability of a company, specifically the marketing mix elements, but did not focus on the influence of big data as a key driver that can be used for the effective application of marketing strategies and to make more informed decisions. Big Data analytics and digital marketing are becoming increasingly important globally. More and more companies are investing in Big Data to differentiate themselves from their competitors. Therefore, this research article is going to contribute to the existing knowledge body by helping companies in the FMCG space to see the importance of Big

Data and how to use Big Data to develop effective marketing strategies that will drive profitability and give them a competitive advantage.

CHAPTER 2
LITERATURE REVIEW

2.1 Review of Related Literature

The literature review in this chapter will organize literature that will provide an understanding of the research problem as articulated in Chapter 1. It will identify through academic rationale how this research study fits into previous research & knowledge. Based on the identified knowledge gap, a detailed framework will be identified, the framework will be applied to interpret the findings from the research.

2.1.1 Marketing Strategy and Company Performance

Daniel (2018) defines marketing strategy as a plan a company uses to differentiate itself from its competitor by leveraging its strengths to satisfy the customers' needs in the environment in which it competes, and it is used as a tool by companies to remain relevant and competitive. There is however a need for the marketing strategy to clearly define the value of the product the company sells and the target market it is intended to serve (Smith, 2003). This is a strategic planning step of marketing that will help a company select the target market that it will be able to serve with its products by leveraging its resources and capabilities based on the attractiveness, the cost, and potential monetary gain associated with capturing that market potential (Berkowitz, 2011). Kotler and Armstrong (2006) mentioned that a product is anything that can be used to grab the market's attention, and consumption or to meet a certain need or want. Daniel (2018) further emphasizes the importance of a product by saying that it is an important part of the marketing strategy and positioning of a company and determines the survival or extinction of a company.

The implementation of the marketing strategy is equally as important as the development of the marketing strategy, thus it is critical to identify and address issues such as product quality issues and lack of understanding of changing consumer needs that may hinder the implementation of the marketing strategy (Kanagal, 2016). As such, a competent marketing force is instrumental in delivering the developed marketing strategy in the marketplace to well position the company and yield a positive return on investment for the firm. It is argued that companies have had to reduce marketing budgets that are meant for executing the marketing tactics to drive business performance due to marketing personnel not being able to quantify and link the efforts of the marketing strategy to financial results (Malter, Webster, & Ganesan, 2005).

The shift from a product-centric strategy to a customer-centric one is happening in today's world. This is because the traditional marketing approach has become too focused on one aspect of the business. Instead, it should be focused on developing an effective interaction response strategy (Bonacchi & Perego, 2011).

2.1.2 Past Studies on Marketing Strategy and Profit

A research study done by Al-Nimer, Qasem, AlAdham, and Yousef (2015) to understand the impact of marketing strategy on profitability, specifically within Medical Jordanian Corporations and using net profit as a measure; the study revealed that advertising expenses have a significant impact on an organization's net profits. According to the study, it was based on the problem that marketing expenses are seen as an expense that can be reduced rather than being given more attention as it is closely linked to company profits. Furthermore, studies were reviewed in this study to argue the point of the relationship between marketing and profit. Morgan *et al.* (2009) study was used to argue the problem, it also examined marketing capabilities through which resources are deployed into the marketplace as drivers of organizational

performance and it was found that resources that are invested behind marketing efforts have a direct effect on the perceived return on assets and profit of a firm. The study based on quantitative data was done, and a simple regression model was used to test the impact of advertising and marketing expenses which were independent variables on the dependent variable which is the company profitability. Six medical industrial companies listed on the Amman Stock Exchange were sampled to achieve the objectives of the study and the results of the study revealed that there is a significance between marketing expenses and new profits because advertising and marketing expenses may be used to build and improve the reputation and image of the company in the marketplace as well as increase the competitiveness of the firm.

The field of marketing strategy and business performance was further studied by Daniel (2018), through the exploration of the Effects of Marketing Strategies on Organizational Performance in a Nigerian Bottling Company – Kaduna. The focus was on understanding elements of the marketing strategy which are, the product the company sells, the pricing strategy it adopts to sell the product, the distribution network it follows to get the product into the targeted customers' hands, and the promotion strategy executed in the market to give the company a competitive position and how these elements influence the performance of the organization (Daniel, 2018). Amine and Cavusgil (2001) argued that product design is helpful to the overall performance of a company and serves as a means of differentiating a company from its opponents. The study further discovered that the positive effect is quite significant and further needs to be supported by high product quality. The study was based on quantitative data and to test the hypotheses, the Pearson Moment Product Correlations coefficient was used to test the correlation between the product strategy and the level of profit achieved by the Nigeria Bottling Company. 245 questionnaires were distributed and the analysis of the coefficients showed that the Null Hypothesis was accepted that there is no significant relationship

between the product strategy and the level of profit achieved. The study revealed that the Nigeria Bottling Company must embark on the journey of developing aggressive product strategies that will win over the target market of the company to enhance the profits of the company, as the current product strategies are not enhancing company profitability

The above-mentioned studies established that marketing strategies contribute to a firm's performance, particularly profits, and having enough advertising and marketing expenses towards delivering the strategy as well as effective product strategies. It elevated the importance of developing product strategies that will position the company in the marketplace for positive results to be gained.

2.2 Introduction of Big Data

2.2.1 Big Data as a Business Capability

The value-creation process is carried out using resources such as IT infrastructure and big data analysis, which are defined as the various tools and activities that help organizations collect, analyse, visualize, and convert their data (Galetsi *et al*., 2020). The term big data refers to the vast amount of information that can be collected from various sources. It is usually complex and unstructured and requires the use of advanced technologies to store, process, and visualize it (Rejeb et al., 2020). Farah (2017) added and stated that the data collected from various sources is stored in a large depository, which can be accessed through analytics to improve the company's performance. Kozlenkova *et al.,* (2014) posit that the Resource-Based View framework provides an understanding and prediction of a company's performance and competitive advantage by understanding its resources and capabilities. It has been argued by researchers that what determines a company's profitability are internal factors such as its resources and

capabilities (Kozlenkova, Palmatier, & Samaha, 2014). Wernerfelt (1984) supports this and through research evolved the Resource-Based View into a developed Resource-Based Theory. It has been argued by Kozlenkova, Palmatier, and Samaha (2014) that a company's profitability is determined by internal factors such as its resources and capabilities, and the use of the RBV theory has shown in increasing number of studies that that it is a valuable tool for analyzing and predicting the performance of companies. Wernerfelt (1984) supports this and through research evolved the Resource-Based View into a developed Resource-Based Theory. Figure 1 depicts how company resources and capabilities make up its competencies that ultimately explain companies' competitive advantage and performance (Srivastava, Fahey, & Christensen, 2001).

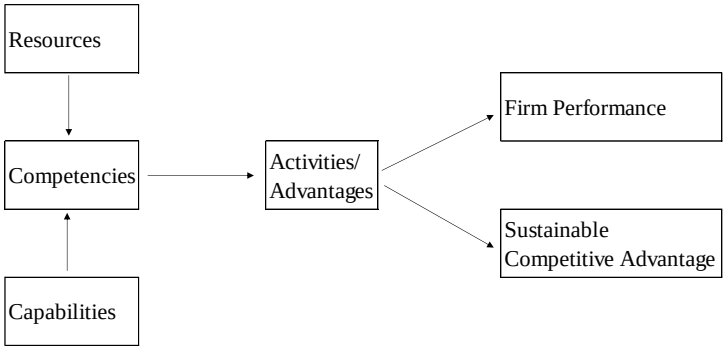


Figure 1: *Resource-Based View Framework. Adapted from* (Srivastava, Fahey, & Christensen, 2001)

2.3 Theoretical Framework

2.3.1 Resource-Based View Theory

According to Galetsi, Katsaliaka, and Kumar (2020), the resource-based view states that a company's business analytics strategy depends on its ability to utilize various resources including Big Data in a way that enables them to make

informed decisions. Big Data is a broad term that refers to the collection and analysis of data from various sources such as social networks, voice records, and videos, and it can be categorized into various categories such as structured and unstructured data (Gandomi & Haider, 2015). Moreover, Big Data is generated by various machines and people, and it requires sophisticated technologies to analyse and interpret it for the data to be used to improve the efficiency of a company's operations and increase its profitability (Akmedov & Dzhengisheva, 2018). In support of this, Big data is a term that describes large volumes of high velocity, complex and variable data that require advanced techniques and technologies to enable the capture, storage, distribution, management, and analysis of the information (Saidali, Rahich, Tabaa, & Medouri, 2019). The characteristics of big data are its volume, velocity, and variety. These factors can help organizations develop differentiated products and services (Barutcu, 2017). The RBV is at the core of an organization's existence as it is a basis upon which it maximizes its strengths in the form of its resources to create sustainable company performance, competitive advantage, and shareholders' return (Srivastava, Fahey, & Christensen, 2001). Furthermore, it was found in the research study that the RBV theory’s potential to be a great contributing factor to marketing strategy lies in its ability to explain and identify the factors that influence a company's strategy and competitive advantage.

2.3.2 Conceptual Framework for interpreting research findings

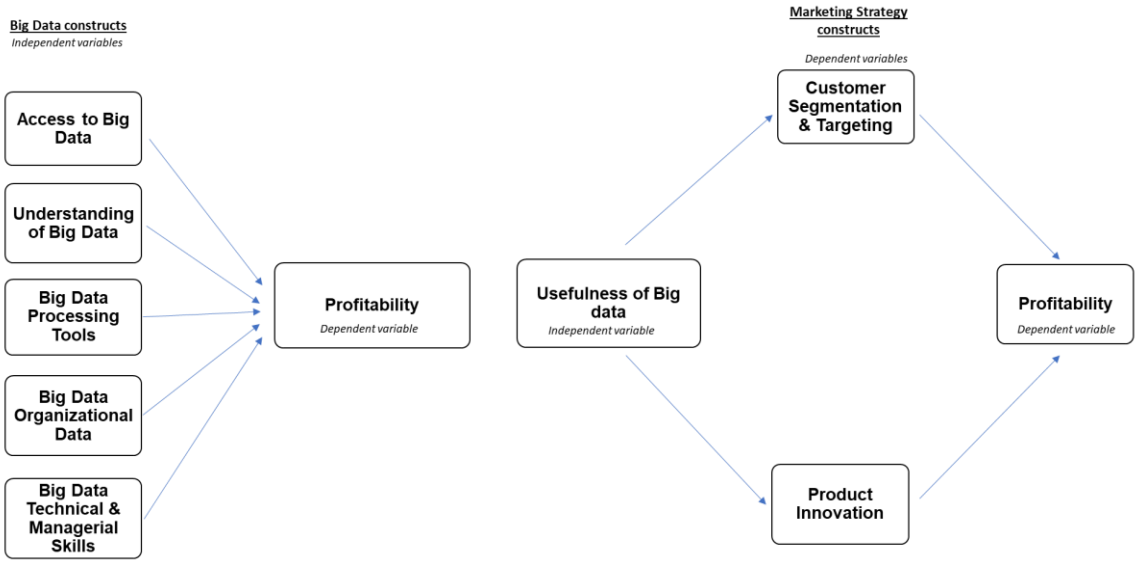


Figure 2: *Research Framework*

2.4 Hypotheses Development

2.4.1 Big Data Analytics:

2.4.1.1 Accessibility of Big data

To maximize the potential of their data, organizations need to have the necessary processes in place. These include the right people, the right tools, and the right knowledge and it can have a significant impact on the decision-making process if distributed effectively (Björkman & Franco, 2017). As big data technology is becoming more apparent, an increasing number of organizations are implementing big data systems to enable them to access data from their big data platforms (Rashid, 2017). Furthermore, the article continued and stated that one of the biggest challenges that organizations face when it comes to accessing and implementing big data systems is the design

and implementation of filters needed to prevent the data from being thrown away and to make sure that the information they collect is properly documented and analyzed. Mikalef, Boura, Lekakos, and Krogstie (2019) in their study argued that the degree to which an organization accesses big data and integrate it with other sources of data they may have at their disposal to drive business performance will depend on the presence of other elements of big data analytics. Such elements include technical skills, processing tools, and technologies and how these variables interact with profitability. Due to the increasing number of organizations having access to large amounts of data to analyze and collect insights to shape business performance and profitability, it is now necessary for them to adopt a comprehensive approach to manage and analyze their big data by the use of a variety of tools and techniques, such as data warehouse management systems to lead to business efficiencies (Alsghaier, Akour, Shehabat, & Aldiabat, 2017). Big data's main advantage is providing organizations access to real-time feedback and comments from their customers, however, the shortcomings and gaps with regards to technologies and skills in using big data analytics is a significant issue that affects its environment. Based on the above explanation, the first hypothesis of this study is:

H1*: Having access to Big Data will have a positive impact on the profitability among FMCG companies.*

2.4.1.2 Understanding of Big data

Through the use of Big Data analytics, organizations can make informed decisions and improve their efficiency by taking advantage of the vast amount of data they collect (Björkman & Franco, 2017). An article by Farah (2017) by mentioned that using big data, organizations can also customize their profit and loss statements by identifying the factors that contribute to their success. This process can help them make informed decisions and improve their efficiency. One of the most important factors that a company can consider

when it comes to implementing this strategy is the understanding of the buying patterns of its customers. Although small and medium-sized enterprises (SMEs) face challenges when it comes to applying Big Data technologies, a study revealed they are more productive and profitable when they use big data, with the right training and financial support (Seseni & Mbohwa, 2021). The various factors that affect the development and implementation of big data projects are often identified as the five v's of big data, being volume, velocity, variety, value, and veracity. These include the opportunity cost, the collection ability, the ambiguity, the cost of implementation, and the validity of the data (Ugur & Turan, 2020). Olabode, Boso, Hultman, and Leonidou (2022) argued that as the use and understanding of big data become more prevalent in today's social media era, it is important that firms understand that effective business and market performance is dependent on their ability to develop disruptive business models from the big data agile enough to be effective under different levels of competitive rivalry. Therefore, the second hypothesis of this study is:

H2*: Understanding Big Data Analytics will have a positive impact on the profitability among FMCG companies.*

2.4.1.3 Processing of Big data

To find patterns and trends in the data collected, a process known as data mining is carried out which a process involves using various techniques and algorithms however due to the high amount of volume and difficult data sets of big data analytics pre-data processing is needed which is a vital step in the process of data mining that filters out data sets that will be useful for the algorithms and decision-making process (Rashid, 2017). According to Kaur & Monga (2016), the processing and management of Big Data is the most common issue that organizations face when it comes to implementing this technology. Most of the time, the main tools used to implement Big Data are Hadoop and other related tools. In support of this, Barilla and Reynoso (2020)

stated that the main component of Hadoop is its Distributed File System, which is designed to distribute jobs among various nodes, allowing users to perform simultaneous data capture and analysis as well as the MapReduce programming language technology, which allows users to solve complex problems in parallel working concurrently with tools that process structured and unstructured data. Gandomi and Haider (2015) also argued that the value of big data is only unlocked once it is used to drive effective decision-making. To enable this process, organizations need to adopt efficient processes that are designed to extract, analyze and visualize the data using 5 steps as illustrated in figure 2 below.

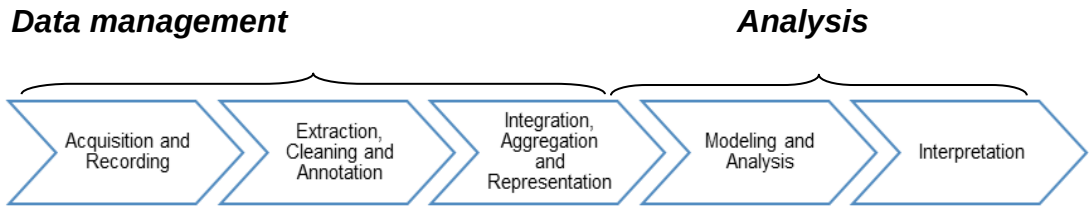


Figure 2: *Step for processing big data (Gandomi & Haider, 2015)*

Based on the above explanation, the third hypothesis of this study is stated below:

H3*: Having processing tools for Big Data will have a positive impact on the profitability among FMCG companies.*

2.4.1.4 Big Data-Driven Organizational Culture

The concept of an organizational culture refers to the set of beliefs and values that members of an organization share, it influences the way things are done and how problems are resolved in an organization (Sun, 2008). The company culture status quo innately impacts and becomes synonymous with employees of the organization and as such, to change the company's financial performance and trajectory, they should zoom into the cultural norms (Abu-Jarad, Yusof, & Nikbin, 2010). Organizational inertia is the resistance that

takes place within the organization, ranging from top to low management, when they adopt and use big data analytics as part of their decision-making; before an organization can start implementing big data analytics, it needs to understand how this technology is deployed and how it will be used as well as establish solid governance schemes that will allow its various departments to work together seamlessly (Mikalef, Boura, Lekakos, & Krogstie, 2019). Although there is currently no evidence supporting the existence of a comprehensive study on the various factors that can affect the adoption and diffusion of big data analytics i.e., inertia in BDA implementations, several studies have indicated that the lack of confidence in the technology and the cost of implementing it are some of the factors that can prevent organizations usage and adoption of big data (Mikalef, van der Wetering, & Krogstie, 2019). According to Lunde, Sjusdal, and Pappas (2019), organizational culture has been a vital factor in the evolution of big data, it is not always the focus of studies; there is a gap in the research regarding the exact effects of organizational culture on the adoption of this technology. Also, there is a need to gain a deeper understanding of the factors that influence the development and implementation of big data. Likewise, organizations need to establish a well-defined and comprehensive strategy. In addition to having the necessary capabilities to handle big data, organizations also need to adopt a culture that is focused on data-driven innovation which can be achieved through the development of a well-defined and effective Big Data strategy, guided by a model that investigates and supports the relationship between data-driven culture and business performance (Karaboga, Zehir, & Karaboga, 2019). Therefore, the fourth hypothesis that this seeks to test is stated below:

H4*: An organizational culture that supports the usage of Big Data analytics will have a positive impact on profitability among FMCG companies*

2.4.1.5 Big Data Analytics technical skills & techniques

According to Gandomi and Haider (2015), analytics is the process of gathering, analyzing, and utilizing intelligence from massive amounts of data. The author presented the relevant big data analytics techniques that can be used for structured and unstructured data as shown in table 1 below. Not forgetting the increasing equal importance and need for skilled people. This is because the lack of people with the necessary skills to analyze and interpret the data has become one of the most critical factors that prevent organizations from achieving their objectives (Mikalef & Krogstie, 2019).

Table 1: Big Data analytics techniques

Text analytics	*A process utilized in the extraction of information from textual data, such as emails, social network feeds, and blog posts. This type of analysis is commonly done using machine learning and statistical techniques.*
Audio analytics	*Used to extract and analyze audio data*
Video analytics	*Video analytics involves various techniques to extract meaningful information from streams. It is still in its infancy when compared to other types of mining.*
Social media analytics	*Used to analyze the unstructured and structured data that are collected from various social media platforms.*
Predictive analytics	*Used to identify the likelihood of a certain outcome based on historical data. In practice, this type of analysis can be used to predict the future actions of a customer based on various factors such as their purchase history and social media activity*

Source: (*Gandomi & Haider, 2015)*

Mikalef and Krogstie (2019) ranked in order of importance according to a 7-point Likert scale top technical and managerial skills that will have the highest demand in the big data space as well play a critical role in the transformation of data to actionable insights.

Rank	Technical Skills	Value	Managerial Skills	Value
1	Exploratory Data analysis	6.29	Enterprise architecture of big data	6.34
2	Data Visualization	6.22	Big data strategy formulation	6.31
3	Machine learning techniques	6.03	Understanding how to apply analytics for business problems	6.22
4	Data Mining	5.96	Developing big data governance practices	6.19
5	Data Modeling	5.92	Organizational implementation plans	6.19

H5*: Having big data technical and managerial skills will have a positive impact on profitability among FMCG companies.*

2.5.1 Big Data and Marketing Strategy:

2.5.1.1 Big Data and Customer Segmentation and Targeting

Kumar, Shankar, and Aljohani (2020) mentioned that Big Data can also be used to improve the efficiency of marketing campaigns by analyzing and reporting on the data collected; to gain a deeper understanding of the customer's perception of the quality of products and services to increase the sales of the company. It can also be used to develop predictive models that can predict the behavior of a customer and provide targeted marketing campaigns; many organizations are already starting to implement sophisticated big data techniques such as real-time micro-segmentation that help them develop relevant marketing plans that are designed to reach out to the right audiences and improve the efficiency of the marketing process (Elgendy & Elragal, 2014). An article by Barutcu (2017) also made a similar conclusion, stating that Big Data can be used to analyze and report on the data collected in real time and convert it into actionable insights that can help

organizations determine what products and services are most likely to be purchased by their consumers, helping them adjust their marketing plans based on the results of their efforts. A study done by Cooil, Keiningham, and Aksoy (2006) applied the case study of Migros Turk, an innovative multi-national firm, and showed how the firm was able to develop effective segmentation strategies by means of using exploratory tools like cluster algorithms to determine optimal customer segments. Arguably, traditional segmentation techniques that look at geographic, demographic and psychographic variables are useful in identifying the various factors that affect a company's sales and marketing efforts. However, they can also be very trivial when it comes to capturing the behavior of consumers (Camilleri, 2017). Based on the above explanation, the first hypothesis of this study, relating to marketing strategy is stated below:

H1: *Using Big Data analytics is useful in enhancing customer segmentation and targeting to positively impact profitability among FMCG companies.*

2.5.1.2 Big Data & Product Innovation

Weak product innovation activities are often caused by the lack of understanding of the target user, this is because the requirements and needs of the users are often vague and do not provide a clear definition of what is needed to develop a product resulting in organizations spending a lot of time searching for a definition and then repeatedly re-creating the product to get the right one (Zhan, Tan, Ji, Chung, & Tseng, 2017). However, according to Tan & Zhan (2016), this can be mitigated through the use of big data analytics to gain valuable insight into an organization's operations and improve the efficiency of its products and services and help companies develop new and innovative products and services by reducing the time it takes to perform various tasks. The goal of an accelerated innovation process facilitated by big data is to use systematic methods to speed up the process of developing new products to help companies realize quick profits from their innovations, also

enabling them to have the first-to-market launch (Zhan, Tan, Ji, Chung, & Tseng, 2017). The concept of bringing innovation to market involves two different sources of approach. One is through the external environment, wherein the company can absorb and integrate the knowledge, and the other is through the internal structure, wherein the company leverages it's competencies. This is very important for a company as it allows it to effectively compete in the market (De Bollivier & Luiz, 2018). Therefore, the second hypothesis of this study, relating to marketing strategy is stated below:

H2: *Using Big Data analytics is useful in the product innovation process to positively impact profitability among FMCG companies.*

2.6 Conclusion

The literature review has highlighted pertinent issues relating to marketing strategy and profitability. FMCG companies in South Africa are always endeavouring to solve evolving customer needs and expectations through their landed marketing strategies, whilst navigating through a volatile and high environment to create value and positive financial performance. Big data promises to enhance the customer experience and boost the company's profitability and this can be achieved if the company can fully implement the necessary technologies and techniques to handle the massive amount of information collected from various sources. 7 factors from the literature review were proposed on the research model and therefore were used to form research constructs for building a model that identifies factors that are essential for organizations to effectively use big data for marketing strategy development.

CHAPTER 3
RESEARCH METHODOLOGY

In Section 1.2.3, we have posed two questions that this research report intends to answer—that is, ‘What is the impact of the marketing strategy aiding in delivering profit in the South African FMCG Industry?’ and ‘What external environment trends i.e., Big Data impact the marketing strategy in delivering profit?’ We have since reviewed the literature and developed an interpretative as well as conceptual framework that will guide the choices of techniques we will use. This chapter identifies and describes the research approach, design as well as procedure, and methods that we employ in this research to collect, process, and analyze empirical evidence. Broadly, it has three objectives; namely, to identify and describe the research strategy (Section 3.1), the research design (Section 3.2), as well as the procedure and methods (Section 3.3). The chapter also describes the reliability and validity measures (Section 3.4) that this research applies to make it credible as well as the technical and administrative limitations of the choices we make (Section 3.5).

3.1 Research Strategy

Creswell (2003) stated that a research strategy is a plan that goes about describing how the data of the study followed is going to be collected, analyzed, and then interpreted; it further describes the methodology will follow, design as well as limitations. Three research approaches can be used for a research study, being qualitative, quantitative, and mixed. The literature review conducted in Chapter 2 showed that other studies related to this study followed a quantitative approach, and as such, this study followed a quantitative approach to gain insights into the topic.

Quantitative research tests theories and hypotheses by examining the association between two variables (Creswell, 2003), and therefore will be

useful in examining the relationship between (1) marketing strategy and profitability, (2) marketing strategy and big data, and (3) big data and profitability as conceptualized in the research.

Various studies followed this research approach and a Journal Article by Daniel (2018) who through his research aimed to investigate the Effects of Marketing Strategies on Organizational Performance, used a quantitative approach to examine the degree to which the product strategy developed by a Nigeria Bottle Company enhances the profit levels. The quantitative approach was able to help the researcher determine the significance levels of the identified variables to gain insight into the topic and by applying this strategy and understanding the level of significance, recommendations to develop more aggressive product strategies were brought forward. Quantitative research uses numerical data to obtain information about social factors and incidences and in the case of this research study, the data that will be collected from the identified respondents will be able to describe the elements and variables of a marketing strategy and big data that can enhance company profits.

3.2 Research Design

A research design refers to the framework and blueprint that devices how the research study will be implemented (Babbie & Mouton, 2002). The research design process is the blueprint for carrying out the study. The research design process describes the steps involved in gathering information and performing analysis, the constraints you will likely encounter, and the ethical issues you should address (Saunders, Lewis, & Thornhill, 2009).

Based on the literature reviewed in Chapter 2 and the problem to solve for this research. This study will follow a cross-sectional design. A cross-sectional design is predominantly used in the quantitative method, using a survey strategy. A cross-sectional study is a type of research that describes a phenomenon in detail and explains how factors influence a particular

organization's operations (Saunders, Lewis, & Thornhill, 2009). When it comes to academic research, they usually need to be completed within the provided time frame and cross-sectional design has no time measurement (Saunders *et al*., 2009), a library article by The University of Southern California (2020) also stated that cross-sectional studies give a researcher a clear view of the research at a given point in time and not taking into account the process of evolution.

3.3 Research Procedure and Methods

This section documents the actual procedure and the methods employed in this research to collect, collate, process, and analyze empirical evidence. Broadly, we detail the data and information collection instruments, the target population and sampling of respondents, the ethical considerations during the research process, data and information collection process and storage, data and information processing and analysis as well as the background description of the respondents who provided empirical evidence for this research study.

3.3.1 Target Population

Embarking on a research study can take up a lot of time and can be an expensive process (Wagner, Kawulich, & Garner, 2012). As was shown in the literature review, the FMCG Industry is a very large sector and can be further broken down into sub-sectors, therefore considering its size it will be very difficult and close to impossible to reach every employee, especially marketing employees of all FMCG companies with the provided time frame. A population can be defined as the full cluster of individuals that data can be collected from (Wagner *et al*. 2012). In the case of this study, the target population was marketing professionals working or having worked for/with an FMCG (Fast Moving Consumer Goods) company in South Africa.

3.3.2 Sampling

The sampling strategy for this study included 156 full-time marketing employees of a South African FMCG Industry, with marketing experience ranging from as low as 0-4 years and as high as 15 years and above. This sample set was selected based on the level of experience in the marketing function as well as full accountability and responsibility for marketing strategy development takes place. Marketing professionals with different levels of experience were reached through social media, whereby the survey was shared with an accompanying post copy clearly stating that participants should be marketing employees in the FMCG Industry to complete the survey and for their responses to be valid. It also provides an opportunity for employees in the population frame to participate in the study by giving them an equal chance to be selected. The sample frame for the study was broad enough to allow everyone within the company to be considered for participation.

3.3.3 Data Collection Instrument and Process

Data Collection allows a researcher systematically to collect and measure information relating to the variables in the study to answer the research questions (Kabir, 2016). A structured questionnaire was pre-set, and standardized questions and responses were recorded in a standardized manner (Saunders, Lewis, & Thornhill, 2009). The research study used the Qualtrics instrument to collect data through a fully structured & self-administered data survey instrument. A structured survey questionnaire was pre-set, explaining the purpose of the research and the way the survey should be completed. The survey was then distributed to marketing employees through social media platforms including, LinkedIn and WhatsApp. It took at most 15 minutes of the respondents' time to complete the survey.

3.3.4 Measuring Instrument

The study was then conducted online through a survey tool known as Qualtrics. This method allowed the researcher to conduct various data collection activities. Section 1 of the questionnaire was composed of closed-ended questions, which made it easier to analyze and improve statistical analyses (Wagner, Kawulich, & Garner, 2012). A study by Mikalef, Boura, Lekakos, & Krogstie (2019) used a 7-point Likert validated scale to test the relationship between different big data analytics constructs and firm performance. Additionally, a validated scale used in a study by Olabode, Boso, Hultman, & Leonidou (2022) to test and validate big data constructs also informed the construction of the themes and questions related to this study. Based on that, five research constructs emerged. These were Access, Understanding, Processing, Data-driven organizational culture, and Technical and Managerial Skills as well Customer Segmentation and Targeting and Product Innovation as the 2 marketing strategy constructs. Section 2 featured a 5-point Likert score scale to measure each construct using the following (1) Strongly Agree (2) Agree (3) Neutral (4) Disagree (5) Strongly Disagree (Refer to annexure 1)

3.3.5 Ethical Considerations

As part of ethical considerations, three considerations will be made which will include confidentiality, anonymity as well as the confidentiality of the participants of the research. Before a respondent could participate in the survey, they were informed about why they have been selected to participate in the survey and what the study was about. They were given the option to participate or opt out of the survey voluntarily. There’s a general reluctance towards sharing information and feedback on online platforms, it’s a sensitive matter, to mitigate this, participants were assured and reassured that the

information they will be sharing will remain confidential and their identity completely anonymous.

3.3.4 Data and Information Collection Process

The data needed for this research was collected through a self-administered online survey questionnaire. A web-based survey tool (Qualtrics) was used to upload the survey and action the survey research.

3.3.5 Data Reliability

The quality, accuracy, and consistency of the results of a study are evaluated by various measures, such as the reliability of the data and the validity of the study (Heale & Twycross, 2015). As previously mentioned, the questionnaire used a 5-point Likert score scale with Strongly Agree to Strongly Disagree options. The method of reliability analysis chosen was that of using Croncbach's Alpha and according to Salkind (2017), a reliable Cronbach's Alpha is an alpha statistic that is at least .70 and, in the questionnaire, all scales that were ≥ 70 were deemed to be reliable and acceptable.

3.3.6 Data Analysis

Upon collecting the data through the online survey through the web-based tool that is Qualtrics, the data was exported onto the IBM Statistical Package for Social Science (SPSS) software to analyze the data. Descriptive statistics were used to analyze and understand the data, showing the spread by using frequency as well as the mean and standard deviation. The analysis is accompanied by tables and figures to easily present and share the findings.

CHAPTER 4
DATA PRESENTATION & ANALYSIS

4.1 Introduction

In this chapter, the research questions shall be addressed as outlined in section 1.3.2.2 by testing their accompanying hypothesis. First, the biographic and descriptive data of the respondents will be shown. Second, relevant statistical analysis concerning the reliability and validity of the potential independent and dependent variables of the identified scales derived from the explained research instrument will be used. Third, focus on the hypotheses of the Big Data Analytics constructs and their impact on the profitability of FMCG companies. Fourth, assess the Usefulness of Big Data regarding Customer Segmentation and Targeting, Product innovation variable as well as Profitability. Lastly, the results of the findings will be summarized and presented.

4.2 Descriptive Statistics

4.2.1 Sample Description

The study was conducted on 150 individuals and six different variables were used to profile the participants. This included working profession, gender, age group, and work experience. Out of the 150 individuals who participated in the study, 133 (88.1%) of them were marketing professionals working in the FMCG industry. Most of them were women, 59.6% (N=90), with the other 39.1% (n=59) being men. 92% of the respondents were between 26 and 45 years old,

with 57.6% being between 26 and 35 years old and 36 – 45 years, 34.4%. The lowest proportion of the respondents were individuals aged between 18 and 25 years old (1.3%) and those aged between 46 to 55 years (6.0%). The educational level of the respondents was also analyzed. The highest number of them had Honours degrees with 35.1% (n=53), followed by those with undergraduate degrees; 34.4% (n=52). Also, 14.6% (n=22) of the respondents had master's degrees, while the balance of them belonged to the lower end of the spectrum, although one respondent selected the Ph.D. option. The profile of years of marketing experience that the highest number of respondents had 10-14 years' experience; 33.1% (n=50), followed by those with 0-4 years; 27.2% (n=41). Also, 25.2% (n=38) of the respondents had 5-9 years' experience, while the balance of them had 15 years and above. Graphs for the descriptive statistics have also been included in the appendix section.

Table 1: Biographic profile of the respondents

		Frequency	Percent (%)
Marketing employee	Yes	133	88.1%
	No	17	11.3%
	Missing	1	0.7%
FMCG Employee	Yes	133	88.1%
	No	17	11.3%
	Missing	1	0.7%
Age	18-25	2	1.3%
	26-35	87	57.6%
	36-45	52	34.4%
	46-55	9	6.0%
	Missing	1	0.7%
Gender	Male	59	39.1%
	Female	90	59.6%
	Prefer not to say	1	0.7%
	Missing	1	0.7%
Highest education	Matric	2	1.3%
	National Diploma	16	10.6%
	Undergraduate Degree	52	34.4%
	Honor's Degree	53	35.1%
	Master's Degree	22	14.6%
	PHD	1	0.7%
	Other	4	2.6%
	Missing	1	0.7%

Marketing experience	0 to 4 years	41	27.2%
	5 to 9 years	38	25.2%
	10 to 14 years	50	33.1%
	15 years and above	21	13.9%
	Missing	1	0.7%

Source: Computed in IBM SPSS (2023)

Table 2: Descriptive Statistics - FMCG

	Works in marketing?	Work in FMCG?	How old are you	What is your gender ?	Highest completed educational qualification	Years of marketing experience
N Val Miss	150	150	150	150	150	150
Mean	1.11	1.11	2.45	1.61	3.64	2.34
Median	1.00	1.00	2.00	2.00	4.00	2.00
Mode	1	1	2	2	4	3
Std. Deviation	.318	.318	.630	.502	1.089	1.029
Variance	.101	.101	.397	.252	1.185	1.058
Kurtosis	4.127	4.127	-.016	-1.517	1.112	-1.179
Std. Error of Kurtosis	.394	.394	.394	.394	.394	.394

Source: Computed in IBM SPSS (2023)

4.3 Reliability Analysis

In this section, reliability statistics concerning all the identified constructs derived from our data collection instrument were performed. The reliability analysis for the study was carried out using Croncbach's Alpha method. According to Salkind (2017), Croncbach's Alpha is a statistical method that is commonly used for analyzing complex data that is at least .70. All the Scales below in Table 3 satisfy this requirement, although Big Data Technical and Managerial Skills did not appear to have done so and this will be noted down as a limitation.

Assessing the internal consistency reliability for all variables to be used in the study.

Table 3: Reliability Statistics

Scale	Cronbach's Alpha	N of Items
Big Data Access	.816	4
Big Data Awareness	.822	3
Big Data Processing Tools	.768	3
Big Data-Driven Culture	.599	4
Big Data Technical and Managerial Skills	.888	4
MS - Customer Segmentation & Targeting	.786	3
MS – Usefulness of Big Data Analytics to Customer Segmentation and Targeting	.759	4
MS – Product Innovation	.704	3
MS – Usefulness of Big Data to Product Innovation	.823	4
Profitability	.872	5

Source: Computed in IBM SPSS (2023)

Furthermore, a Pearson's correlation analysis was performed for each scale, and as such, the strength of the correlations would need to be within the range of 0.3 -09 and be statistically significant. The results, therefore, satisfied the requirements for construct validity, and the variables were computed by taking the mean of the above scales identified in Table 3. On the correlation matrix concerning the identified Big Data independent variables; Big Data Processing Tools and Big Data Access variables had the highest correlation which is also statistically significant at the 99% confidence level ($r(142) = .630$, $p < .01$). Although a correlation of at least 0.8 might suggest that multicollinearity exists, the results of the study revealed that it is not the case. It is important to note that this type of relationship has an impact on the directions and values of the coefficients and the overall model's significance. To minimize this effect, all variables were utilized in the multiple regression analysis.

Big Data Independent Variables - Correlation Matrix

Table 4: Correlations

	Big Data Access	Big Data Understanding	Big Data Processing	Big Data-Driven Culture	Big Data Technical and Managerial skills
Big Data Access	1	.489**	.630**	.434**	.426**
	146	145	143	142	142
Big Data Understanding	.489**	1	.467**	.275**	.390**
	145	145	143	142	142
Big Data Processing Tools	.630**	.467**	1	.446**	.471**
	143	143	143	142	142
Big Data-Driven Culture	.434**	.275**	.446**	1	.581**
	142	142	142	142	142
Big Data Technical and Managerial skills	.426**	.390**	.471**	.581**	1
	142	142	142	142	142

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Computed in IBM SPSS (2023)

4.4 Analysing whether Big Data has an impact on Profitability.

Multiple linear regression was used to test the impact of the Big Data constructs (independent variables) on Profitability (dependent variable). A test was conducted to determine if there is multicollinearity in the independent variables as this might have an impact on the overall model's significance and directions.

4.4.1 Descriptive Statistics – Multiple Regression Analysis

Table 5: Descriptive Statistics - Determinants of Profitability

	Big Data Access	Big Data Understanding	Big Data Processing	Big Data-Driven Culture	Big Data Technical and managerial skills	Profitability
N	141	141	141	141	141	
Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	
Mean	2.2447	1.4682	1.9504	2.0869	1.7837	.6852
Std. Deviation	91440	.72591	.97177	.65940	.68545	.40788

Source: Computed in IBM SPSS (2023)

The below hypotheses were tested for the Multiple Linear Regression model. Moreover, the multiple linear regression was performed using a confidence level of 90%, which is due to the low Cronbach alpha that we obtained with one of the independent variables.

***H1**: Having access to Big Data will have a positive impact on the profitability of FMCG companies.*

***H2**: Understanding Big Data Analytics will have a positive impact on the profitability of FMCG companies.*

***H3**: Having relevant processing tools for Big Data will have a positive impact on the profitability of FMCG companies.*

***H4**: An organizational culture that supports and is led by Big Data analytics will have a positive impact on profitability among FMCG companies.*

***H5**: Having big data technical and managerial skills will have a positive impact on profitability among FMCG companies.*

Table 5 shows the descriptive statistics concerning the multiple linear regression that was executed. The Profitability variable was transformed into a natural log to allow for better explanatory power when we fitted our model. The descriptive statistics express that Big Data Access showed the highest mean (M = 2.2447, SD = .91440) while Big Data Processing Tools had the highest variance (M = 1.9504, SD = .97177). Meaning that the survey respondents provided higher ratings towards Big Data Access, whilst for Big Data Processing Tools, respondents gave most of the varying responses, or they didn't agree on the responses of this variable most of the time.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.555[a]	.308	.283	.34549	2.011

a. Predictors: (Constant), Big Data Understanding, Big Data-Driven Culture, Big Data Processing Tools, Big Data Technical and Managerial Skills, Big Data Access
b. Dependent Variable: Profitability (LN)

Source: Computed in IBM SPP (2023)

Table 6 above shows that the independent variables were able to explain 28.3% of the variance in the company's profitability. R square is a measure of the predictability of the dependent variable's variations from the independent variable (Chicco, Warrens, & Jurman, 2021). Also, the model did not show any signs of autocorrelation as it fell within the range of 1.5 – 2.5. According to Salkind (2017), this statistic is not important for this study as the data is cross-sectional.

Table 7: ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.177	5	1.435	12.026	<.001[b]
	Residual	16.114	135	.119		
	Total	23.292	140			

a. Dependent Variable: Profitability (LN)

b. Predictors: (Constant), Big Data Understanding, Big Data-Driven Culture, Big Data Processing Tools, Big Data Technical and Managerial Skills, Big Data Access

Source: Computed in IBM SPP (2023)

The ANOVA table in Table 7 above shows whether the overall model is statistically significant. The model is indeed statistically significant and satisfied the linearity assumption ($F(5,135) = 12.026$, $p < .01$, $R^2 = .283$). Meaning that the model can explain profitability as a variable, and therefore the rest of the analysis can continue (Salkind, 2017).

Table 8: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	90.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.070	.107		.657	.513	-.107	.248					
	Big Data Processing Tools	-.089	.041	-.212	-2.168	.032	-.157	-.021	.061	-.183	-.155	.536	1.864
	Data-Driven Culture	.318	.056	.514	5.649	<.001	.225	.411	.505	.437	.404	.620	1.613
	Big Data Technical and Managerial Skills	.097	.056	.162	1.738	.085	.005	.189	.334	.148	.124	.588	1.701
	Big Data Access	.026	.044	.059	.604	.547	-.046	.098	.144	.052	.043	.539	1.856
	Big Data Understanding	-.072	.049	-.128	-1.480	.141	-.153	.009	.006	-.126	-.106	.684	1.463

a. Dependent Variable: Profitability (LN)

Source: Computed in IBM SPP (2023)

Table 8 above provides a summary of the effect that the independent variables had on the dependent variable, profitability. At the 90% confidence level, Big Data-Driven Culture proved to be the most significant within the model ($t=5.649$, $p<.01$). Moreover, Big Data processing ($t = -2.168$, $p = .032$) and Big Data Technical and Managerial Skills ($t = 1.738$, $p = .085$) also proved to be statistically significant. Interestingly, Big Data Processing Tools were a negative significant predictor of profitability ($\beta = -.089$). Meaning for every increase in Big Data Processing, profitability would decrease on average by 8.9%. In contrast, for every one-unit increase in Big Data-Driven Culture, profitability would increase by 31.8%. Likewise, an increase in Big Data Technical and Managerial Skills would increase profitability by 9.7%. Lastly, all other variables proved to be statistically insignificant as their p-values were greater than 5%

Based on the results above, the null hypothesis was rejected in the events of H3, H4, and H5 and failed to reject the null hypothesis in the case of H1 and H2.

4.5 Assessing whether Using Big Data Analytics is useful in enhancing Customer Segmentation Strategy and Targeting as well as Profitability.

In this section, there were two independent variables in the form of profitability as well as customer segmentation strategy and targeting. Therefore, a multiple regression analysis would not be sufficient. Furthermore, the usefulness of big data analytics has been stated as the only independent variable. Therefore, a multivariate simple regression analysis was conducted. Moreover, the multivariate simple regression was performed using a confidence level of 95%, and the results are denoted below as follows:

4.5.1 Descriptive Statistics – Multivariate simple regression analysis

Table 9: Descriptive Statistics – Dependent Variables

	Mean	Std. Deviation	N
Customer Segmentation and Targeting	1.9054	.92094	141
Profitability	2.1433	.79904	141

Source: Computed in IBM SPP (2023)

The descriptive statistics in Table 9 above show that profitability had the highest mean (*M* = 2.1433, *SD* = .79904) while customer segmentation and targeting had the highest variance (*M* = 1.9054, *SD* = .92094). This means that the survey respondents provided higher ratings towards profitability, whilst for customer segmentation and targeting, respondents gave most of the varying responses, or they didn't agree on the responses of this variable most of the time.

4.5.2 Statistical Hypothesis Testing – Multivariate Simple Linear Regression Analysis

The following hypothesis for this test has been identified as follows:

H0: *Using Big Data analytics* ***is not*** *useful in enhancing customer segmentation and targeting to positively impact profitability among FMCG companies.*

H1: *Using Big Data analytics* ***is*** *useful in enhancing customer segmentation and targeting to positively impact profitability among FMCG companies*

Test of Between Subjects Effects

In this section, a test between subject effects design was used to test this hypothesis, because of having two dependent variables, Customer Segmentation, and Targeting as well as Profitability, and one independent variable being the Usefulness of Big Data.

Therefore, a normal multiple regression analysis would not suffice as we are analyzing to see if the dependent variable (Usefulness of Big Data) affects both dependent variables (Customer Segmentation and Targeting and Profitability) at the same time. In this case, the aim was to look at differences between the groups that were surveyed at two different time points. Eta square is the fraction of the total variance in the dependent variable due to the variations in its independent counterpart (Levine & Hullett, 2002).

Table 10: Test of Between Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
The usefulness of Big Data	Customer Segmentation and Targeting	22.092	1	22.092	31.773	<.001	.186
	Profitability	4.871	1	4.871	8.011	.005	.054

R Squared = .186 (Adjusted R Squared = .180)$_a$

R Squared = .054 (Adjusted R Squared = .048)$_b$

Computed using alpha = .05$_c$

Source: Computed in IBM SPP (2023)

As seen in Table 10 above, the usefulness of big data is significant when accounting for the variation in both customer segmentation and targeting($F(1) = 31.773$, $p < .01$, $\eta = .186$) as well as profitability ($F(1) = 8.011$, $p = .005$, $\eta = .054$). Based on the partial Eta Squared statistic, most of the variance was accounted for in the customer segmentation and targeting variable. This means overall, the usefulness of data accounted more towards customer segmentation and targeting than profitability.

Table 11: Evaluating the coefficients of Usefulness of Big Data individually on both Customer Segmentation and Targeting and Profitability

Dependent Variable	Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
						Lower Bound	Upper Bound	
	Intercept	.714	.223	3.209	.002	.274	1.155	.069

Customer Segmentation and Targeting	The usefulness of Big Data	.769	.136	5.637	<.001	.499	1.038	.186
Profitability	Intercept	1.584	.208	7.608	<.001	1.172	1.996	.294
	The usefulness of Big Data	.361	.128	2.830	.005	.109	.613	.054

Source: Computed in IBM SPP (2023)

Table 11 shows the effects of the dependent variables that were to be isolated from each other. According to the results above, the Usefulness of big data proved to be a significant positive predictor of both customer segmentation and targeting (β= .769, t = 5.637 p < .01) as well as profitability (β= .361, t = 2.830, p =. 005). Meaning that for every unit increase in the usefulness of big data, customer segmentation and targeting increased on average by 76.9%, and profitability increased by 36.1%.

In this case, the null hypothesis was rejected, and it can be concluded that using big data analytics is useful in enhancing customer segmentation and targeting to positively impact profitability among FMCG companies.

4.6 Assessing whether Using Big Data Analytics is useful in the product innovation process to positively impact profitability among FMCG companies.

For this section, another multivariate simple regression analysis was conducted, substituting Customer Segmentation and Targeting variable with the Product Innovation variable. The descriptive statistics have been displayed as follows:

4.6.1 Descriptive Statistics – Multivariate simple regression analysis

Table 12: Descriptive Statistics

	Mean	Std. Deviation	N

Profitability	2.1433	.79904	141
Product Innovation	2.3191	.83083	141

Source: Computed in IBM SPP (2023)

The descriptive statistics in Table 12 above show that Product Innovation had the highest mean as well as the highest standard deviation (*M* = 2.3191, *SD* = .83083).

4.6.2 Statistical Hypothesis Testing – Multivariate Simple Linear Regression Analysis with Product Innovation

The following hypothesis for this test has been identified as follows:

H0: *Using Big Data analytics **is not** useful in the product innovation process to positively impact profitability among FMCG companies.*

H1: *Using Big Data analytics **is** useful in the product innovation process to positively impact profitability among FMCG companies*

Table 13: Test of Between-Subject Effects

Similar to the test of between-subject effects that was done on Customer Segmentation and Targeting, the same exercise was done for Product Innovation to look at differences between the groups that were surveyed at two different time points.

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Profitability	4.871[a]	1	4.871	8.011	.005	.054
	Product Innovation	18.916[b]	1	18.916	33.831	<.001	.196
Intercept	Profitability	35.194	1	35.194	57.883	<.001	.294
	Product Innovation	20.777	1	20.777	37.158	<.001	.211
	Profitability	4.871	1	4.871	8.011	.005	.054

The usefulness of Big Data	Product Innovation	18.916	1	18.916	33.831	<.001	.196

Source: Computed in IBM SPP (2023)

Table 13 above shows that the Usefulness of Big Data is significant when accounting for the variation in both Product Innovation($F(1) = 33.831$, $p < .01$, $\eta = .196$) as well as Profitability ($F(1) = 8.011$, $p = .005$, $\eta = .054$). Based on the partial Eta Squared statistic, most of the variance was accounted for in the Product Innovation variable. This means overall, the usefulness of data accounted more towards product innovation than profitability.

Table 14: Evaluating the coefficients of Usefulness of Big Data individually on both Product Innovation and Profitability

Dependent Variable	Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
						Lower Bound	Upper Bound	
Profitability	Intercept	1.584	.208	7.608	<.001	1.172	1.996	.294
	The usefulness of Big Data	.361	.128	2.830	.005	.109	.613	.054
Product Innovation	Intercept	1.217	.200	6.096	<.001	.822	1.612	.211
	The usefulness of Big Data	.711	.122	5.816	<.001	.469	.953	.196

Source: Computed in IBM SPP (2023)

Table 14 shows the effects if we were to isolate our dependent variables from each other. According to the results above Usefulness of Big Data proved to be a significant positive predictor of both Product Innovation ($\beta = .11$, $t = 5.816$ $p < .01$) as well as Profitability ($\beta = .361$, $t = 2.830$, $p = .005$). Meaning that for every unit increase in the usefulness of big data, product innovation increased on average by 71.1%, and Profitability increased by 36.1%.

In this case, the null hypothesis was rejected, and it can be concluded that using big data analytics is useful in enhancing the product innovation process to positively impact profitability among FMCG companies.

4.7 Research Findings Summary

This chapter was set to address the research questions that were identified in Chapter 1.

For the first set of hypotheses, the necessary reliability and validity tests to compute the required variables were executed. It was discovered that all variables complied with inter-rater reliability however, the Big Data-Driven Culture scale was the only variable that was not reliable when assessing Cronbach's alpha statistic. All other variables complied with construct validity.

Furthermore, a multiple linear regression was executed to test whether the identified constructs had an impact on the profitability of FMCG companies. It was found that Big Data-Driven Culture, Technical and Managerial Skills as well as Big Data Processing Tools proved to be statistically significant albeit the latter proved to be a negative predictor.

A multivariate simple regression was also conducted to test whether the Usefulness of Big Data had an influence on Customer Segmentation and Targeting as well as profitability. This proved to be the case as Customer Segmentation and Targeting accounted for most of the variance in the model regarding usefulness.

Lastly, another multivariate simple regression was conducted to test whether the Usefulness of Big Data influenced Product Innovation and profitability. This proved to be the case as well, Product Innovation accounted for most of the variance in the model regarding Big data usefulness.

CHAPTER 5
DISCUSSION OF RESULTS

5.1 Accessibility to Big Data in the SA FMCG Industry

H1*: Having access to Big Data will have a positive impact on the profitability among FMCG companies.*

In this big data construct, **the null hypothesis was accepted**. The study found that marketing employees in South African FMCG companies find Big Data Access insignificant (t = .604, p = .547) in positively impacting profitability. This finding indicates that having access to large sums of unstructured data in isolation may not suffice to aid business performance. According to Björkman and Franco (2017), Big Data access needs to work in fusion with other elements of big data to leverage the full benefit of the technology. This is also consistent with the finding by Rashid (2017) that states that as companies have more access to big data, it is even more pertinent to have systems that will be able to integrate that big data with their internal resources and capabilities. Although insignificant, marketing employees gave a higher rating to Big Data Access on the survey and it had the highest mean (*M* = 2.2447, *SD* = .91440). This could mean that although there is a limited lack of big data in organizations, marketing employees should challenge themselves to take a step further and turn the big data into gold simplified enough into actionable insights that can have a better impact on profitability.

5.2 Understanding of Big Data in the SA FMCG Industry

H2*: Understanding Big Data Analytics will have a positive impact on the profitability of FMCG companies*

In the literature review, it was established that understanding big data as one of the critical contributions to profitability will need assistance from the company to ensure that the data is validated and seamlessly implemented with other resources and tools of the company

(Ugur & Turan, 2020). Disruptive and innovative business models that increase the competitiveness of the company in the marketplace need to be the mediator between big data understanding and financial performance (Olabode, Boso, Hultman, & Leonidou, 2022). In agreement with this, the analysis revealed that at a 90% significance level, Big Data Understanding proved to be statistically insignificant ($t = -1.48$, $p = .141$) and was a negative significant predictor of Profitability ($\beta = -.072$) and as thus, **the null hypothesis was accepted**. Marketing employees should consistently challenge and interrogate the big data outputs and transform them into valuable insights to enhance their marketing strategy as awareness of the big data phenomenon on its own will not suffice to move the needle of profitability.

5.3 Big Data Processing Tools

H3*: Having relevant processing tools for Big Data will have a positive impact on the profitability of FMCG companies*

In this big data construct, **the null hypothesis was rejected.** The study found that marketing employees in South African FMCG companies find Big Data Processing Tools significant ($t = -2.168$, $p = .032$), however, interestingly enough, it was a negative predictor of profitability. This could mean the more processing tools are incorporated, the more expensive it becomes for FMCG companies. This thinking is supported by Al-Sa, et al., (2022) that although big data analytics is an opportunity for the future of organizations, there is an accompanying investment and financial requirement following the opportunity. With that being said, It is imperative need for companies to have processing tools as well as other related technologies implemented and at their disposal to solve complex problems and conduct data mining and modeling (Rashid, 2017). Two of the most critical components of big data are the ability to manage large amounts of data and deduce interpretations from the data, and yet it is a common challenge that organizations face (Kaur & Monga, 2016). Barilla & Reynoso (2020) stated that one of the main big data management software is Hadoop which is commonly used for analyzing and capturing large amounts of data. As well as MapReduce (Al-Sa, et al., 2022).

5.4 Big Data-Driven Organizational Culture

H4*: An organizational culture that supports and is led by Big Data analytics will have a positive impact on profitability among FMCG companies*

For this big data construct, **the null hypothesis was rejected.** The study found that marketing employees in South African FMCG companies find that an organizational culture that uses and supports big data is significant (t = 5.649, p = . <.01), and is a positive predictor of profitability and proved to be the most significant amongst the other big data variables and as such, should be the one variable FMCG companies leverage to increase profits, as the magnitude of this increase in profits was as high as 31.8%. In the literature review, it was established that organizational culture plays a key role in the adoption and evolution of big data (Lunde, Sjusdal, & Pappas, 2019). It requires effort from top management to cultivate the right norms that support the usage of big culture and support big data projects that are implemented throughout the organization (Mikalef, van der Wetering, & Krogstie, 2019). Although there may be resistance to change, organizations should always strive to build a culture that values data-driven innovation and this can be achieved through the creation of a well-defined strategy that is focused on the development of an effective big data environment (Karaboga Zehir, & Karaboga, 2019).

5.5 Big Data Technical and Managerial Skills

H5*: Having big data technical and managerial skills will have a positive impact on profitability among FMCG companies*

The study found that marketing employees in South African FMCG companies with Big Data Technical and Managerial Skills is significant (t = 1.738, p = .085) and is a positive predictor of profitability. Therefore, **the null hypothesis was rejected**. The magnitude of this increase in profits was 9.7%. In reality, during the process of gathering and extracting intelligence from large some of the data, there is equal importance on having people with the right skills and capabilities to analyze and interpret the data (Gandomi & Haider,

2015). The analysis showed that marketing employees believe there is a need of being able to coordinate and uncover patterns & insights from big data to inform strategy formulation and the profitability trajectory of the organization. This is supported by Mikalef and Krogstie (2019), who stated that individuals should also have the necessary skills such as; data analysis, strategy formulation, and understanding of how to apply analytics to solve business problems, to handle the various tasks related to the implementation of big data.

5.6 Usefulness of Big Data in Customer Segmentation and Targeting

H1*: Using Big Data analytics is useful in enhancing customer segmentation and targeting to positively impact profitability among FMCG companies*

As mentioned in the previous chapter, a multivariate simple regression analysis was run, with the Usefulness of Big Data Analytics stated as the only independent variable. It was found that the Usefulness of Big Data was significant when accounting for Customer Segmentation and Targeting as well as Profitability. Therefore, **the null hypothesis was rejected**. Though significant, it does not have a greater impact on Profitability (p .005) versus Customer Segmentation and Targeting (p <.001). This means that using Big Data during customer segmentation and targeting decision-making processes will be beneficial for FMCG companies, to develop differentiated and much more targeted campaigns. According to Elgendy and Elragal (2014), big data can be used to develop effective marketing campaigns by analyzing and predicting the behavior of a customer. In addition, it can help companies identify the most effective marketing strategies. Furthermore, the benefit of big data as it relates to customer segmentation and targeting is making sure that actionable insights are extracted from the big data that should help with improving the marketing strategy development process by providing marketing professionals with the guidance of customer groups and demand opportunities they should target and monetize. Making sure that their marketing investments are channelled to the right customers and campaigns for better financial impact and return (Barutcu, 2017).

5.7 Usefulness of Big Data in Product Innovation

H2*: Using Big Data analytics is useful in the product innovation process to positively impact profitability among FMCG companies.*

Similar to the previous hypothesis, a multivariate simple regression analysis was run, with the Usefulness of Big Data Analytics stated as the only independent variable. It was found that the Usefulness of Big Data was significant when accounting for Product Innovation as well as Profitability. Therefore, **the null hypothesis was rejected**. Though significant, it does not have a greater impact on Profitability (p .005) versus Product Innovation (p <.01). This means that using Big Data during the product innovation process will be beneficial for FMCG companies. It was established in the literature review that, weak product innovation activities are a result of not having a clear vision of what customers need as they are not overtly forthcoming with information and their wants, and as a result, companies tend to develop products that don't entirely meet their customer needs and expectations (Zhan Y., Tan, Ji, & Chung, 2017). Marketing employees need to actively focus on using big data analytics to enrich their innovation process when they come up with new and improved products, thus future-proofing their launches and overcoming the limitation of not understanding their customers enough by not having enough data about them.

CHAPTER 6
CONCLUSION AND RECOMMENDATIONS

The study's conclusions are presented in this section to discuss the various implications of big data usefulness to marketing strategy and profitability for the South African FMCG industry. It also provides recommendations for future research.

6.1 Conclusion

This study proposed and used a conceptual framework to test key factors of big data that influence and impact business profitability as well as the usefulness of big data in marketing strategy. The study's findings exhibited substantial exploratory reasons to encourage South African FMCG companies to adopt the phenomenon of big data as part of their business operations and marketing strategy. Three out of the five hypotheses were found to be significant. Big Data Driven Organizational Culture came in first, then followed by Big Data Processing Tools and Big Data Technical and Managerial Skills. Although big data processing tools were significant, it was a negative predictor of profitability. This was an insightful discovery and can be subject to further analysis and investigation. In terms of the usefulness of big data to marketing strategy and profitability. Usefulness had a greater impact on Customer Segmentation Targeting and Product Innovation than profitability. Marketing employees appreciate the benefit of big data on marketing strategy more than on profitability.

6.2 Limitations of the study

This study was focused on the FMCG industry, with a closer look into marketing professionals, this meant that the applications of the findings of big data and marketing strategy were limited to this context as well as limited to the role of the identified constructs relating to profitability and not delving into all big data and marketing strategy factors. Further studies should look at analyzing other sectors of the economy.

6.3 Recommendations for future research

The insights of the study were derived from the extensive literature review and the collected data which provided the following gaps and recommendations:

a. Access and Understanding of Big Data in isolation holds no ground in positively impacting the marketing strategy and profits. A study that focuses solely on exploring how organizations can successfully maximize and implement their access to big data for marketing decisions would have helped to provide more robustness to the SA FMCG Industry.
b. Since Big Data Processing Tools were a negative predictor of profitability. It would be interesting to dig deep into this topic to determine which kinds of Processing tools are detrimental to financial performance and which tools should SA FMCG focus on implementing and investing in, to help establish the level of investment required and how to make sure the processing tools and used and amortized in a way that is not detrimental to business profits
c. The study found that Big Data driven culture is the main driver for profitability. A study that focuses solely on identifying factors of how organizations can overcome challenges in adopting big data internally in such a way that encourages easy adoption and usage would need to be further investigated.

REFERENCES

Abu-Jarad , I. Y., Yusof, N., & Nikbin, D. (2010). A Review Paper on Organizational Culture and Organizational Performance . *International Journal of Business and Social Science*, 26-46.

Akmedov,, R., & Dzhengisheva, A. (2018). BIG DATA AS A TOOL FOR TUNNEL MARKETING. *Central Asian Economic Review*, 37-51.

Al-Nimer, M., Qasem, M., AlAdham, M., & Yousef, A. (2015). The Impact of Marketing Strategy on Profitability in Medical Jordanian Corporations. *International Business Research*.

Al-Sa, Z. A., Husin, M. H., Syed-Mohamad , S. M., Abdin, R. M., Damer, N., Abualigah, L., & Gandomi, A. (2022). Explore Big Data Analytics Applications and Opportunities: A review. *MDPI*, 6-157.

Alsghaier, H., Akour, M., & Aldiabat, S. (2017). THE IMPACT OF BIG DATA ANALYTICS ON BUSINESS COMPETITIVENESS. *New Trends in Information Technology* .

Alsghaier, H., Akour, M., Shehabat, I., & Aldiabat, S. (2017). THE IMPACT OF BIG DATA ANALYTICS ON BUSINESS COMPETETIVENESS. *New Trends in Information Technology*.

Amine, L., & Cavusgil , S. (2001). Export marketing strategies in the British clothing industry. *European Journal of Marketing,*, 21-33.

Atieno, O. P. (2009). AN ANALYSIS OF THE STRENGTHS AND LIMITATIONS OF QUALITATIVE AND QUANTITATIVE RESEARCH PARADIGMS. *Problems of Education in the 21st Century*, 17.

Azeez, A., & Dhanalakshmi, C. (2018). A STUDY ON FMCG (FAST MOVING CONSUMER GOODS) MARKETING ACTIVITIES. *Ijariie*, 366-368.

Babbie, E., & Mouton, J. (2002). The Practice of Social Research. *Oxford: O.U.P*, 78-280.

Barilla, C. D., & Reynoso, L. L. (2020). How can Big Data contribute to improve the financial performance of companies? *REMEF (The Mexican Journal of Economics and Finance)*, 589-598.

Barutcu, M. T. (2017). BIG DATA ANALYTICS FOR MARKETING REVOLUTION. *Media Critiques*, 164-169.

Berkowitz, E. (2011). Essentials of Health Care Marketing. In E. Berkowitz, *Essentials of Health Care Marketing* (p. 41). Burlington: Jones & Bartlett Learning.

Björkman, F., & Franco, S. (2017). How big data analytics affect decision-making: A study of the newspaper industry . *DiVA*, p. 55.

Bonacchi, M., & Perego, P. (2011). Improving Profitability with Customer-Centric Strategies: The Case of a Mobile Content Provider. *Strategic Change: Briefi ngs in Entrepreneurial Finan*, 253–267.

Boote, D., & Beile, P. (2005). Scholars Before Researchers: On the Centrality of the Dissertation Literature Review in Research Preparation. *Educational Researcher*, 3-4.

Bottles, K., Begoli, E., & Worley, B. (2014). Understanding the Pros and Cons of Big Data Analytics. *PubMed*, 6-10, 12.

Camilleri, M. A. (2017). Market Segmentation, Targeting and Positioning. *In Travel Marketing, Tourism Economics and the Airline Product* , Chapter 4, pp. 69-83.

Chicco, D., Warrens, M. J., & Jurman, G. (2021). The coefficient of determination R-squared is more informative than SMAPE, MAE, MAPE, MSE and RMSE in regression analysis evaluation. *PeerJ Computer Science*, 623.

Chiliya, N., & Roberts-Lombard, M. (2009). The impact of marketing strategies on profitability of small grocery shops in South African townships. *African Journal of Business Management*, 71-72.

Consultancy.uk. (2018, September 24). *News: The 50 largest FMCG / consumer goods companies in the world.* Retrieved from Consultancy.uk Web site: https://www.consultancy.uk/news/18765/the-50-largest-fmcg-consumer-goods-companies-in-the-world

Cooil, B., Keiningham, T., & Aksoy, L. (2006). Approaches to Customer Segmentation. *Journal of Relationship Marketing*, 9-39.

Creswell, J. (2003). *The Selection of a Research Approach.* New York: SAGE Publications.

Daniel, C. (2018). EFFECTS OF MARKETING STRATEGIES ON ORGANIZATIONAL PERFORMANCE. *International Journal of Business Marketing and Management*, 1-2.

De Bollivier, M., & Luiz, J. M. (2018). Managing product innovation diffusion within multinational corporations: Leveraging global scale and local responsiveness. *European Journal of International Management*.

Dicey, L. (2016, May 2016). *Business Live: FMCG insights into a changing retail scene*. Retrieved from Business Live: https://www.businesslive.co.za/redzone/news-insights/2016-05-11-fmcg-insights-into-a-changing-retail-scene/

Elgendy , N., & Elragal, A. (2014). Big Data Analytics: A Literature Review Paper. *Springer International Publishing*, 214-227.

Farah, B. (2017). Profitability and Big Data. *Journal of Management Policy and Practice*, 47-52.

Galetsi, P., Katsaliaka, K., & Kumar, S. (2020). Big data analytics in health sector: Theoretical framework, techniques and prospects. *Elsevier*, 206-216.

Gandomi, A., & Haider, M. (2015). Beyond the hype: Big data concepts, methods, and analytics. *International Journal of Information Management*, 137-144.

Hart, C. (1998). *Doing a Literature Review: Releasing the Social Science Research Imagination.* London: SAGE Publications.

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative research. *Evidence-Based Nursing*, 18(3):66-67.

Honorato , C., de Melo, F. C., & de Morais, R. C. (2021). The Manufacturing Industry and the Big Data Challenges: The case- study of the Global Tech Company. *International Journal of Advanced Engineering Research and Science (IJAERS)*, 2349-6495.

India Brand Equity Foundation. (2010). *FAST MOVING CONSUMER GOOGS (FMCG).* Mumbai: IBEF. Retrieved from https://www.ibef.org/download/FMCG_270111.pdf

Kabir, S. (2016). Basic Guidelines for Research. In *Basic Guidelines for Research: An Introductory Approach for All Disciplines* (pp. 201-275). Bangladesh: Book Zone Publication.

Kanagal, N. (2016). *ISSUES IN MARKETING STRATEGY IMPLEMENTATION.* Bangalore: Indian Institute of Management.

Karaboga , T., Zehir , C., & Karaboga , H. A. (2019). BIG DATA ANALYTICS AND FIRM INNOVATIVENESS: THE MODERATING EFFECT OF DATA-DRIVEN CULTURE . *The European Proceedings of Social & Behavioural Sciences*, pp.526-535.

Kaur, P., & Monga, A. A. (2016). Managing Big Data: A Step towards Huge Data Security. *International Journal of Microwave and Wireless Technologies*, 10-20.

Khumalo, V. (2021, January 6). *53 List Of FMCG Companies In South Africa.* Retrieved from South Africa Lists Web site: https://southafricalists.com/fmcg-companies-in-south-africa/

King, N. (2013). THE INFLUENCE OF MARKETING ON PROFITABILITY OF AN ORGANIZATION. *International Journal of Marketing, Financial Services & Management Research*, 36-37 .

Kotler, P., & Armstrong , G. (2006). *Principles of Marketing. 10th Edition.* New Jersey : Pearson Education Inc.

Kozlenkova, I., Palmatier, R., & Samaha, S. (2014). Resource-based theory in marketing. *Journal of the Academy of Marketing Science*, 42:1–21.

KPMG Africa. (2016). *FAST MOVING CONSUMER GOODS.* KPMG Africa Limited.

Kumar, V., Shankar, R., & Aljohani, N. (2020). A big data driven framework for demand-driven forecasting with effects of marketing-mix variables. *Industrial Marketing Management*, 493-507.

Levine, T., & Hullett, C. (2002). Eta Sqaured, Partial Eta Squared, and misreporting of Effect Size in Communication Research. *Human Communication Research*, 612–625.

Li, Z. (2022). Accurate Digital Marketing Communication Based on Intelligent Data Analysis. *Hindawi Scientific Programming*, 10.

Lunde , T. A., Sjusdal, A. P., & Pappas, I. (2019). Organizational Culture Challenges of Adopting Big Data: A Systematic Literature Review. *Springer*, pp 164–176.

Mahajan, Y. (2022). Impact of Coronavirus pandemic on fast moving consumer goods (FMCG) sector in India. *Journal of Xi'an University of Architecture & Technology*, 26-32.

Mai Le, T., & Liaw, S.-Y. (2017). Effects of Pros and Cons of Applying Big Data Analytics to Consumers' Responses in an E-Commerce context. *Sustainability* , 9(5):798.

Malter, A., Webster, F., & Ganesan, S. (2005). The Decline and Dispersion of Marketing Competence. *MIT Sloan Management Review*, 35-43.

McKinsey & Company. (2020, December 8). *Our Insights: A. McKinsey & Company*. Retrieved from A. McKinsey & Company Web site: https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/survey-us-consumer-sentiment-during-the-coronavirus-crisis

Mikalef, P., & Krogstie, J. (2019). Investigating the Data Science Skill Gap: An Empirical Analysis. *Institute of Electrical and Electronics Engineers*, 2-10.

Mikalef, P., Boura, M., Lekakos, G., & Krogstie, J. (2019). Big data analytics and firm performance: Findings from a mixed-method approach. *Journal of Business Research*, 261-276.

Mikalef, P., van der Wetering, R., & Krogstie, J. (2019). From Big Data Analytics to Dynamic Capabilities: The Effect of Organizational Inertia. *Pacific Asia Conference on Information Systems (PACIS 2019)*, 1-14.

Moorman, C., & McCarthy, T. (2020, April 16). *How Retailers Can Reach Consumers Who Aren't Spending: A. Harvard Business Review* . Retrieved from A. Harvard Business Review Web site: https://hbr.org/2020/04/how-retailers-can-reach-consumers-who-arent-spending

Nasir, S. (2021). Marketing Strategies in Competitive Markets and Challenging Times. *IGI Global*.

Nielsen. (2020, October 3). *Insights: KEY CONSUMER BEHAVIOR THRESHOLDS IDENTIFIED AS THE CORONAVIRUS OUTBREAK EVOLVES: A. Nielsen*. Retrieved from A. Nielsen Web site:

https://www.nielsen.com/us/en/insights/article/2020/key-consumer-behavior-thresholds-identified-as-the-coronavirus-outbreak-evolves/

Nielsen Connected Commerce Report. (2018, December 17). *EXAMINES CONSUMERS' ONLINE PURCHASING BEHAVIOR ACROSS 64 COUNTRIES: Nielsen*. Retrieved from Nielsen Web site: https://www.nielsen.com/us/en/news-center/2018/nielsen-connected-commerce-report-examines-consumers-online-purchasing-behavior-across-64-countries/

Nishanthini, A., & Nimalathasan, B. (2013). Determinants of profitability: A case study of listed manufacturing companies in Sri Lanka. *Merit Research Journals*, 1-3.

Noko, I. (2018). *Enterprise Development and Transformation in the FMCG and Agriculture Sector .* Johannesburg: NPI Governance Consulting.

Olabode, O., Boso, N., Hultman, M., & Leonidou, C. (2022). Big Data Analytics Capability and Market Performance: The Roles of Disruptive Business Models and Competitive Intensity. *Journal of Business Research* , 1218-1230.

Price Waterhouse Coopers. (2012, January 14). *South African Retail and Consumer Products Outlook 2012 - 2016*. Retrieved from PWC: https://www.pwc.co.za/en/assets/pdf/retail-and-consumer-products-outlook-2012-2016.pdf

Rashid , B. (2017). Access methods for Big Data: current status and future directions. *ICST Transactions on Scalable Information Systems*, 4(15):153520.

Rejeb , A., Rejeb , K., & Keogh, J. (2020). POTENTIAL OF BIG DATA FOR MARKETING: A LITERATURE REVIEW. *Management Research and Practice*, 60-70.

Saidali, J., Rahich, H., Tabaa, Y., & Medouri, A. (2019). The combination between Big Data and Marketing Strategies to gain valuable Business Insights for better Production Success. *Procedia Manufacturing* , 1017-1023.

Salkind, N. J. (2017). *Statistics for People Who(think they) Hate Statistics.* London: Sage Publications.

Saunders, M., Lewis , P., & Thornhill, A. (2009). Research methods for business students, fifth edition. Harlow: Pearson Education Limited.

Seseni, L., & Mbohwa, C. (2021). The Significance of Big Data in the Success of SMEs in Emerging Markets: A case of South Africa. *IEOM Society International* , 7-11.

Shunda, N. (2007). *What is a Literature Review? (and How Do I Write One?!).* Storrs, Connecticut : University of Connecticut.

Sivarajaha, U., Irania, Z., Gupta, S., & Mahroofa, K. (2020). Role of big data and social media analytics for business to business sustainability: A participatory web context. *Industrial Marketing Management*, 163-179.

Smith, B. (2003). Success and failure in marketing strategy making: Results of an empirical study across medical markets. *International Journal of Medical Marketing*, 287 - 289.

Somashekar, C., & Kaboor, A. (2016). Marketing Strategies of FMCG Companies - A Study on Factors Influencing Buying Food, Health and Beverages in Mysore. *International Journal of Engineering and Management Research*, 393-397.

Srivastava, R., Fahey, L., & Christensen, K. (2001). The Reource-based view and marketing: The role of market-based assets in gaining competitive advantage. *Journal of Management*, 777-802.

Sun, S. (2008). Organizational Culture and It's Themes. *International Journal of Business and Management*, 137-141.

Tan , K., & Zhan, Y. (2016). Improving new product development using big data: a case study of an electronics company. *R&D Management*, Pages 570-582.

The University of Southern California. (2020, November 1). *Research Guides: USC Libraries*. Retrieved from USC Libraries Web site: https://libguides.usc.edu/writingguide/researchdesigns

Ugur, N. G., & Turan, A. H. (2020). Understanding Big Data. *Advances in Data Mining and Database Management*, 1-29.

Wagner, C., Kawulich, B., & Garner, M. (2012). *Doing Social Research: A Global Context.* New York: McGraw-Hill Higher Education.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal* , 171-180.

Zhan, Y., Tan, K. H., Ji, G., Chung, L., & Tseng, M.-L. (2017). A big data framework for facilitating product innovation processes. *Business Process Management Journal*, 23(3):518-536.

Zhan, Y., Tan, K., Ji, G., & Chung, L. (2017). A big data framework for facilitating product innovation processes. *Business Process Management Journal*, 518-536.

APPENDIX

Appendix 1: Research Participant cover letter



Institution: University of the Witwatersrand,

Welcome to this Research Study!

My name is Thembelihle Lephoko and I am a Master's student in Business Administration at the University of the Witwatersrand in Johannesburg. As part of my studies, I am undertaking a research project, and investigating Marketing Strategy and Business Profitability in the South African Fast Moving Consumer Goods (FMCG) Industry.

This research project aims to investigate how marketing strategy constructs (Customer Segmentation & Targeting and product innovation when influenced by Big Data constructs (Accessibility to big data, understanding of big data, Processing of big data, data-driven culture, and people managerial skills) can drive business profits. As part of this project, I would like to invite you to take part in answering a questionnaire. This survey will take 10-15 minutes. The questionnaire will be completely confidential, and the information you give me will be held securely and not disclosed to anyone else.

By proceeding with the survey, you acknowledge:

- Your participation in the study is voluntary
- You are aware that you may choose to terminate your participation at any time for any reason

My Contact Details

Thembelihle Lephoko

Cell Number: 072 546 2348

Student Number 327716

Email address: 327716@students.wits.ac.za

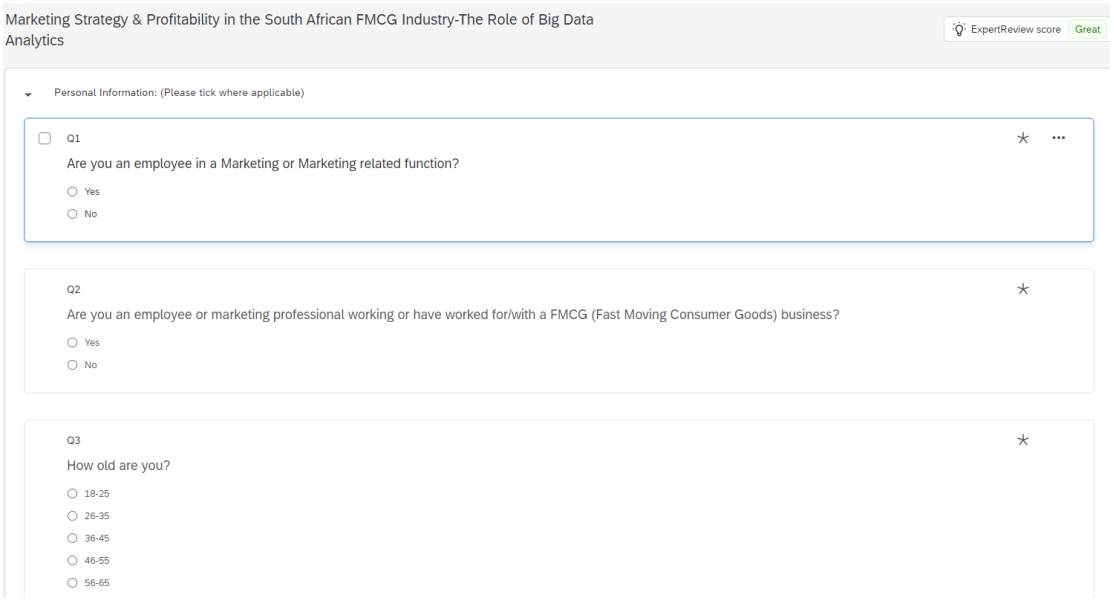
Supervisor Contact Details

Emmanuel Quaye

Cell Number: 061 771 3369

Email address: emmanuel.quaye@wits.ac.za

Appendix 2: A questionnaire survey



Marketing Strategy & Profitability in the South African FMCG Industry-The Role of Big Data Analytics

ExpertReview score Great

Personal Information: (Please tick where applicable)

Q1 *

Are you an employee in a Marketing or Marketing related function?

- Yes
- No

Q2 *

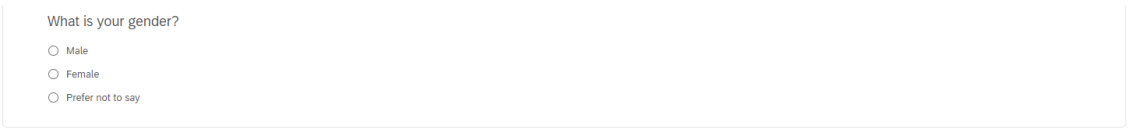
Are you an employee or marketing professional working or have worked for/with a FMCG (Fast Moving Consumer Goods) business?

- Yes
- No

Q3 *

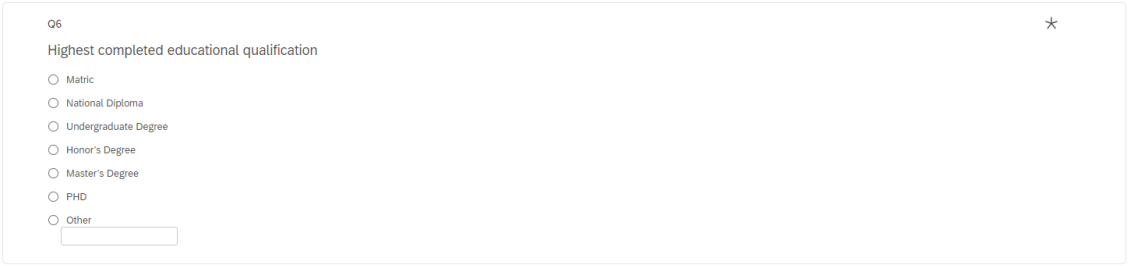
How old are you?

- 18-25
- 26-35
- 36-45
- 46-55
- 56-65



What is your gender?

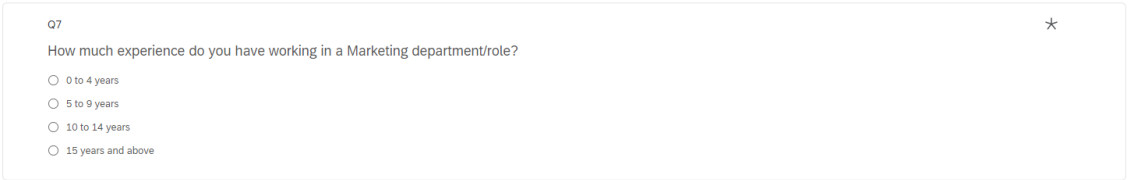
- Male
- Female
- Prefer not to say



Q6 *

Highest completed educational qualification

- Matric
- National Diploma
- Undergraduate Degree
- Honor's Degree
- Master's Degree
- PHD
- Other



Q7 *

How much experience do you have working in a Marketing department/role?

- 0 to 4 years
- 5 to 9 years
- 10 to 14 years
- 15 years and above

Q8

I have access to very large, unstructured, and fast-moving data

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q9

I can access big data as and when I need it and, on the go.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q10

I have access to multiple sources of data that I integrate into one warehouse

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q11

I integrate external data with internal data to analyse our business environment & to inform my decision-making

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Page Break

Q12

I have some knowledge of the phenomenon of Big Data Analytics and its growing importance

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q13

I understand the benefit of having large amounts of data to influence my company and my work

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree

Q14 *

I understand that Big Data Analytics is a capability that my company should invest in to facilitate decision making

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Page Break

Q15 *

I have adopted/used computing approaches (e.g., R, Python, Machine learning) for big data processing

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q16 *

I have explored and used software's (e.g., Nielsen, Marketing Cloud Sales Force) to process and perform analytics

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q17 *

I have explored and used tools (e.g., Excel, Graphs, Adobe) to structure and simplify large volumes of data

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Add page break

Q18 *

I have integrated external sources of large amounts of data (e.g., Dunnhumby, Mastercard data) as part of our big data processing and analytics

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Page Break

Q19 *

I base my decision-making process on data rather than instinct

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q20

I am willing to override our instinct when big data is contradictory to our opinions

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Add page break

Q21 *

Our company encourages marketing employees to make decisions based on data

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q22 *

Our company is willing to invest softwares, computing approaches and cloud-based services for big data processing

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q23 *

I have got the skill to process and extrapolate insights from big data

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q24 *

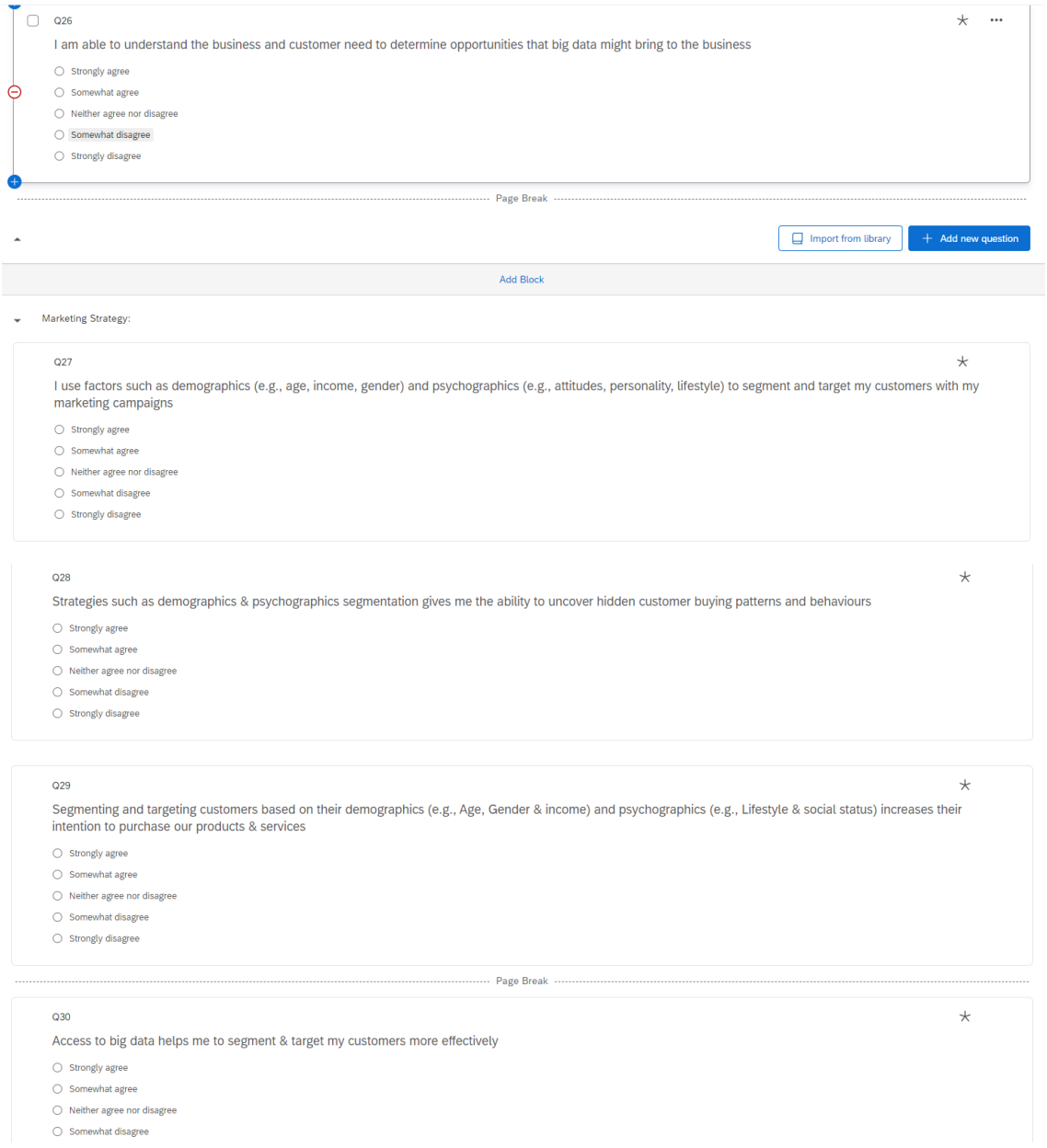
I can understand and evaluate the outputs extracted from Big Data

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q25 *

I can coordinate and uncover patterns and insights from big data that supports the business and customer needs

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree


Q26
I am able to understand the business and customer need to determine opportunities that big data might bring to the business
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
Page Break
Import from library
Add new question
Add Block
Marketing Strategy:
Q27
I use factors such as demographics (e.g., age, income, gender) and psychographics (e.g., attitudes, personality, lifestyle) to segment and target my customers with my marketing campaigns
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
Q28
Strategies such as demographics & psychographics segmentation gives me the ability to uncover hidden customer buying patterns and behaviours
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
Q29
Segmenting and targeting customers based on their demographics (e.g., Age, Gender & income) and psychographics (e.g., Lifestyle & social status) increases their intention to purchase our products & services
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
Page Break
Q30
Access to big data helps me to segment & target my customers more effectively
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree

Q31

I use multiple big data sources to inform my customer segmentation & targeting decision making process

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q32

Big Data allows me to uncover hidden customer buying behaviour & patterns and helps me target them accordingly

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q33

I intend to use Big Data Analytics when developing customer segmentation & targeting strategies in the future

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q34

I can bring new products into the market on time and faster than my competitors

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Add page break

Q35

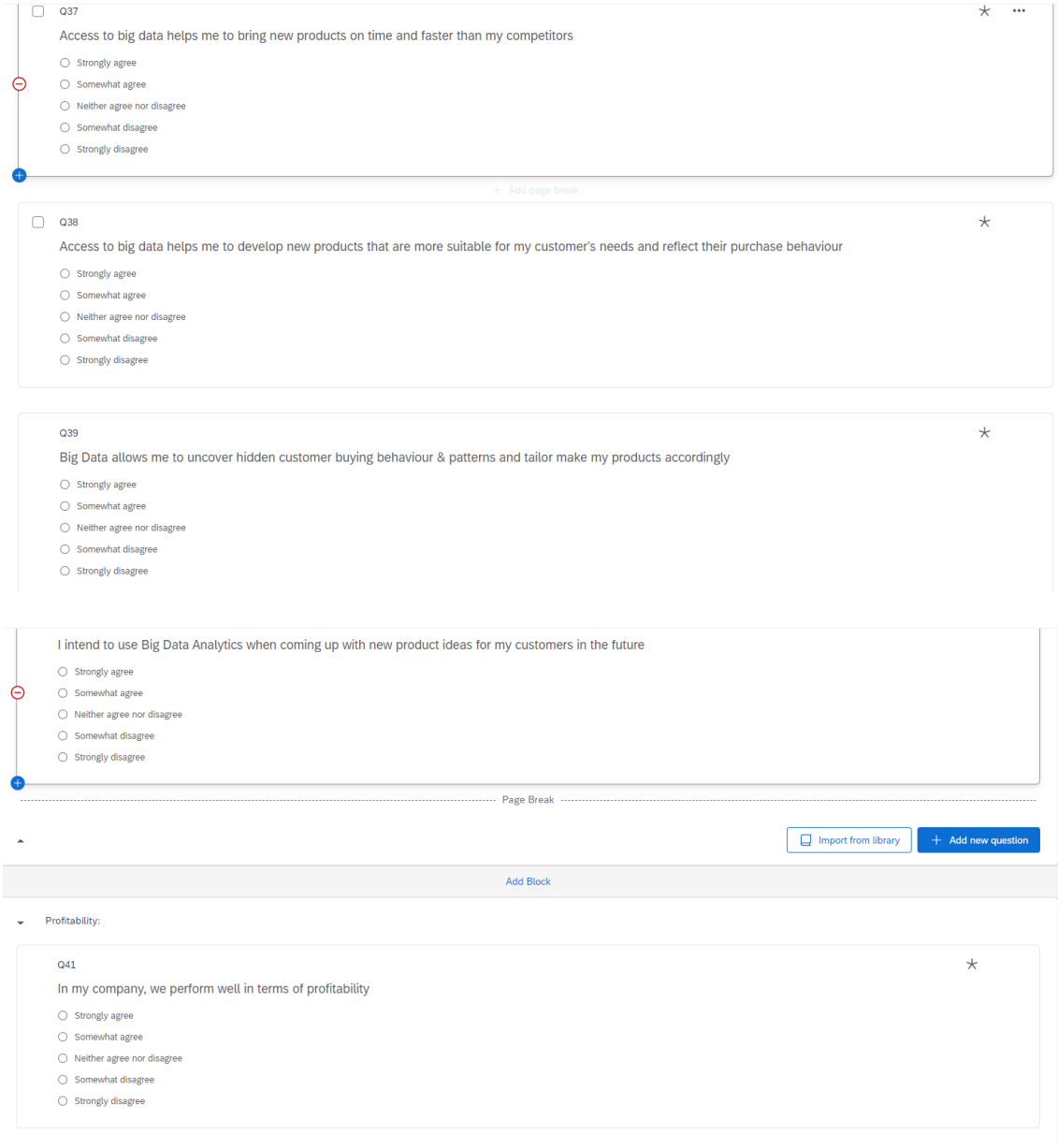
Our product innovation process allows me to revive and improve my products according to customer needs

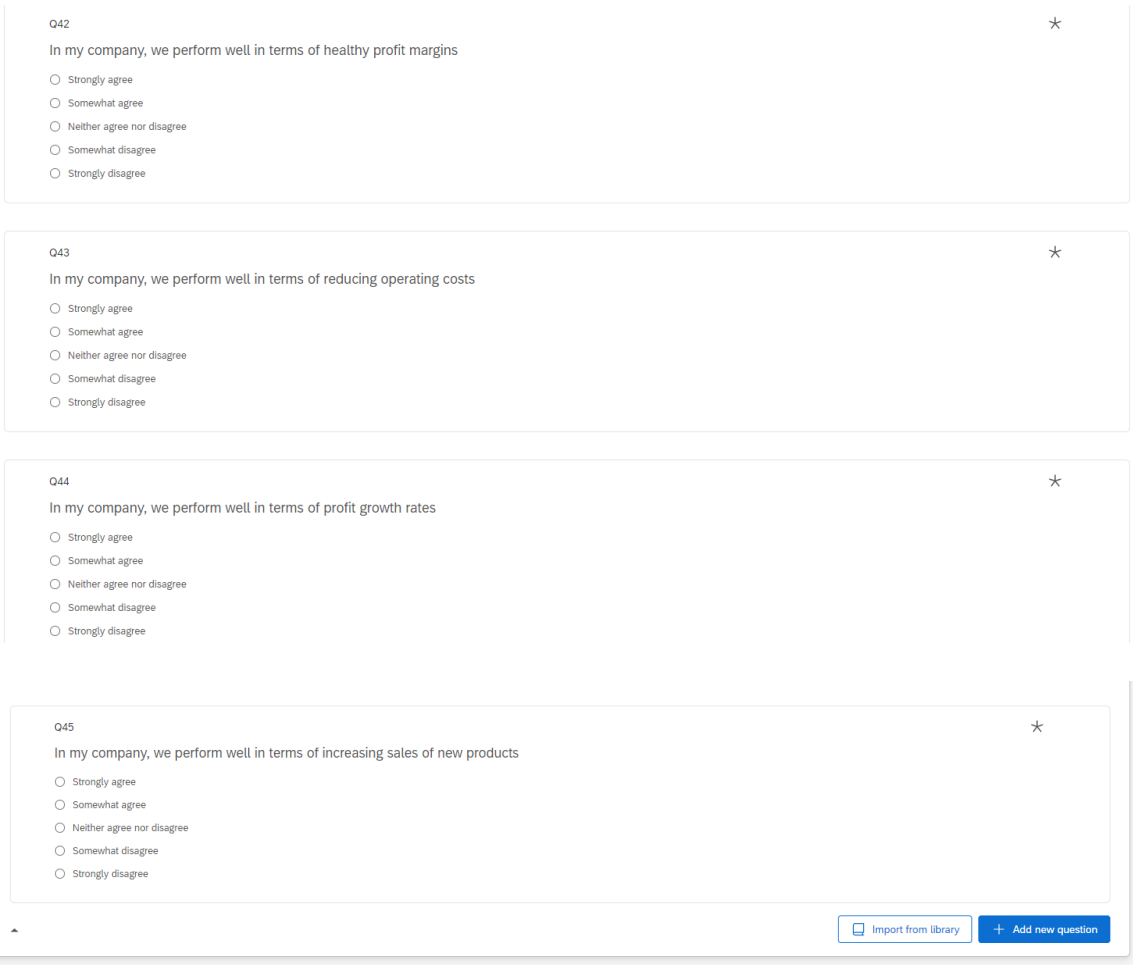
- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q36

I consistently observe consumer behaviour and the operating environment to come up with new product ideas that will bring new customers into our company

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree


Q37
Access to big data helps me to bring new products on time and faster than my competitors
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
Add page break
Q38
Access to big data helps me to develop new products that are more suitable for my customer's needs and reflect their purchase behaviour
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
Q39
Big Data allows me to uncover hidden customer buying behaviour & patterns and tailor make my products accordingly
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
I intend to use Big Data Analytics when coming up with new product ideas for my customers in the future
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
Page Break
Import from library
Add new question
Add Block
Profitability:
Q41
In my company, we perform well in terms of profitability
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree


Q42
In my company, we perform well in terms of healthy profit margins
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
Q43
In my company, we perform well in terms of reducing operating costs
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
Q44
In my company, we perform well in terms of profit growth rates
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
Q45
In my company, we perform well in terms of increasing sales of new products
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
Import from library
Add new question

Appendix 3: Ethics Clearance Certificate

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/BA327716/250
This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

Project title	Marketing strategy and business profitability in the South African FMCG industry
Investigator / Researcher	Ms Thembelihle Lephoko
Nature of Project	MBA (Research Article)
Decision of the Committee	Approved unconditionally
Issue Date of Certificate	2021-03-10
Expiry date	Date of submission of the project report
Chairperson	Dr Manamela Matshabaphala ☎ +27 11 717 3668 Manamela.Matshabaphala@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

Signature

29/03/2021
Date:

Appendix 4: Research Results tables and graphs

Construct Validity Correlations

Table 1: Big Data Access Scale (BDA)

		BDA1	BDA2	BDA3	BDA4
BDA1	Pearson Correlation	1	.520**	.607**	.487**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	146	146	146	146
BDA2	Pearson Correlation	.520**	1	.563**	.408**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	146	146	146	146
BDA3	Pearson Correlation	.607**	.563**	1	.578**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	146	146	146	146
BDA4	Pearson Correlation	.487**	.408**	.578**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	146	146	146	146

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2: Understanding Big Data Scale

		UBD1	UBD2	UBD3
UBD1	Pearson Correlation	1	.591**	.553**
	Sig. (2-tailed)		<.001	<.001
	N	145	145	145
UBD2	Pearson Correlation	.591**	1	.807**
	Sig. (2-tailed)	<.001		<.001
	N	145	145	145
UBD3	Pearson Correlation	.553**	.807**	1
	Sig. (2-tailed)	<.001	<.001	
	N	145	145	145

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3: Big Data Processing Tools

		BDPT1	BDPT2	BDPT3
BDPT1	Pearson Correlation	1	.515**	.610**
	Sig. (2-tailed)		<.001	<.001
	N	143	143	143
BDPT2	Pearson Correlation	.515**	1	.563**
	Sig. (2-tailed)	<.001		<.001
	N	143	143	143
BDPT3	Pearson Correlation	.610**	.563**	1
	Sig. (2-tailed)	<.001	<.001	
	N	143	143	143

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4: Big Data Culture

		BDC1	BDC2	BDC3	BDC4
BDC1	Pearson Correlation	1	.301**	.294**	.208*
	Sig. (2-tailed)		<.001	<.001	.013
	N	142	142	142	142
BDC2	Pearson Correlation	.301**	1	.208*	.233**
	Sig. (2-tailed)	<.001		.013	.005
	N	142	142	142	142
BDC3	Pearson Correlation	.294**	.208*	1	.441**
	Sig. (2-tailed)	<.001	.013		<.001
	N	142	142	142	142
BDC4	Pearson Correlation	.208*	.233**	.441**	1
	Sig. (2-tailed)	.013	.005	<.001	
	N	142	142	142	142

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 5: Big Data Skills and Competencies

		BDSC1	BDSC2	BDSC3	BDSC4
BDSC1	Pearson Correlation	1	.656**	.575**	.603**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	142	142	142	142
BDSC2	Pearson Correlation	.656**	1	.726**	.730**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	142	142	142	142
BDSC3	Pearson Correlation	.575**	.726**	1	.757**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	142	142	142	142
BDSC4	Pearson Correlation	.603**	.730**	.757**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	142	142	142	142

**. Correlation is significant at the 0.01 level (2-tailed).

Table 6: Customer Segmentation and Targeting

		CST1	CST2	CST3
CST1	Pearson Correlation	1	.502**	.432**
	Sig. (2-tailed)		<.001	<.001
	N	141	141	141
CST2	Pearson Correlation	.502**	1	.755**
	Sig. (2-tailed)	<.001		<.001
	N	141	141	141
CST3	Pearson Correlation	.432**	.755**	1
	Sig. (2-tailed)	<.001	<.001	
	N	141	141	141

**. Correlation is significant at the 0.01 level (2-tailed).

Table 7: Usefulness of Customer Segmentation

UOCST1	Pearson Correlation	1	.555**	.440**	.498**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	141	141	141	141
UOCST2	Pearson Correlation	.555**	1	.364**	.363**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	141	141	141	141
UOCST3	Pearson Correlation	.440**	.364**	1	.500**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	141	141	141	141
UOCST4	Pearson Correlation	.498**	.363**	.500**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	141	141	141	141

**. Correlation is significant at the 0.01 level (2-tailed).

Table 8: Product Innovation

		PI1	PI2	PI3
PI1	Pearson Correlation	1	.609**	.257**
	Sig. (2-tailed)		<.001	.002
	N	141	141	141
PI2	Pearson Correlation	.609**	1	.444**
	Sig. (2-tailed)	<.001		<.001
	N	141	141	141
PI3	Pearson Correlation	.257**	.444**	1
	Sig. (2-tailed)	.002	<.001	
	N	141	141	141

**. Correlation is significant at the 0.01 level (2-tailed).

Table 9: Usefulness of Product Innovation

		UOPI1	UOPI2	UOPI3	UOPI4
UOPI1	Pearson Correlation	1	.544**	.410**	.411**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	141	141	141	141
UOPI2	Pearson Correlation	.544**	1	.771**	.547**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	141	141	141	141
UOPI3	Pearson Correlation	.410**	.771**	1	.614**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	141	141	141	141
UOPI4	Pearson Correlation	.411**	.547**	.614**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	141	141	141	141

**. Correlation is significant at the 0.01 level (2-tailed).

Table 10: Profitability of FMCG

		P1	P2	P3	P4	P5
P1	Pearson Correlation	1	.781**	.488**	.638**	.615**
	Sig. (2-tailed)		<.001	<.001	<.001	<.001
	N	141	141	141	141	141
P2	Pearson Correlation	.781**	1	.570**	.659**	.589**
	Sig. (2-tailed)	<.001		<.001	<.001	<.001
	N	141	141	141	141	141
P3	Pearson Correlation	.488**	.570**	1	.585**	.493**
	Sig. (2-tailed)	<.001	<.001		<.001	<.001
	N	141	141	141	141	141
P4	Pearson Correlation	.638**	.659**	.585**	1	.521**
	Sig. (2-tailed)	<.001	<.001	<.001		<.001
	N	141	141	141	141	141
P5	Pearson Correlation	.615**	.589**	.493**	.521**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	
	N	141	141	141	141	141

**. Correlation is significant at the 0.01 level (2-tailed).

Table 11: Big Data Awareness

		BDAWS1	BDAWS2	BDAWS3
BDAWS1	Pearson Correlation	1	.591**	.553**
	Sig. (2-tailed)		<.001	<.001
	N	145	145	145
BDAWS2	Pearson Correlation	.591**	1	.807**
	Sig. (2-tailed)	<.001		<.001
	N	145	145	145
BDAWS3	Pearson Correlation	.553**	.807**	1
	Sig. (2-tailed)	<.001	<.001	
	N	145	145	145

**. Correlation is significant at the 0.01 level (2-tailed).

Chart 1: Marketing Employees

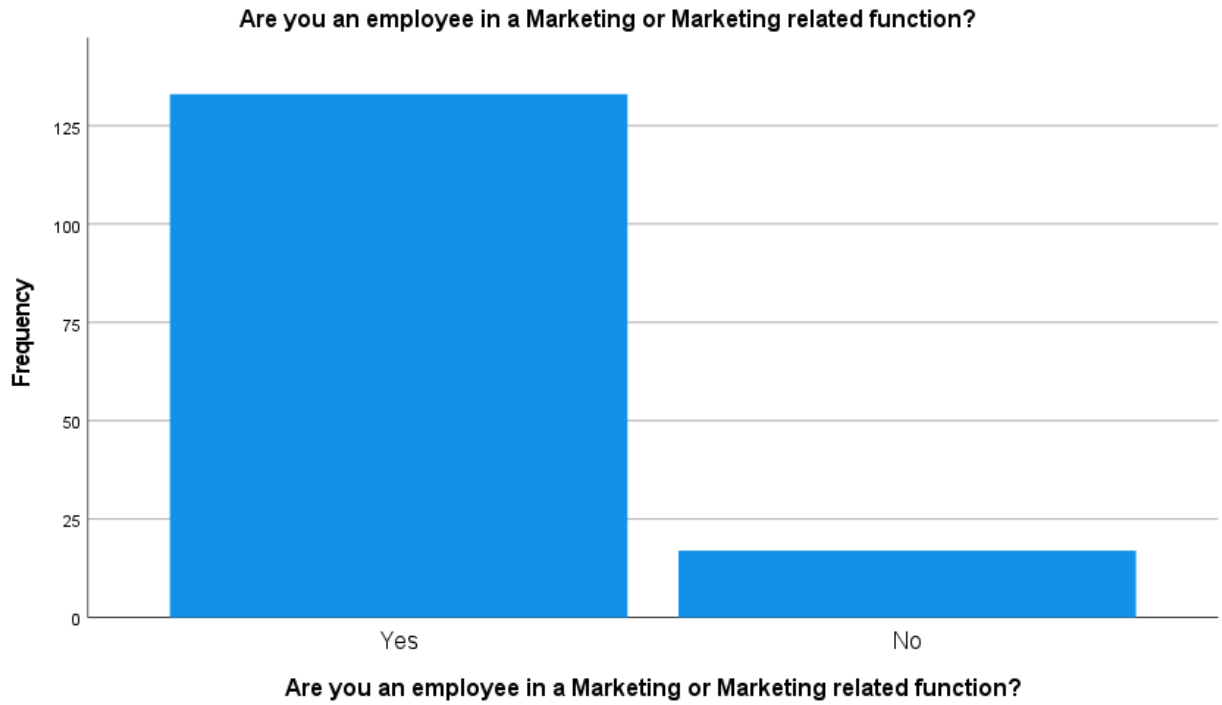


Chart 2: FMCG Employees

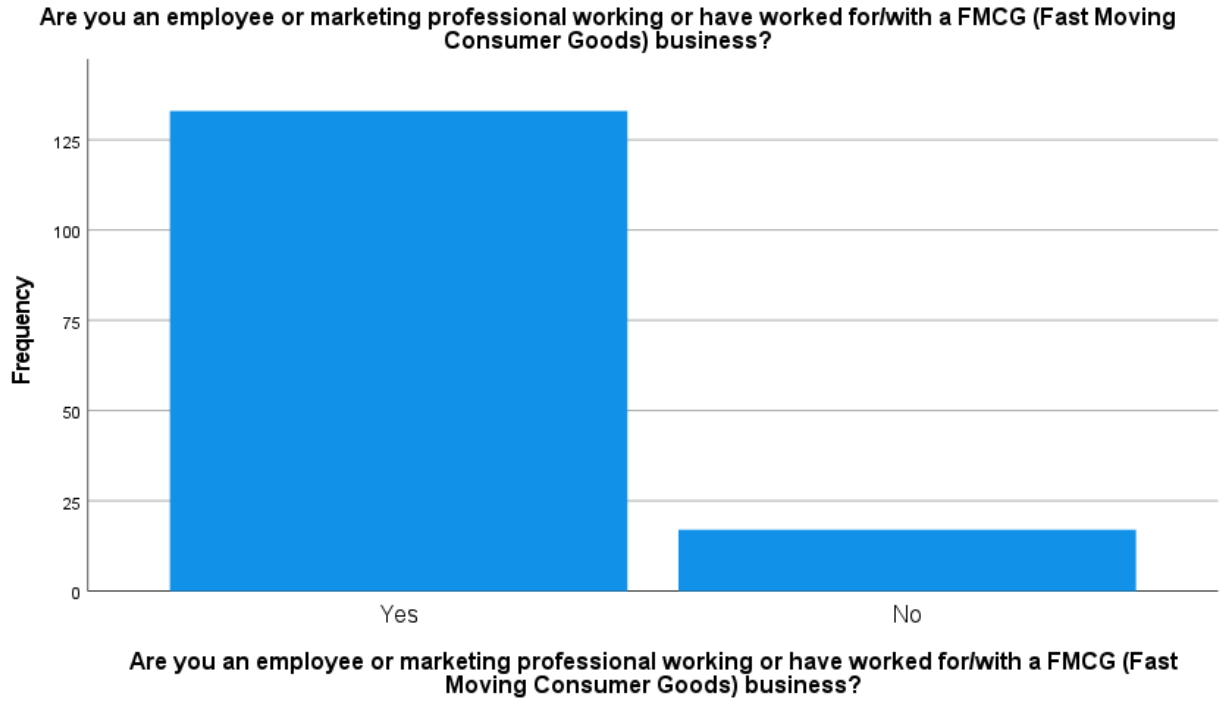


Chart 3: Age profile

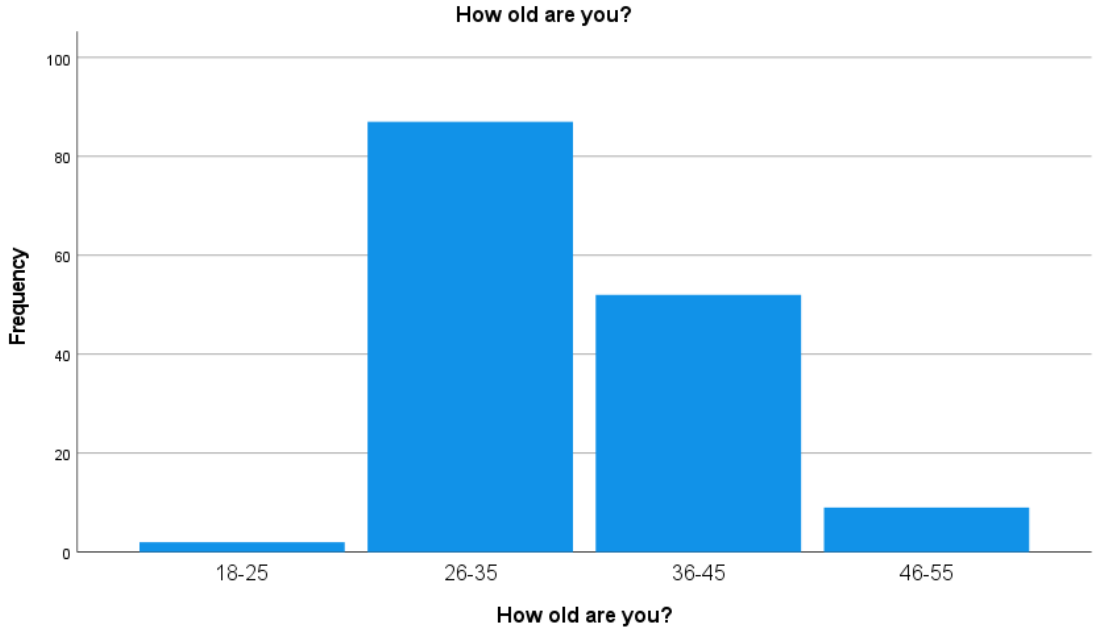


Chart 4: Gender profile

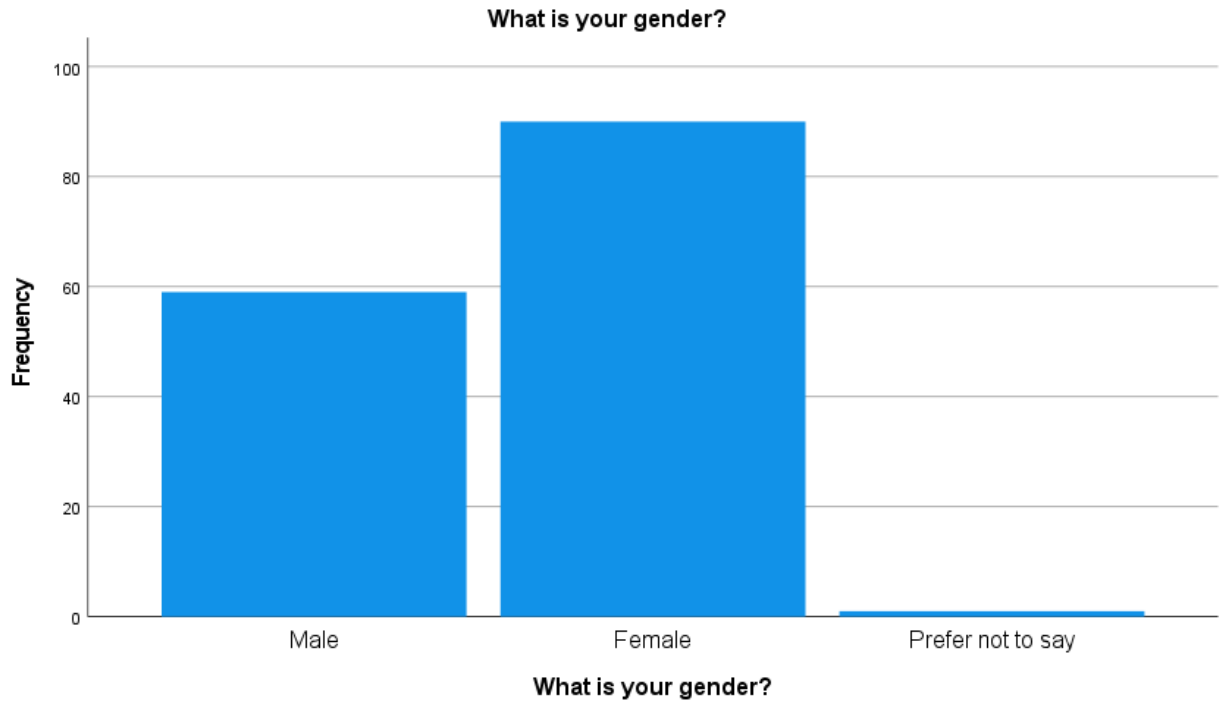


Chart 5: Education profile

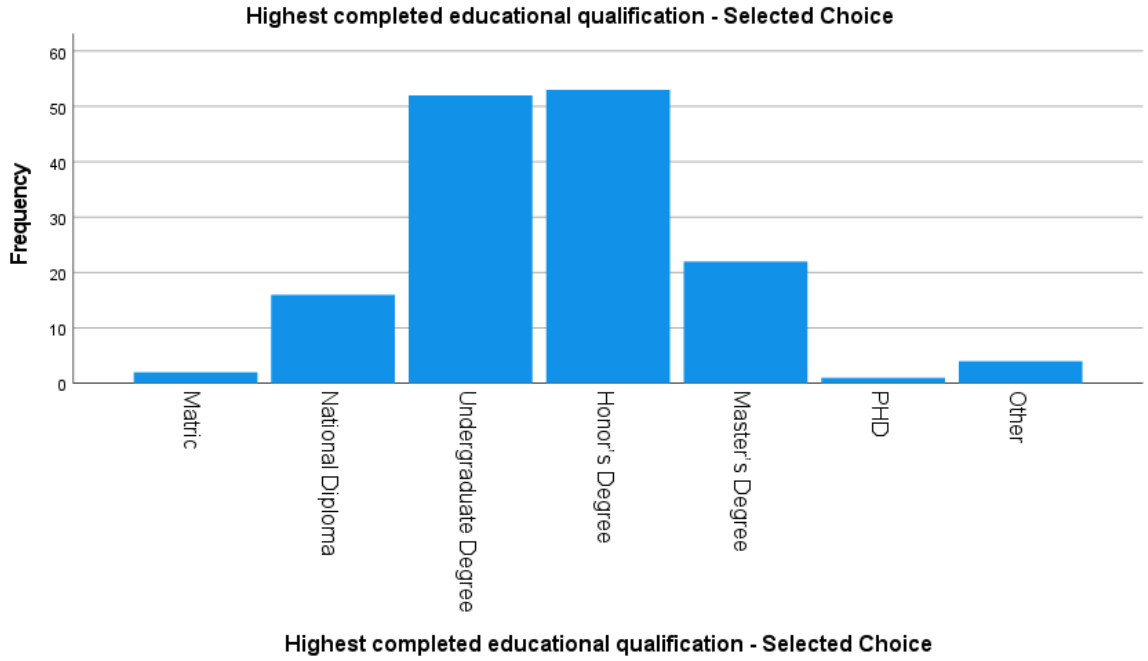


Chart 5: Years of Marketing Experience

