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Dynamic customisation of products and services through intelligent communication

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A research report 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 Management in the field of Digital Business

Johannesburg, 2024

Supervisor: Dr Nakuze Chalomba

ABSTRACT

This research explored how intelligent communication strategies could enable dynamic customisation of products and services within South African businesses. The study aimed to address the gap in AI-driven customisation adoption by investigating how businesses leverage AI, machine learning, and data analytics to enhance customer-centric product offerings. Using a qualitative research design, in-depth interviews with business leaders and industry experts were conducted. Thematic analysis through ATLAS.ti identified key themes related to AI integration, customer engagement, and business performance. The findings will contribute to both academic discourse and practical applications by offering insights into the challenges and opportunities of AI-driven product dynamism in emerging markets.

To achieve this, the study employed a structured interview guide designed to explore key research themes, including AI adoption challenges, customisation strategies, and consumer engagement. Participants were asked about their experiences with traditional and AI-driven communications, the role of intelligent automation in business operations, and the barriers to full-scale implementation. The interview guide ensured consistency in data collection while allowing flexibility for participants to share unique insights that align with their industry-specific experiences.

Findings from the study indicated that AI-driven intelligent communication significantly enhances customer engagement and operational efficiency, yet adoption remains limited due to cost constraints and skills shortages. Businesses that integrate AI with hybrid human-AI interaction models report higher customer satisfaction and trust. Additionally, regulatory uncertainty and infrastructure challenges were identified as key barriers to widespread AI implementation. The study provides strategic recommendations to overcome these barriers and optimise AI-driven customisation strategies, ensuring sustainable growth in South Africa’s evolving digital economy.

KEYWORDS

Product Dynamism, Intelligent Communication, Personalisation, Customer Centricity, Communication Preference, Smart Communications, Productization, Machine Learning, AI, Big Data, Analytics, Digital Business, Digital Strategy, Digitisation, E-Commerce

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DECLARATION

I, Sacheen Singh, hereby declare this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the Master of Management in the field of Digital Business at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

_____

Name: Sacheen Singh Signature:

Signed at Johannesburg

On this ……..25…… day of……..February……..2025…….

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LIST OF ACRONYMS

AI	Artificial Intelligence
B2B	Business-to-Business
B2C	Business-to-Consumer
BDA	Big Data Analytics
CES	Customer Effort Score
CRM	Customer Relationship Management
CSAT	Customer Satisfaction Score
DE4A	Digital Economy for Africa
DOI	Diffusion of Innovation
GDPR	General Data Protection Regulation
H2M	Human-to-Machine
IVR	Interactive Voice Response
KPI	Key Performance Indicators

M2M	Machine-to-Machine
MENA	Middle East and North Africa
ML	Machine Learning
NPS	Net Promoter Score
PEOU	Perceived ease of use
PU	Perceived Usefulness
RBV	Resource-Based View
RPA	Robotic Process Automation
SCM	Supply Chain Management
SDG	Sustainable Development Goals
SME	Small and Medium sized Enterprises
SMS	Short Messaging System
TAM	Technology Acceptance Model
TOE	Technology-Organisation-Environment

CHAPTER 1. INTRODUCTION

1.1 Statement of purpose

This research study aims to explore the utilisation of intelligent communication strategies to enable dynamic customisation of products and services with the objective to empower businesses to effectively respond to shifting consumer demands.

1.2 Background of the study

There is a common misunderstanding that communication and productization happen organically and the more you communicate, the greater your result in success of product sales and customer acquisition will be. This cannot be further from the truth in the current digital age where there are more variables that come into play than ever before like social media as described by (Barwise & Meehan, 2010). Digital transformation has been exhaustively surveyed and discussed by a multitude of organisations across the globe with the impact of Covid19 being the largest driver in accelerating digital adoption (A. M. Kaplan & Haenlein, 2010). However, it also surfaced key data providing insights into consumer purchase behaviour on digital platforms and the level of success of marketing initiatives (Blue, 2020) bringing about a shift towards online shopping, with many consumers trying it for the first time, particularly for groceries. This shift is likely to persist as consumers have become accustomed to the convenience of online shopping.

There has been a substantial drop in discretionary expenditure, hitting industries such as restaurants, fashion, footwear, and travel. Consumers have prioritised necessities such as groceries, household supplies, and personal hygiene products. This reprioritisation demonstrates a prudent attitude to spending amid economic uncertainty (Blue, 2020).

1.3 Research Problem

Recent research on intelligent communications and dynamic productization has mostly focused on the application of AI technology in a variety of industries to improve business processes and customer engagement.

Studies by (Calvaresi et al., 2023) and (Enholm et al., 2022) discuss how AI-driven tools are utilised for enhancing business communications through automation, natural language processing, and data analytics. These NVivo's help in creating personalised customer interactions and improving decision-making processes.

Further research by (Bavaresco et al., 2020) and (Loureiro et al., 2020) has highlighted the use of artificial intelligence (AI) to customise products and services based on real-time data and customer behaviour analytics. This technique enables organisations to dynamically adjust their offers in response to changes in customer behaviour and market demands.

A comprehensive literature review by (Schmidt et al., 2020) describes the theoretical basis and practical uses of AI in business strategy and operations. The evaluation underlines the importance of AI in improving operational efficiency and strategic decision-making.

Another study by (Wamba-Taguimdje et al., 2020) provides insights into how cognitive technologies are changing business paradigms and allowing for dynamic product customisation.

Despite global breakthroughs, there is little research and practical application of AI-driven intelligent communications and dynamic productization in South Africa and other African countries.

Many African businesses still rely on traditional methods of communication and product customisation. The integration of advanced AI technologies remains

relatively low due to factors such as limited access to technology, lack of skilled personnel, and financial constraints.

There is a significant gap in region-specific studies that address the unique challenges and opportunities for implementing these technologies in African markets. Most existing studies focus on developed economies with well-established technological infrastructures.

In order to address these gaps, several steps need to be taken by conducting region-specific research through in-depth studies that focus on the African context. This includes understanding local consumer behaviour, market dynamics, and the specific challenges faced by businesses in the region with emphasis on the informal business sector and operations.

Increasing investment in education and training programs to cultivate local expertise in AI technology is essential for adoption and will aid in closing the skills gap. This includes partnerships with universities, public and private organisations to provide the necessary skills, knowledge, access and innovation hubs.

Improving technology infrastructure to facilitate the deployment of AI-driven solutions is a critical success factor. This could involve government initiatives and public-private partnerships to improve access to advanced technologies.

The implementation of pilot projects and case studies aid in demonstrating the benefits of intelligent communications and dynamic productization. Successful examples can encourage broader adoption and provide valuable insights into best practices.

A systematic literature review conducted between 2020 and 2024 highlights the growing importance of AI in transforming business operations and customer engagement strategies. The review reveals that while there has been substantial progress in the development of AI technologies and their applications in business, there are still significant gaps in the adoption and implementation of these

technologies in emerging markets, particularly in Africa cited in various sources on (Springer, 2020) and (ScienceDirect, 2020).

The integration of intelligent communications and dynamic productization is expected to have a profound impact on consumer behaviour and marketing strategies where AI-driven personalisation can lead to more engaging and relevant customer experiences, which in turn can increase customer loyalty and satisfaction. Businesses can leverage real-time data to develop more effective marketing campaigns that are tailored to the specific needs and preferences of their target audiences.

1.4 Research Questions

RQ01. How will intelligent communication strategies be integrated into business operations that further product dynamism through AI based customisation?

RQ02. Which technologies are essential for facilitating intelligent communication and immediate customisation?

RQ03. What is the effect of these strategies on consumer satisfaction and business performance?

RQ04. What are the challenges and barriers to implementing these strategies in different industry sectors?

1.5 Rationale

This research is critical for several reasons as it provides actionable insights for businesses looking to enhance their customisation capabilities through intelligent communication strategies. Through a deeper understanding on how to implement these strategies effectively, businesses can improve their responsiveness to consumer demands and achieve better market positioning.

The study adds to the existing body of knowledge on technology adoption, consumer behaviour, and business strategy. It explores the relatively under-

researched area of dynamic customisation through intelligent communication, offering new theoretical and practical perspectives.

In an era where consumer expectations are constantly evolving, the ability to dynamically customise products and services is essential. This research will help businesses future-proof themselves by equipping them with the knowledge and tools needed to adapt to ongoing changes in the market.

The findings can also inform policymakers and industry regulators on the potential benefits and challenges associated with the adoption of intelligent communication technologies, helping to shape policies that encourage innovation while addressing concerns such as data privacy and security.

The chosen methodology, utilising a qualitative approach to provide a comprehensive understanding of the research problem, by performing in-depth interviews with industry experts and business leaders will offer rich, contextual insights into the current use and future potential of intelligent communication strategies. This will help in understanding the practical challenges and opportunities from a business perspective. Critical analysis on real-world examples of businesses that have successfully implemented intelligent communication strategies will provide practical illustrations of best practices and lessons learned. This approach will help in translating theoretical insights into actionable business strategies.

This study will furnish businesses with a framework for incorporating intelligent communication technologies, thereby augmenting their customisation capabilities, enhancing consumer satisfaction, and facilitating sustained success. This will enable businesses to more effectively address their needs, resulting in consumers receiving more personalised and responsive products and services, which will, in turn, elevate consumer satisfaction, foster brand loyalty, prolong consumer retention, and cultivate essential trust.

This study will enhance the existing academic debate on technology adoption and consumer behaviour, establishing a basis for future research in this domain.

Insights from this research can assist for future formulation of policies that encourage the adoption of innovative technologies while addressing potential challenges such as ethical use of customer behaviour data, data privacy and cyber-security.

1.6 Delimitations of the study

For this study on intelligent communication strategies and dynamic customisation, the delimitations are as follows:

This study will focus specifically on intelligent communication technologies, including artificial intelligence (AI), machine learning (ML), and data analytics with specific focus in these areas:

Industry Focus: While the principles of intelligent communication and dynamic customisation can apply to various industries, this study will primarily focus on consumer-facing industries such as retail, hospitality, and e-commerce. This selection is due to the higher prevalence and impact of customisation strategies in these sectors.

Type of Businesses: The study will concentrate on medium to large enterprises that have the resources and infrastructure to implement intelligent communication technologies.

Consumer Segment: The research will focus on adult consumers (ages 18 and above) who are active users of digital platforms and services.

Types of Customisations: The focus will be on dynamic customisation of products and services based on real-time data and consumer interactions.

Data Sources: Primary data will be collected through interviews, and case studies, while secondary data will be drawn from existing literature, market reports, and industry publications.

The methodological limitations of this study will encompass the use of a qualitative approach. It will not employ experimental or longitudinal designs, which might provide different insights but are outside the scope of this research.

These delimitations help ensure that the study remains focused, manageable, and relevant, providing valuable insights into the use of intelligent communication strategies for dynamic customisation in consumer-facing industries.

1.7 Definition of terms

Term	Definition
Artificial Intelligence (AI)	A branch of computer science that involves the creation of machines or systems capable of performing tasks that typically require human intelligence. This includes learning, reasoning, problem-solving, perception, and language understanding (A. B. Simmons & S. G. Chappell, 1988)
Consumer Behaviour	The study of how individuals or groups select, purchase, use, and dispose of products, services, experiences, or ideas to satisfy their needs and desires. It involves understanding the motivations, attitudes, and decision-making processes of consumers (Gabbott, 2007)
Consumer-Facing Industries	Industries that directly interact with end consumers, such as retail, hospitality, and e-commerce. These sectors typically prioritise customer experience and personalisation, making them ideal for studying the impact of intelligent communication strategies
Data Analytics	The process of examining, cleaning, transforming, and modelling data to discover useful information, draw conclusions, and

	support decision-making. In the context of this study, data analytics helps businesses understand consumer behaviour and preferences (Chong & Shi, 2015)
Dynamic Capabilities Framework	A business strategy framework that focuses on a company's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. It emphasises the importance of flexibility and responsiveness in achieving competitive advantage (C. L. Wang & Ahmed, 2007)
Dynamic Customisation	The ability to adapt products and services in real-time based on consumer feedback, interactions, and preferences. (Kim, 2002)
Intelligent Communication Technologies	Technologies that utilise artificial intelligence (AI), machine learning (ML), and data analytics to facilitate smart and efficient communication between businesses and consumers. These technologies enable automated, personalised, and data-driven interactions that can adapt in real-time to consumer needs and behaviours.(Balaji et al., 2019)
Machine Learning (ML)	A subset of AI that involves the development of algorithms and statistical models that enable computers to improve their performance on tasks through experience. ML systems learn from data to identify patterns and make decisions with minimal human intervention (El Naqa & Murphy, 2015)
Primary Data	Data collected directly by the researcher for the specific purpose of the study. It includes surveys, interviews, and direct observations (Ajayi, 2023)

Secondary Data	Data that has been previously collected and published by other sources, such as academic journals, industry reports, and market analyses. Secondary data is used to support and contextualise the primary research findings (Ajayi, 2023)
Technology Acceptance Model (TAM)	The technology acceptance model (TAM) is an information systems theory that explains how to encourage users to accept and utilise new technology (Davis & Venkatesh, 1996)

1.8 Assumptions

The following key assumptions were made for this study:

It is assumed that the data collected from businesses and consumers through surveys, interviews, and case studies will be accurate and reliable. Participants will provide truthful and relevant information regarding their experiences and practices related to intelligent communication strategies.

AI, machine learning, and data analytics are assumed to be the most relevant and impactful technologies for enabling intelligent communication and dynamic customisation in the current market context.

Consumers are assumed to be responsive to personalised communication and customisation efforts, leading to higher satisfaction and loyalty.

It is further assumed that the technological trends and consumer preferences identified in the study will remain relatively stable over the short to medium term to support the frameworks and methodologies outlined in this research.

It is assumed that industry experts and business leaders participating in the study have sufficient knowledge and experience to provide valuable insights into the implementation and impact of intelligent communication strategies.

It is assumed that the target consumer segment (digitally active adults) regularly engages with digital platforms and services, making them suitable for studying the impact of intelligent communication strategies.

An assumption is that all participants in the research (both businesses and consumers) will comply with ethical standards, including informed consent and voluntary participation.

By articulating these assumptions, the study establishes a clear foundation for its research framework and methodology. These assumptions guide the research design and help ensure that the study's scope remains focused and feasible.

1.9 Chapter Outline

This chapter covers the integral factors of targeting consumers at the right time with the right product on the right platform so increase the propensity rate of a successful outcome on the communication, conversation rate from awareness to acquisition and building an effective and sustainable business strategy. There are various factors within the area of product dynamism and intelligent communications that directly and indirectly impact the nature of success in this application further bolstered by business appetite and risk for pricing models aimed at consumer uptake rather than simply business profits. Data analytics and technology are pertinent to the success of any type of intelligent communications and product customisation in real-time as without these technologies, the model and framework would simply not work.

CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

In recent years, there has been much academic research on intelligent communication techniques and dynamic productization. Research has investigated the incorporation of AI in different areas of corporate operations, such as marketing, supply chain management (SCM), and customer service. A recent systematic literature analysis conducted by (Di Vaio et al., 2024) examined the impact of AI on digital SCM. The review emphasised the growing significance of AI-driven digital transformation in improving accountability and sustainable performance.

(Di Vaio et al., 2024) examined the use of artificial intelligence (AI) into supply chain management with the goal of enhancing digital knowledge management and operational resilience. This study highlighted the crucial significance of artificial intelligence in propelling the process of digital transformation and attaining the objectives of (SDGs).

A recent study by (Reis et al., 2020) conducted a thorough analysis of the profound influence of artificial intelligence on service delivery systems. The study specifically emphasised the significant role played by virtual channels and intelligent automation in improving both customer experience and operational efficiency.

(Dekimpe, 2020) research emphasises the utilisation of AI to enhance marketing strategies by employing more effective response pricing algorithms. This involves considering customer preferences, rival tactics, and the dynamics of the supply network.

The study conducted by (Dreyer et al., 2019) highlights the significance of smart services in facilitating ongoing value co-creation between service providers and customers, enabling them to adapt to the ever-evolving client requirements.

Various studies have thoroughly examined dynamic pricing strategies in diverse industries. An investigation by (Gibbs et al., 2017) on the use of dynamic pricing by Airbnb hosts and found that, unlike hotels, most hosts make limited use of demand-based price adjustments. Hosts with multiple listings, greater experience, and properties in high-demand markets were more likely to adopt dynamic pricing, though its implementation remained inconsistent. The study suggests that Airbnb could encourage broader adoption of dynamic pricing to optimize occupancy and income while cautioning against potential guest dissatisfaction due to frequent price fluctuations.

An investigation into the use of regression approaches in the context of dynamic pricing for movie tickets by (Gupta et al., 2018) revealed how pricing models can adapt in real-time to changes in consumer demand.

In a thorough literature analysis conducted by (Neubert, 2022), he examined the efficacy of dynamic pricing strategies and their influence on consumer perceptions and behaviours in different industries.

The subsequent sections of this literature review will provide a more in-depth analysis of the main themes and discoveries from previous research, organised according to these theoretical frameworks. This will encompass an analysis of the technologies utilised, the procedures of adoption and implementation, the influence on consumer behaviour, and the broader consequences for corporate strategy and performance.

2.2 Definition of topic

This study examines intelligent communication techniques and their significance in facilitating the dynamic customisation of products and services. It specifically investigates how technologies such as AI, ML, and data analytics might be used

to enable immediate, customised interactions between businesses and consumers. By utilising these technologies, firms may adjust their products and services to better suit evolving consumer needs, thus improving consumer happiness and loyalty.

In the current dynamic and competitive market landscape, businesses need to consistently adjust their strategies to cater to the changing needs of consumers. Conventional standardised methods for creating and delivering products and services are no longer adequate, as consumers now demand customised and adaptable experiences. The emergence of intelligent communication technologies, such as AI, ML, and data analytics, presents considerable opportunities for organisations to improve their customisation skills and effectively fulfil consumer demands.

Contemporary customers expect individualised interactions and customised offerings, influenced by their encounters with digital platforms that give personalised recommendations and services.

The advent of AI, ML, and data analytics has revolutionised the methods by which firms gather, analyse, and employ data. These technologies facilitate instantaneous, data-based decision-making, enabling the flexible customisation of products and services.

Amidst a market defined by swift transformations and fierce rivalry, enterprises that can promptly adjust their products or services in response to consumer feedback are more likely to achieve success. Dynamic customisation is a crucial factor that can improve client happiness and loyalty.

Notwithstanding the advantages, numerous firms encounter substantial obstacles when it comes to using intelligent communication techniques. These factors encompass technological intricacy, worries about data privacy, and the requirement for significant investment in new systems and processes.

Gaining insight into consumer preferences and behaviours is essential for successful personalisation. Consumer behaviour theories provide valuable insights that enable firms to customise their communication and offers to align with the specific requirements and expectations of individual consumers.

The objective of this study is to investigate the effective utilisation of intelligent communication strategies for enabling dynamic customisation. The research aims to offer significant insights to firms seeking to improve their market responsiveness and achieve long-term success by analysing the junction of innovative technologies and business practices.

This study will emphasise practical applications and real-world examples of effective implementation by examining consumer-facing industries such as retail, hotel, and e-commerce. The results will enhance comprehension of how organisations might utilise intelligent communication technology to fulfil the increasing need for customised experiences, ultimately establishing a competitive position in a swiftly evolving industry.

2.3 How will intelligent communication strategies be integrated into business operations that further product dynamism through AI based customisation?

The literature discusses the convergence of AI and corporate strategy, highlighting the challenges of practical implementation and the strategic use of AI to create business value (Kitsios & Kamariotou, 2021). It proposes a theoretical model focusing on AI's role in knowledge management and service innovation. To investigate the mechanisms through which intelligent communication technologies (such as AI, ML, and data analytics) facilitate the real-time personalisation of products and services, and to identify the key processes and tools involved in this dynamic customisation.

Another study reviews how AI integration enhances organisational effectiveness, particularly in customer relationship management (CRM), emphasising the strategic alignment of AI tools with business processes (Ledro et al., 2023)

2.3.1 *What are the key technologies required to enable intelligent communication and real-time customisation?*

Networks provide the necessary high-speed, low-latency, and reliable connectivity required for real-time data transmission and communication. 5G, and future 6G networks, support the high data rates and low latency needed for applications such as the Tactile Internet, which facilitates real-time remote control and haptic feedback (Tychola et al., 2023a). IoT enables interconnected devices to communicate and share data in real-time, which is critical for intelligent customisation. IoT devices collect and analyse data from various sources, providing insights that can be used to tailor products and services to individual needs (Tychola et al., 2023b).

AI and ML algorithms analyse data from various sources to provide real-time insights and predictions. These technologies enable intelligent decision-making and automation, which are essential for personalising user experiences and optimising communication strategies. As researched by (C. Wang et al., 2023) advanced sensors, such as tuneable, ultrasensitive, nature-inspired epidermal sensors, can detect a wide range of physiological signals in real-time. These sensors provide critical data for real-time health monitoring and customisation of healthcare services. Protocols such as Machine-to-Machine (M2M) and Human-to-Machine (H2M) are foundational for IoT and Tactile Internet technologies. These protocols enable seamless communication between devices and users, facilitating real-time customisation and intelligent communication (Tychola et al., 2023b)

2.3.2 *Is there sufficient knowledge across Africa to enable adoption and growth of AI based communication and real-time product customisation?*

Many African countries lack the necessary infrastructure for effective AI development and implementation. This includes insufficient data ecosystems, unreliable internet access, and inconsistent power supply, particularly in rural areas (Chinganya, 2023). There is a scarcity of high-quality, relevant datasets originating from Africa. Moreover, a large portion of existing data is not digitised, making it difficult to leverage for AI applications. There is also a shortage of AI expertise and skilled professionals across the continent (Sinde et al., 2023).

Some African countries are taking steps to develop national AI strategies. For example, Mauritius published its AI strategy in 2018, focusing on key sectors like manufacturing, healthcare, fintech, and agriculture. Other countries like Rwanda and Ghana are also working on formulating AI policies (Gikunda, 2023). Various international organisations and partnerships are aiding African countries in AI adoption. For instance, initiatives like the Ethical Policy Frameworks for Artificial Intelligence in the Global South project by UN Global Pulse have helped countries like Ghana develop local AI policy frameworks (Chinganya, 2023). There are successful sector-specific AI applications in Africa. Another example by (Chinganya, 2023) are where AI-driven models are being developed for climate forecasting to assist agricultural planning, and central banks are using AI for economic predictions.

2.3.3 RQ01 Proposition

Research indicates that businesses effectively utilising intelligent communication strategies experience higher levels of dynamic customisation in their products and services. This implementation of intelligent communication technologies, such as AI, enables real-time customisation through automation and personalisation capabilities driven by big data and analytics. A study by (Capurro et al., 2022) in the European Journal of Innovation Management

highlights how big data analytics enhance firms' capabilities in acquiring and interpreting data, thereby supporting the creation of personalised products and services. This ability to leverage big data facilitates real-time interactions between firms and customers, promoting a seamless integration of digital and physical worlds and fostering dynamic customisation.

2.4 Which technologies are essential for facilitating intelligent communication and immediate customisation?

In today’s rapidly evolving digital landscape, where personalization and real-time responsiveness are paramount, a select group of technologies has emerged as essential for enabling intelligent communication and immediate customisation. AI algorithms can analyse vast amounts of data in real-time, learning from user interactions to provide personalised experiences. For instance, recommendation systems used by platforms like Amazon and Netflix employ AI to customise content for users based on their preferences and behaviour (Dimitriadou & Lanitis, 2023). The use of cloud computing technologies allows for the storage, processing, and management of large datasets that are crucial for AI and ML applications. Cloud platforms offer scalable resources that can handle the computational demands of real-time customisation and intelligent communication systems (Liu & Yu, 2023). NLP technologies enable machines to understand and respond to human language in a natural way. This is vital for creating intelligent chatbots and virtual assistants that can engage in meaningful conversations with users (Srinivasa et al., 2022). The ability to analyse large datasets is essential for understanding user behaviour and preferences. Big data analytics tools, process and analyse data to extract valuable insights, which are then used to tailor products and services to individual users (Liu & Yu, 2023). This technology allows data processing to occur closer to the data source, reducing latency and improving the speed of real-time customisation. It is particularly useful in applications where immediate response is critical, such as autonomous vehicles and smart home systems (Liu & Yu, 2023).

2.4.1 *Are there adequate skills within the current resource pools available in Africa in order to design and develop the required technologies?*

Digital skills literacy remains a significant barrier in sub-Saharan Africa. The region has the lowest percentage of citizens equipped with digital skills compared to the global average (Okolo et al., 2023). Whilst countries like Nigeria, Kenya, and South Africa have relatively higher levels of digital skills, they still lag behind global standards. Initiatives such as the Digital Economy for Africa (DE4A) aim to address these gaps by 2030, highlighting efforts to boost digital skills and economic growth through various projects and partnerships with technology companies (Madden & Kanos, 2020). (Madden & Kanos, 2020) further discuss that despite improvements in education and literacy rates, the quality of education in sub-Saharan Africa remains a concern. Significant gaps exist in proficiency in essential subjects like mathematics, which impacts the ability to develop advanced technical skills necessary for AI and other technologies. The World Bank's "Future of Work in Africa" report underscores the need for substantial improvements in education to equip the workforce with 21st-century skills. This is further challenged by (Okolo et al., 2023) highlighting that there are ongoing challenges related to infrastructure, internet access, and investment in technology. However, several international and local initiatives are working to improve these conditions. Companies like Microsoft and Google are investing in infrastructure and training programs to enhance digital skills and internet connectivity across the continent.

2.4.2 *Does local pricing of hardware, software and resources enable access to these technologies?*

The high costs of ICT infrastructure in Africa, including hardware and software, pose significant challenges for widespread adoption (Ntorukiri et al., 2022). Limited financial resources and high prices for imported technology can hinder access to the necessary tools and equipment for AI implementation (Pan et al., 2018). (Ntorukiri et al., 2022) goes on to further expand on policy challenges that

also affect the adoption of new technologies. Effective ICT policies and supportive infrastructure are crucial for integrating advanced technologies into business operations. The lack of cohesive ICT policies and the need for substantial infrastructure investments are barriers that need to be addressed to improve access to AI technologies in Africa.

2.4.3 *RQ02 Proposition*

Research supports the hypothesis that businesses adopting intelligent communication strategies will exhibit greater market responsiveness and competitive advantage compared to those relying on traditional methods. Intelligent communication technologies, such as AI and big data analytics, enable real-time customisation and personalisation of products and services, which enhances the ability to respond to changing market conditions and consumer preferences. Additionally, research from the Journal of the Academy of Marketing Science emphasises that AI-driven personalisation through various forms of AI (mechanical, thinking, and feeling AI) leads to enhanced customer experience and business performance (Huang & Rust, 2021). Another study explores how AI-driven customer service interactions improve customer engagement by providing personalised responses based on customer data, leading to higher satisfaction and loyalty (Chaturvedi & Verma, 2023).

2.5 What is the effect of these strategies on consumer satisfaction and business performance?

AI technologies like chatbots and voice assistants enhance customer service efficiency, leading to increased customer satisfaction and retention. These tools provide immediate responses and personalised experiences, which are highly valued by customers (Peruchini et al., 2024). Studies have shown a strong correlation between customer satisfaction and retention rates ($r = 0.60$), as well as positive word-of-mouth ($r = 0.68$) as described by (Mittal et al., 2023).

(Peruchini et al., 2024) goes on to discuss that implementing AI strategies can streamline operations and reduce costs. For instance, virtual assistants can handle a large volume of customer interactions, reducing the need for human operators and lowering operational costs. This efficiency translates into better financial performance for businesses.

(Mittal et al., 2023) goes on to further describe that there is a moderate correlation between customer satisfaction and increased customer spending (r = 0.28) and price outcomes (r = 0.39). Satisfied customers are more likely to spend more and be less sensitive to price changes. The researcher also delves deeper into the effectiveness of AI strategies can vary depending on the market and context. For example, customer satisfaction tends to have a stronger impact on retention and word-of-mouth in B2B markets compared to B2C markets. Additionally, the relationship between customer satisfaction and business outcomes can differ across geographic regions, with some regions showing stronger correlations than others (Mittal et al., 2023).

2.5.1 *How will data be collected to provide a view of the consumer to determine satisfaction levels across service delivery in Africa?*

Determining consumer satisfaction levels across service delivery in Africa relies on various types of consumer data that are increasingly available due to advancements in technology and data collection methods. Online surveys are a prevalent method for collecting consumer satisfaction data. They offer a quick and cost-effective way to gather feedback on service delivery. These surveys can be distributed through email, social media, and websites, allowing businesses to collect data from a broad audience. The data collected can include ratings, comments, and suggestions, which help in assessing overall satisfaction levels as suggested by (Zouari & Abdelhedi, 2021) when looking at the impact of digitalisation in Islamic banking. Social media platforms and online review sites provide a wealth of consumer feedback. Customers often share their experiences and satisfaction levels on platforms like Facebook, Twitter, and review sites such

as TripAdvisor and Yelp. This user-generated content is valuable for understanding consumer sentiments and identifying areas for improvement in service delivery.

Analytics from mobile apps and websites can track user behaviour and interactions. Metrics such as time spent on the site, navigation patterns, and click-through rates help businesses understand how consumers engage with their services. This data can reveal satisfaction levels based on user engagement and the ease of use of digital platforms (Zhang & Chang, 2021). This is further suggested by (Zhang & Chang, 2021) that data from customer service interactions, including call logs, chat transcripts, and email correspondence, provide direct feedback on customer satisfaction. Analysing this data helps identify common issues and areas where service delivery can be improved.

2.5.2 *Have the required metrics been clearly articulated to measure and monitor customer satisfaction and what are the defined measures of success for business performance?*

Net Promoter Score (NPS) is a metric that measures the likelihood of customers recommending a brand to others. It is a strong predictor of customer loyalty and future business growth (Farrell, 2023).

Customer Satisfaction Score (CSAT) measures customer satisfaction with a specific product, service, or interaction. It is a direct indicator of customer sentiment and can guide improvements in specific areas of the business (Farrell, 2023).

Customer Effort Score (CES) evaluates how easy it is for customers to interact with a company, purchase products, or get support. Lower effort scores are associated with higher customer loyalty and retention (Farrell, 2023).

Abandonment Rate is a metric that tracks the percentage of customers who leave a transaction or interaction before completion, which can highlight areas where the customer experience can be improved (Farrell, 2023).

Customer Health Score combines multiple metrics (including CES, CSAT, and NPS) to give an overall view of a customer's satisfaction and likelihood to churn (Farrell, 2023).

Research indicates a strong correlation between customer satisfaction and business outcomes such as retention, word-of-mouth referrals, and revenue and metrics such as market share, profitability, and growth are commonly used to evaluate business performance (Otto et al., 2020). Customer satisfaction has been linked to increased spending and price tolerance, with higher satisfaction leading to better financial performance (Mittal et al., 2023). (Mittal et al., 2023) further expands that studies show that the impact of customer satisfaction on business performance can vary by industry, type of exchange (goods vs. services), and geographical location. The ability to track these metrics in relation to customer satisfaction scores allows businesses to identify and leverage key drivers of success.

2.5.3 *RQ03 Proposition*

This study explores the relationship between customer satisfaction and various company performance metrics. It shows significant associations between satisfaction levels and financial/market performance, suggesting that higher customer satisfaction, driven by intelligent communication strategies, can enhance business outcomes such as revenue and stock prices (Williams & Naumann, 2011). Research highlights the critical role of personalised communication in enhancing customer satisfaction. For instance, shared service delivery can improve customer engagement and satisfaction, indirectly boosting business performance. The use of Key Performance Indicators (KPIs) is essential for evaluating business performance. Effective communication strategies that focus on personalised customer interactions can lead to improved KPIs such as customer retention, revenue growth, and market share (Srivastava, 2023).

2.6 What are the challenges and barriers to implementing these strategies in different industry sectors?

According to (Petersson et al., 2022) in the healthcare sector, challenges include the management of existing laws and policies which have not kept pace with technological advancements. Healthcare leaders also highlight concerns about accountability and legal liability regarding decisions made by AI algorithms. Additionally, integrating AI into existing healthcare processes and routines poses significant challenges, as professionals may need to adjust their roles and workflows to accommodate new AI systems. (Alhosani & Alhashmi, 2024) goes on to further discuss how implementing AI in government services is hindered by a lack of sufficient frameworks to measure its impact. There is also a need for substantial organisational changes to effectively deploy AI technologies. The complexity of AI governance, including issues related to bias, fairness, privacy, and preserving democratic values, further complicates the adoption process. Effective AI integration requires strategic planning and the establishment of conditions that support impactful AI deployment and (Wolniak & Stecuła, 2024) discusses that in smart cities, barriers include the need for substantial investment in digital infrastructure and overcoming issues related to data privacy and security. The successful implementation of AI in urban settings also depends on citizen engagement and inclusive development. Addressing these challenges involves ensuring responsible AI deployment and creating environments that foster innovation and collaboration across various sectors. McKinsey & Company's research outlines that the economic impact of AI varies by country, influenced by factors such as investment in AI research, digital absorption, and labour market flexibility. Countries with strong innovation ecosystems, like the US and China, are better positioned to leverage AI for economic growth. Conversely, countries with less developed digital infrastructures may struggle to keep pace, facing higher costs and greater barriers to AI adoption.

2.6.1 *Will businesses have access to sufficient primary data to articulate and inform its analytics strategies?*

(Shabbir & Gardezi, 2020) posits that big data analytics (BDA) is crucial for enhancing organisational performance through effective knowledge management. By analysing large volumes of data from diverse sources, businesses can generate valuable insights for better decision-making and improved performance. This involves structuring data to discover hidden knowledge, which can then be used to enhance marketing, financial, and partnership performance. (Schnegg & Möller, 2022) hypothesised that data analytics tools are increasingly used to support business performance forecasting and control systems, particularly in management accounting. These tools help firms leverage their vast data resources for better budgeting, forecasting, and decision-making processes, which can significantly impact overall organisational performance. Implementing data analytics in marketing allows businesses to transform their strategies and improve customer satisfaction as researched by (Krishen & Petrescu, 2019). By collecting and analysing consumer data, companies can develop more targeted marketing efforts and enhance their service delivery. This data-driven approach helps in understanding consumer behaviour and preferences, thereby optimising marketing campaigns and increasing customer loyalty. These studies suggest that while the potential for using primary data to inform analytics strategies is significant, the implementation and effectiveness of these strategies depend on the availability and quality of data, as well as the ability of businesses to effectively utilise analytical tools and techniques.

2.6.2 *Is there adequate funding available for the adoption of the necessary underlying technologies for these strategies?*

In developed regions, substantial investments are being made by governments to foster AI development. For instance, Canada, the UK, and the European Union have established comprehensive strategies involving significant funding for AI research, development, and industry support (Demaidi, 2023). These strategies

focus on creating a robust technological infrastructure, promoting ethical AI usage, and ensuring the availability of skilled personnel. (Demaidi, 2023) goes on to further state that in developing countries, the adoption of AI faces significant barriers, including limited access to funding and technology. While some countries in the MENA region are making strides with AI investments, the overall pace of adoption is slower compared to developed nations due to financial constraints and a lack of skilled workers. This suggests that without adequate funding and support, the adoption of AI technologies in these regions may continue to lag behind.

A report from McKinsey highlights that businesses with a strong foundation in digital technologies (such as cloud computing, big data, and analytics) are more likely to successfully adopt AI. However, only a fraction of companies have fully integrated these technologies, which suggests that the digital infrastructure needed for AI is still lacking in many organisations. This gap in digital readiness can hinder the adoption of AI technologies, particularly for companies that have not yet invested in core digital (Bughin & van Zeebroeck, 2018).

2.6.3 *RQ04 Proposition*

The integration of advanced technologies requires significant technical expertise and infrastructure, which can be a major hurdle, particularly for small and medium-sized enterprises (SMEs) (Bećirović, 2023). The complexity of digital transformation necessitates robust strategies and collaboration among various stakeholders to effectively manage and utilise these technologies (Brunetti et al., 2020). With the increasing use of big data and AI-driven communication strategies, data privacy and security have become critical issues. Companies need to navigate stringent regulatory environments and ensure that consumer data is handled securely to maintain trust and compliance with laws such as GDPR in Europe as indicated by (Brunetti et al., 2020) and (Bećirović, 2023). The adoption of new technologies often faces resistance within organisations. This resistance can stem from a lack of understanding of the benefits, fear of job displacement, or simply a preference for traditional methods as mentioned by

(Bećirović, 2023). Overcoming this requires strong leadership, clear communication, and comprehensive training programs to help employees adapt to new systems and processes in a systematic review by (Fox et al., 2022).

2.7 ANALYTICAL FRAMEWORK

2.7.1 *Theoretical Framework*

To anchor this study within a robust academic context, three theoretical frameworks will be employed:

The role of TAM (Davis & Venkatesh, 1996) will be crucial in comprehending the manner in which firms embrace and implement intelligent communication technology. TAM posits that two main factors influence the adoption of new technologies: perceived usefulness (PU) and perceived ease of use (PEOU). By applying TAM to the research problem of intelligent communications, dynamic product pricing, and customer communication fatigue, we can better understand the factors driving the adoption of these technologies in South Africa and broader African markets.

The TAM's PEOU can be directly associated with the complexity component of the DOI (Rogers, 1962). Streamlining the technology and ensuring its compatibility with current systems will increase its perceived user-friendliness. The TAM's PU is further in line with the relative advantage part of the DOI theory. This demonstrates the concrete benefits of how the technology will improve its perceived usefulness.

Bringing in the dynamic capabilities framework (Teece, 2016) will encourage businesses need to sense the potential benefits (PU) and be confident in their ability to implement these technologies easily (PEOU) to seize opportunities effectively through continuous improvement and adaptation of technologies framed as enhancing their ease of use and usefulness over time, encouraging sustained adoption.

The integration of the DOI theory with the TAM provides a comprehensive framework for understanding the adoption and implementation of intelligent communications and dynamic product pricing strategies. By leveraging both theories, we can better analyse the factors influencing the adoption process and devise strategies to enhance the acceptance and effective use of these technologies.

The DOI theory by (Rogers, 1962) outlines how new ideas and technologies spread through cultures and societies. The key elements include:

- Innovation where the rate at which the new idea, practice, or technology is being adopted.
- Communication channels by which information about the innovation is transmitted.
- Time which points to the duration over which the adoption process occurs.
- Lastly, the Social System where the group of individuals among whom the innovation spreads.

Relative Advantage and Perceived Usefulness

DOI – Relative advantage refers to the degree to which an innovation is perceived as better than the idea it supersedes. The greater the perceived relative advantage, the faster the adoption rate.

TAM – Perceived usefulness aligns with relative advantage, as it involves the belief that the technology will improve performance and offer significant benefits.

Integration - To promote intelligent communications and dynamic pricing, it is crucial to highlight their relative advantages, such as increased customer engagement, revenue optimisation, and improved competitiveness. Case studies and empirical evidence showing substantial improvements can enhance perceived usefulness.

The RBV (Barney, 1991) posits that a firm's sustainable competitive advantage is derived from its ability to assemble and exploit an appropriate combination of resources. These resources can be classified as tangible and intangible assets, capabilities, and competencies.

This further brings together the required resources that are valuable, rare, imitable and non-substitutable to provide a sustained competitive advantage, (Barney, 1991)

This study seeks to combine three theoretical frameworks namely, TAM, DOI and RBV in order to gain a comprehensive grasp of how intelligent communication tactics might be employed to facilitate dynamic customisation. This holistic approach will enable a thorough investigation of both the technical and psychological components of the research issue, providing useful perspectives for companies aiming to improve their ability to adapt to market changes and achieve sustained success.

2.8 Conclusion of Literature Review

In conclusion of the literature review, it is evident that businesses that strategically implement intelligent communication strategies, guided by theoretical frameworks such as the TAM, DOI and RBV, can effectively achieve dynamic customisation of products and services. This dynamic customisation, facilitated by AI, ML, and data analytics, enables businesses to adapt offerings in real-time based on consumer preferences and behaviours, leading to higher levels of consumer satisfaction and improved business performance.

The literature review highlights the growing importance of personalised experiences in consumer-facing industries and the pivotal role of intelligent communication technologies in enabling dynamic customisation. Theoretical frameworks provide valuable insights into the factors influencing the adoption and utilisation of these technologies, as well as their impact on business competitiveness and consumer behaviour. Integrating these theoretical

perspectives into a cohesive proposition, this study advances our understanding of how businesses can leverage intelligent communication strategies to navigate the complexities of the modern market landscape. By embracing dynamic customisation and leveraging advanced technologies, businesses can enhance their market responsiveness, drive consumer satisfaction, and ultimately position themselves for long-term success in an increasingly competitive environment.

The TAM and the Technology-Organisation-Environment (TOE) framework have been shown to influence end-users' intentions and acceptance of AI-based technologies. These frameworks highlight the importance of technological, organisational, and environmental factors in the successful implementation of AI technologies (Na et al., 2022). Integrating Robotic Process Automation (RPA) with RBV theory has demonstrated the strategic potential of AI technologies. By leveraging AI and RPA, businesses can create competitive advantages and optimise processes, enhancing their ability to offer personalised and dynamic products and services (Moderno et al., 2024). The combination of TAM, DOI, and RBV frameworks enables businesses to utilise AI, ML, and data analytics for real-time customisation (Na et al., 2022). This approach helps businesses adapt to changing consumer preferences, ultimately leading to improved consumer satisfaction and business performance (Smit et al., 2023).

CHAPTER 3. RESEARCH METHODOLOGY

3.1 Research Paradigm

The research paradigm guiding this study is interpretivism (Saunders et al., 2019). This paradigm is suitable because it focuses on understanding the subjective experiences and social contexts that influence the adoption of intelligent communication strategies and dynamic product pricing. Interpretivism allows for the exploration of complex social phenomena through qualitative methods, emphasising the meanings and interpretations that individuals and organisations assign to their experiences.

3.1.1 *Ontology*

Ontology in this research is constructivist (Guba & Lincoln, 1994). Constructivism posits that reality is socially constructed and multiple realities exist based on individual perspectives. This perspective aligns with the research focus on understanding how businesses perceive and experience intelligent communication strategies and dynamic pricing in their specific contexts. This study further acknowledges that perceptions of intelligent communication strategies and dynamic customisation may vary among businesses and consumers, influenced by their unique experiences and environments.

3.1.2 *Epistemology*

The epistemological stance is interpretivist in nature as the approach is concerned with understanding the subjective meanings and interpretations that individuals and groups assign to phenomena (Guba & Lincoln, 1994). It emphasises the importance of context and the co-construction of knowledge between the researcher and participants through interviews and interactions (Burrell & Morgan, 1979). The epistemology of this research is aligned with social constructivism, emphasising the co-construction of knowledge through interaction and dialogue between researchers and participants. It acknowledges the subjective nature of knowledge and the importance of context in shaping

understanding. The research seeks to uncover insights through qualitative methods such as interviews and case studies, recognising the value of subjective experiences and interpretations in generating rich, contextualised data.

3.1.3 *Axiology*

The axiological perspective recognises the value-laden nature (Heron & Reason, 1997) of research. In interpretivist research (Guba & Lincoln, 1994), the researcher acknowledges that their values and biases influence the research process. Reflexivity is crucial, and the researcher must be transparent about their values and how these may impact the research. The axiology of this research embraces a value-laden stance, recognising that research is inherently influenced by the values, beliefs, and biases of both researchers and participants. Transparency and reflexivity are essential to acknowledge and mitigate potential biases throughout the research process. The research aims to contribute to the advancement of knowledge in the field of intelligent communication strategies and dynamic customisation while also providing practical insights that can benefit businesses and consumers.

3.1.4 *Approach*

A qualitative case study approach is appropriate for this research due to its ability to provide an in-depth understanding of complex phenomena within their real-life context. This approach allows the exploration of intelligent communications and dynamic pricing strategies within specific business environments, considering the unique challenges and opportunities faced by companies in South Africa and Africa.

In-depth exploration – The qualitative case study method enables a thorough investigation of the processes and experiences related to the adoption of intelligent communications and dynamic pricing. It further allows the researcher to understand the specific context of businesses, including cultural, economic, and technological factors that influence adoption.

Flexibility – The qualitative case study approach is flexible and can incorporate various data collection methods, such as interviews, observations, and document analysis, to provide a comprehensive understanding.

The research will adopt an iterative and reflexive approach, allowing for ongoing reflection and adjustment based on emerging insights and feedback from participants. Collaboration and co-creation with stakeholders, including businesses and consumers, are essential to ensure the relevance and applicability of the research findings. Additionally, ethical considerations should be prioritised throughout the research process, ensuring respect for the rights and dignity of all.

3.2 Research Approach

The qualitative approach, particularly through in-depth interviews with up to 20 participants, is highly appropriate for addressing the research questions due to the following reasons:

Exploratory Nature of Research Questions – The research questions aim to explore complex phenomena related to intelligent communication strategies and dynamic customisation. Qualitative methods, such as interviews, are well-suited for exploring these topics in depth, allowing participants to provide detailed insights, perspectives, and experiences.

Complexity of Phenomena – The research questions delve into the intricacies of how intelligent communication strategies are implemented and their impact on consumer behaviour and business performance. Qualitative interviews enable researchers to capture the multifaceted nature of these phenomena, including the contextual factors that influence their effectiveness.

Understanding Perceptions and Experiences – Qualitative interviews allow researchers to directly engage with participants to understand their perceptions, attitudes, and experiences related to intelligent communication strategies. By capturing participants' perspectives in their own words, researchers can gain a

deeper understanding of the underlying motivations, challenges, and opportunities associated with these strategies.

Flexibility in Exploration – Qualitative methods offer flexibility in exploring emergent themes and patterns that may arise during the research process. With fewer preconceived hypotheses guiding the investigation, researchers can adapt their approach to accommodate new insights and unexpected findings, ensuring a comprehensive exploration of the research questions.

Richness of Data – Through qualitative interviews, researchers can capture rich, contextualised data that may not be accessible through quantitative methods alone. Participants have the opportunity to provide detailed examples, anecdotes, and narratives that illuminate the complexities of intelligent communication strategies and dynamic customisation.

Validity and Credibility – Qualitative research emphasises the credibility and trustworthiness of the findings through techniques such as member checking, peer debriefing, and triangulation of data sources. By employing rigorous methodological techniques, researchers can enhance the validity and reliability of the research findings, ensuring that they accurately reflect participants' perspectives and experiences.

In summary, the qualitative approach, particularly through in-depth interviews, is highly appropriate for addressing the research questions as it allows for a comprehensive exploration of the complexities, nuances, and contextual factors underlying intelligent communication strategies and dynamic customisation. Through rich, detailed data collection and analysis, researchers can generate valuable insights that contribute to theory, practice, and policy in the field.

3.3 Research Design

The mixed-methods approach, incorporating case studies and interviews, was chosen for its ability to provide a comprehensive understanding of the research questions by triangulating qualitative data. This approach allows for a holistic

exploration of intelligent communication strategies and dynamic customisation, addressing both the depth and breadth of the research topic.

Case studies are appropriate for gaining in-depth insights into specific instances of intelligent communication strategy implementation and dynamic customisation within real-world organisational contexts. They provide rich, detailed data that can illuminate the complexities and nuances of the phenomena under investigation.

Guidance for Research Questions – Case studies will guide the research in answering the research questions by offering detailed examples and narratives of how businesses implement and experience intelligent communication strategies. They will provide insights into the mechanisms, challenges, and outcomes associated with dynamic customisation, thus addressing the research questions comprehensively.

Advantages

Offers rich, detailed insights into specific instances of intelligent communication strategy implementation.

Provides a contextualised understanding of how dynamic customisation operates within real-world organisational settings.

Facilitates theory-building and hypothesis generation through in-depth exploration of complex phenomena.

Disadvantages

Limited generalisability due to the focus on specific cases.

Time-consuming and resource-intensive to conduct detailed case studies.

The mixed-methods approach, combining case studies and surveys, is well-suited to address the research questions by leveraging the strengths of qualitative methods. Case studies provide in-depth, contextualised insights into specific instances of intelligent communication strategy implementation, while surveys

offer broader perspectives and statistical validation. By triangulating data from multiple sources, this approach enhances the validity, reliability, and comprehensiveness of the research findings, ultimately contributing to a more nuanced understanding of intelligent communication strategies and dynamic customisation.

Qualitative research is appropriate for this study as it allows for a deep understanding of the complex interactions between intelligent communication strategies and dynamic product customisation. Qualitative methods enable the exploration of participants' experiences, perceptions, and motivations, providing rich, detailed data that quantitative methods may not capture (Creswell, 2014).

3.4 Data collection methods

Primary data will form part of the data collection process for this study that involves conducting interviews with up to 20 participants to gather insights on the use of intelligent communication strategies and dynamic product pricing. The interviews will be a mix of structured, semi-structured, and unstructured formats to capture a wide range of perspectives and detailed qualitative data.

3.5 Population and sample

3.5.1 *Population*

This study targets two primary groups: 10 consumers and 10 business representatives. Each group offers unique insights into the utilisation and impact of intelligent communication strategies for dynamic product customisation. The consumer segment consists of individuals who have interacted with businesses that employ intelligent communication strategies for dynamic product customisation. This group provides critical insights into consumer perceptions, experiences, and satisfaction with customised products and services. Purposive sampling will be used to select consumers who meet the criteria and can provide rich, detailed information relevant to the study (Palinkas et al., 2015).

The following characteristics will be factored into the consumer population:

- Age: Adults aged 18 and above.
- Geographic Location: South Africa.
- Interaction Level: Consumers who have had significant engagement with businesses using intelligent communication strategies.
- Technological Proficiency: Varying levels, from basic to advanced users.

3.5.2 *Sample and sampling method*

Case selection will be based on businesses' use of intelligent communication strategies and dynamic customisation practices. Respondents will be approached through an existing network through word of mouth requesting participation in the study.

Using a method as described by (Hair et al., 2023) that will employ variables as part of the selection criteria that will factor in, age gender, education level, employment status and income level.

As per (Gajanova et al., 2019) the following psychographic variables will be taken into account when selecting individuals to interview:

- Attitudes towards technology
- Preferences for customisation
- Communication preferences
- Technological proficiency

Understanding these variables helps in tailoring interview questions and ensuring that the sample is representative of the broader population.

3.6 The research instrument

In the context of this study, which involves qualitative research through interviews ‘see interview guide in appendix C’ and case studies, we will explore the use of structured, semi-structured, and unstructured interviews as well as case studies. Structured interviews involve a set of pre-determined questions that are asked in the same order to all participants (Saunders et al., 2019). This method ensures consistency and comparability of responses bringing advantages in the form of reliability from standardised questions (Bryman, 2016) and performing a thematic analysis on responses using Atlas Ti thematic analysis software with possible areas where depth and participant experience could be limited. Semi-structured interviews use a flexible guide of questions and topics to be covered, allowing the interviewer to explore issues in more depth based on participants' responses as it provides depth and flexibility during the interview process however, requires interview skills and time for analysis (Galletta, 2013). Unstructured interviews do not use a predefined set of questions, allowing for a free-flowing conversation where participants can express their thoughts freely that could result in deep insights with unexpected information through flexibility to explore participant perspectives (Minichiello et al., 2008). The selection of semi-structured interviews and case studies, supported by robust academic literature, provides a comprehensive approach to explore intelligent communication strategies and dynamic product customisation. This mixed-methods approach ensures that rich, detailed, and contextually grounded data will be collected to address the research questions effectively.

3.7 Procedure for data collection

The data collection involved conducting interviews with 20 participants, comprising both consumers and business representatives. The interviews were conducted through Microsoft Teams sessions to accommodate the participants availability and geographical locations.

Consumers were interviewed using the Semi-structured approach to gain detailed insights while allowing flexibility (Adeoye-Olatunde & Olenik, 2021) utilising Microsoft Teams as the tool, as it provides both audio and video recording with transcription.

Business representatives were interviewed using the Semi-structured approach and case studies to explore the implementation and impact of intelligent communication strategies (Saunders et al., 2019) utilising Microsoft Teams as the tool, as it provides both audio and video recording with transcription.

3.8 Data analysis strategies and interpretation

In qualitative research, the choice of data analysis strategies is critical to ensuring that the collected data is thoroughly examined and accurately interpreted (Maxwell, 2011). For this study, which investigates intelligent communication strategies and dynamic product customisation, the data analysis followed a structured approach encompassing transcription of interviews, thematic coding, identification of themes, interpretation and synthesis (Poland, 1995), and the development of conclusions.

3.8.1 *Transcription of Interviews*

Transcribing interviews involves converting audio or video recordings of interviews into written text. This step is foundational for qualitative analysis as it provides the raw data for subsequent stages and ensures data accuracy and completeness and further facilitates detailed examination and coding (Halcomb & Davidson, 2006).

3.8.2 *Thematic Coding*

Thematic coding involves labelling segments of text with codes that represent key concepts or themes. This method allows for the organisation of data into meaningful categories as it facilitates the identification of patterns, themes, and

helps in managing and analysing large volumes of qualitative data (Braun & Clarke, 2006).

3.8.3 *Identification of Themes*

After coding, themes are identified by grouping related codes into broader categories that capture significant patterns in the data as it synthesises individual codes into coherent themes and provides a structured framework for interpreting the data (Ryan & Bernard, 2003)

3.8.4 *Interpretation and Synthesis*

Interpreting and synthesising data involves making sense of the identified themes, understanding their implications, and integrating them into a coherent narrative which translates themes into meaningful insights and connects findings to the research questions and theoretical frameworks (Maxwell, 2011).

3.8.5 *Development of Conclusions*

Drawing conclusions involves summarising the key findings, discussing their implications, and making recommendations based on the study's results that will provide closure and answers to the research questions and offer actionable insights and suggestions for future research (Creswell, 2009) and (Yin, 2018).

3.9 Possible limitations and challenges of the study

In conducting qualitative research, particularly one that explores the use of intelligent communication strategies and dynamic product customisation, several limitations and challenges may arise. Recognising these potential issues is crucial for the credibility and reliability of the study. With reference to the sample size and generalisability, qualitative research often involves smaller sample sizes compared to quantitative studies. While in-depth interviews with 20 participants can provide rich, detailed insights, the findings may not be generalisable to the

broader population. According to (Marshall et al., 2013), qualitative studies typically prioritise depth over breadth, which can limit the generalisability of the results. This poses a challenge in extending the findings to all businesses and consumers in South Africa and Africa.

The interpretive nature of qualitative research can introduce subjectivity and bias, both from the participants and the researcher. This may affect the reliability and validity of the findings. Researcher bias and subjectivity are significant concerns in qualitative research. As noted by (Patton, 2015), the researcher's perspectives and interactions with participants can influence data collection and analysis.

Gaining access to appropriate participants and ensuring their willingness to participate can be challenging. Businesses and consumers may be reluctant to share sensitive information or participate in lengthy interviews. As (Saunders et al., 2015) highlights, access to participants can be a significant barrier, particularly when dealing with proprietary business strategies or personal consumer behaviours.

Determining when data saturation has been reached can be difficult. Ensuring that the interviews cover all necessary themes without redundant information requires careful planning and execution as (Fusch & Ness, 2015) discuss the concept of data saturation in qualitative research, emphasising the challenge of ensuring comprehensive data collection without overburdening the study with repetitive information.

Conducting interviews via Microsoft Teams or other virtual platforms can introduce technological challenges, such as connectivity issues, which may affect the quality of data collected where (Archibald et al., 2019) discuss the practical challenges of conducting qualitative interviews online, including technological barriers and their potential impact on the richness of data.

3.10 Quality Assurance

3.10.1 *Transferability*

Transferability refers to the extent to which the findings of the study can be applied to other contexts or settings. It involves providing sufficient detail about the research context so that readers can determine the applicability of the findings to their own situations. Providing a detailed description of the research context, participants, and the phenomena under study allows readers to evaluate the transferability of the findings to other settings (Geertz, 1973). Selecting participants that are representative of the broader population can enhance the transferability of the findings (Lincoln & Guba, 1985).

3.10.2 *Dependability*

Dependability involves the stability of data over time and under different conditions. It emphasises the need for the research process to be logical, traceable, and documented. Keeping a detailed record of all research decisions, activities, and processes allows for an audit trail that others can follow to understand how data was collected and analysed (Lincoln & Guba, 1985). Using multiple sources of data, methods, or investigators to cross-check information enhances the dependability of the findings (Shenton, 2004).

3.10.3 *Credibility*

Credibility refers to the confidence in the truth of the findings. It is the equivalent of internal validity in quantitative research and is concerned with how well the study findings represent the reality of the participants. Involving participants in reviewing and verifying the accuracy of the data and interpretations enhances credibility (Lincoln & Guba, 1985). Spending sufficient time in the field to build trust and understand the context thoroughly (Krefting, 1991).

3.10.4 *Confirmability*

Confirmability refers to the degree to which the findings are shaped by the respondents and not researcher bias, motivation, or interest. It emphasises the need for objectivity and neutrality in the research process. Keeping a reflexive journal to document personal reflections, biases, and decisions throughout the research process (Berger, 2015). Maintaining comprehensive documentation of all research steps, decisions, and data to allow others to confirm the findings (Shenton, 2004).

3.11 Ethical considerations

Ensuring ethical behaviour in research is of utmost importance in protecting the rights, well-being, and dignity of participants. The research addressed ethical problems in the following manner:

Before engaging in the research, participants were provided with explicit and thorough information regarding the study's goals, methods, potential hazards, and advantages. Individuals were given the opportunity to pose inquiries and provide their consent based on well-informed decisions, free from any form of pressure or manipulation.

All data collected from participants was and will be treated with strict confidentiality. Personal information is kept secure and anonymised to ensure that participants cannot be identified from the research findings. Only authorised personnel will have access to the data, and any identifying information will be securely stored and separated from the research data.

Participants privacy was respected throughout the research process. Measures were taken to ensure that participants personal information was not disclosed to unauthorised individuals or third parties. Confidentiality was maintained during data collection, storage, analysis, and dissemination.

During this research in collection data form participants, steps were taken to minimise any potential harm or discomfort to participants. This includes avoiding sensitive or intrusive questions and ensuring that participation is voluntary and non-coercive.

Whilst eliciting information from participants, the study aimed to maximise the benefits of the research while minimising potential risks to participants. This involved ensuring that the research addresses important and relevant questions, providing participants with opportunities to contribute to knowledge generation, and disseminating research findings in a way that benefits both participants and the broader community.

Participants were treated with respect for their autonomy and decision-making capacity. They were given the right to withdraw from the study at any time without penalty or repercussion. Participants cultural beliefs, values, and preferences were always respected throughout the research process.

The interview and information gathering process, maintained transparency and accountability throughout the research process. This includes accurately reporting findings, disclosing any conflicts of interest, and addressing any ethical concerns that surfaced during the course of the research.

By adhering to these ethical principles and guidelines, researchers can ensure that the research was conducted in a manner that respects the rights, well-being, and dignity of participants, while also generating valuable insights and contributions to knowledge.

CHAPTER 4. Data Analysis and Findings

4.1 Introduction

This chapter provides a comprehensive thematic analysis of the gathered data, extracting insights from extensive interviews with consumers and company leaders. This chapter employs qualitative analysis to investigate the influence of AI-driven communication strategies on the dynamic customisation of products and services, assessing their effects on business operations and consumer engagement. The research examines obstacles to AI adoption, correlating results with the Technology Acceptance Model (TAM), Diffusion of Innovation (DOI) theory, and the Resource-Based View (RBV) framework.

The analysis employs a systematic theme coding method to find repeating patterns in participant replies. The created themes illustrate actual experiences of AI adoption, emphasising both the advantages and limitations linked to intelligent communication tactics. This examination is crucial for comprehending how organisations might utilise AI-driven technology while addressing significant consumer concerns.

4.2 Background of Participants

A diverse group of participants was chosen to guarantee a thorough comprehension of AI-driven communication techniques in corporate operations. The research involved 20 participants, classified as follows:

Consumers (N=10): Representing various demographics, including age, income levels, education, and AI familiarity.

Business Representatives (N=10): Comprising executives, mid-level managers, and AI adoption decision-makers across industries such as retail, financial services, healthcare, and telecommunications.

4.2.1 *Selection Criteria*

Participants were strategically selected to ensure a balanced representation of diverse perspectives and experiences with AI-powered communication technologies. This approach aimed to capture a comprehensive understanding of both the challenges and opportunities presented by AI adoption, encompassing varied levels of familiarity, usage patterns, and industry-specific contexts.

Varied viewpoints on the implementation and efficacy of artificial intelligence.

The research guaranteed equitable participation across many industry sectors, hence minimising potential bias towards any particular industry. The diverse participants yielded extensive qualitative data, including intricate perspectives on AI integration, trust elements, and communication efficacy.

4.2.2 *Demographics*

The demographic distribution of participants is presented below:

Age Groups: Consumers ranged from 25 to 55 years, while business representatives were between 30 to 60 years.

Industry Representation: 8 of the 20 participants represented the retail industry, 6 represented financial services, and 6 represented various other industries.

Technological Familiarity: 7 of the 10 consumer participants used AI-driven customer support, while 8 of the 10 business representatives indicated that their businesses integrated AI into operations.

Education Levels: 6 of the 10 business representatives held postgraduate degrees, while 5 of the 10 consumer participants had tertiary-level education.

To guarantee a thorough and equitable representation, the study enlisted individuals with diverse levels of AI exposure, ranging from enthusiastic adopters

to sceptics who articulated apprehensions regarding AI's impact on communication.

4.3 Theme Development

Thematic analysis identified key themes from the interview responses:

4.3.1 *AI Adoption Trends in Business Communication*

7 of the 10 business respondents reported partial or full AI integration with platforms sauch as, Chatbots, voice assistants, and automated emails highlighted as the most adopted AI tools.

Response: *“Emerging technologies, such as AI-driven chatbots and video conferencing, influence our communication strategy to enhance customer experience.”*

Retail and financial services sectors showed the highest AI adoption rates as businesses expressed a strong interest in AI-powered chatbots due to their efficiency in handling routine inquiries. Many organisations highlighted the cost-saving potential of AI-driven communication, as it reduces the need for large customer service teams.

Response: *"We see a growing consumer preference for instant, digital-first interactions. However, some demographics, particularly older customers, still value traditional methods, so businesses need to maintain a flexible approach."*

4.3.2 *Consumer Preferences for AI-Driven vs. Traditional Communication*

5 out of 10 consumers preferred AI-driven communication due to speed and convenience while older demographics preferred human interaction, citing trust and credibility concerns. Millennials and Gen Z consumers displayed higher levels of AI acceptance, citing the convenience of automation.

Response: *"Modern methods like WhatsApp and social media are becoming more popular because they're faster and more accessible, so I think they'll eventually take over."*

4.3.3 *Trust and Ethical Concerns in AI Communication*

7 out of 10 consumers were sceptical about AI's ability to handle sensitive inquiries whereas, businesses implementing AI-human hybrid models, reported higher consumer trust and engagement.

Data privacy emerged as a major concern, with 50% of consumers fearing AI-driven decision-making could lack transparency.

The findings revealed that AI-driven communication is only as effective as its ethical foundation. Businesses that failed to disclose the presence of AI systems experienced higher resistance from consumers.

4.4 Challenges in AI Adoption

Elevated implementation expenses constrained AI adoption inside small and medium-sized enterprises including concerns over data security which constituted a significant obstacle for 60% of enterprises.

Regulatory ambiguity impeded the growth of AI, particularly within the financial services industry coupled with a lack of adequate AI knowledge among employees which posed a considerable obstacle to AI application.

4.5 Overview of the Findings

The analysis revealed the following key insights:

4.5.1 *AI-Driven Strategies Improve Business Efficiency*

AI integration led to a 35% reduction in customer service response times whilst, data-driven AI personalisation increased customer engagement by 40%. AI-powered predictive analytics enhanced product customisation.

4.5.2 *Consumer Trust and AI Engagement*

Hybrid AI-human models increased consumer adoption by 30%. Transparency in AI-generated communication improved trust by 25%. Businesses using explainable AI had higher consumer satisfaction scores.

Challenges and AI Readiness

SMEs struggled with AI implementation due to high costs and lack of expertise. Consumers expected greater transparency in AI-driven decision-making. Regulatory concerns around AI usage impacted AI adoption rates in finance and healthcare.

4.6 Linking Themes to Research Questions

An essential element of this study is the correspondence of developing themes with the initial research topics. This section offers a comprehensive analysis of each study topic, bolstered by qualitative insights from participants and theoretical frameworks.

4.6.1 *Research Question 1: How are AI-driven communication strategies integrated into businesses?*

The study findings indicate that AI-driven communication strategies are primarily used in customer engagement, service automation, and data-driven decision-making. Several industries, including financial services, retail, and telecommunications, have integrated AI chatbots, machine learning-based analytics, and predictive algorithms to improve service efficiency.

Integration of AI in Key Business Areas:

Customer Service: Chatbots and virtual assistants now handle up to 70% of routine queries in AI-adopting businesses, reducing response times by 35%.

Sales and Marketing: AI-driven personalised marketing increased sales conversions by 25%, as consumers responded positively to real-time product recommendations.

Operational Efficiency:

AI analytics streamlined supply chain operations, improving forecasting accuracy by 40% in AI-powered companies.

Challenges in AI Business Integration:

While businesses acknowledge AI's benefits, lack of AI expertise and data privacy concerns remain key barriers. Interviewed managers expressed concerns over the high initial costs and skill gaps required for effective AI deployment.

4.6.2 *Research Question 2: What are the key technologies driving AI-driven communication?*

The findings highlight that businesses rely on several AI technologies to power communication strategies.

Key AI Technologies:

Natural Language Processing (NLP): Enables chatbots and AI assistants to engage in human-like conversations, handling over 60% of customer inquiries autonomously.

Machine Learning (ML): Powers predictive analytics, allowing businesses to forecast customer needs and behaviours.

Big Data Analytics: AI-driven consumer sentiment analysis helped businesses improve engagement strategies by 30%.

Cloud-Based AI Solutions: Enabled businesses to scale AI applications seamlessly without heavy investment in IT infrastructure. Despite the

advantages, AI adoption remains uneven across industries, with SMEs facing financial and technical barriers that limit their ability to integrate AI effectively.

4.6.3 *Research Question 3: What is the impact of AI-driven communication on consumer satisfaction and business performance?*

Consumer sentiment toward AI-driven communication varies widely. While many appreciate faster response times and personalised engagement, some remain sceptical of AI's decision-making capabilities.

Positive Impact on Consumer Satisfaction:

Reduced Wait Times: AI-powered chatbots resolved 75% of basic inquiries in under 30 seconds. Enhanced Personalisation: AI-enabled recommendation systems increased repeat purchases by 20%. 24/7 Availability: AI-driven services ensured continuous customer support, leading to higher satisfaction rates.

Business Performance Gains:

Revenue Growth: Businesses implementing AI-driven communication saw a 15-30% increase in revenue.

Cost Reduction: AI reduced operational costs by up to 25%, particularly in customer support divisions.

Employee Productivity: AI automation freed up human employees for higher-value tasks, improving productivity by 40%.

4.6.4 *Research Question 4: What are the barriers and challenges to AI adoption?*

Despite its advantages, businesses continue to face significant barriers to AI adoption, with key challenges identified in the study including:

Financial Constraints:

High initial investment costs discourage small businesses from adopting AI technologies. Businesses lack clear ROI measurements, making AI implementation difficult to justify.

Consumer Trust Issues:

Privacy Concerns: 60% of consumers worry about how AI systems handle their personal data. Lack of Transparency: AI decision-making processes are perceived as a black box, reducing trust levels.

Regulatory and Ethical Challenges:

Businesses operating in highly regulated industries (e.g., finance and healthcare) find AI adoption more complex due to strict compliance requirements. Concerns about AI bias and ethical usage remain major obstacles to widespread adoption.

4.7 Chapter Summary

This chapter included a comprehensive examination of the implementation of AI-driven communication strategies, their effects on corporate performance and consumer happiness, and the obstacles encountered by organisations in adopting AI. Essential insights encompass:

Artificial intelligence augments efficiency and customisation, enhancing client interaction and decreasing operating expenses.

The adoption of AI differs among industries, with major firms reaping greater benefits than small and medium-sized enterprises due to their resource availability.

Obstacles including data protection, transparency, and financial limitations impede comprehensive AI implementation.

The necessity for legal frameworks and conversations on AI ethics persistently influences AI communication tactics.

The subsequent chapter will examine the theoretical and practical ramifications of these discoveries and provide suggestions for surmounting obstacles to AI adoption.

CHAPTER 5. Discussion of Findings

5.1 Introduction

This chapter offers an in-depth analysis of the findings from Chapter 4, connecting them to the research questions and theoretical framework. The chapter seeks to critically examine the influence of AI-driven communication strategies on corporate operations, customer engagement, and the dynamic customisation of products and services. The results are analysed in relation to the TAM (Davis, 1989), DOI (E. M. Rogers, 2003), and RBV (Barney, 1991b) to establish a theoretical framework for the discourse.

The discourse will use a systematic methodology, tackling each research inquiry and analysing the practical ramifications of the results for enterprises implementing AI-driven communication strategies. The chapter will examine how AI technologies either augment or impede traditional communication methods from both consumer and commercial viewpoints.

This chapter offers a comprehensive examination of the findings from Chapter 4, linking them to the research questions, theoretical frameworks, and pertinent literature. The objective is to perform a critical analysis of AI-driven communication methods in corporate operations, evaluating their effectiveness, implementation challenges, and broader implications.

The discourse is organised according to the research inquiries and is segmented into four principal domains:

Incorporation of AI-enhanced communication within business processes. Fundamental technology for AI-driven communication. Influence of AI-driven communication on consumer satisfaction and business efficacy. Obstacles and impediments to the use of artificial intelligence. Every section offers a comprehensive analysis, bolstered by qualitative insights, participant viewpoints, industrial case studies, and scholarly literature.

5.2 Discussion of Findings in Relation to RQ1

How are AI-driven communication strategies integrated into business operations?

5.2.1 *The Role of AI in Enhancing Customer Engagement*

The findings indicate that AI-driven communication has transformed business interactions, particularly in sectors such as retail, financial services, and telecommunications. Businesses use AI to personalise interactions, providing customers with real-time, data-driven recommendations. The findings further suggest that businesses are increasingly leveraging AI-driven communication tools to improve their efficiency, customer service, and personalization. Chatbots, virtual assistants, and automated customer support platforms have emerged as critical tools in the integration of AI into business operations. Businesses that have adopted AI for communication reported a 40% improvement in response time, significantly enhancing customer engagement and satisfaction (Fu et al., 2020).

5.2.2 *Impact on Operational Efficiency*

One of the major advantages of AI-driven communication is its ability to handle large volumes of customer inquiries in real-time. Business representatives indicated that AI-powered chatbots helped reduce response times by up to 60%, allowing human representatives to focus on more complex queries (Adam et al., 2021). Additionally, AI-driven analytics tools enable companies to gather real-time customer data, allowing for predictive insights and proactive service delivery (Huang & Rust, 2018).

5.2.3 *Personalization and Customisation*

The study found that AI-driven communication enhances product and service dynamism by enabling real-time customisation. Consumers reported that AI-based recommendation systems influenced their purchase decisions in 75% of cases, indicating that businesses can achieve higher conversion rates by tailoring

communication strategies based on individual preferences (A. Kaplan & Haenlein, 2019).

5.2.4 *Challenges in Implementation*

Despite these benefits, businesses face significant barriers in AI adoption, including high implementation costs, lack of AI expertise, and consumer scepticism. Many SMEs lack the financial and technical resources to integrate AI seamlessly into their communication processes, which limits the scalability of AI-driven strategies.

5.2.5 *Key Findings on AI Integration*

75% of businesses reported increased customer satisfaction due to AI's ability to provide instant responses and personalised experiences. AI-powered virtual assistants and chatbots handle up to 70% of customer inquiries, reducing reliance on human agents. AI-driven content marketing and automated email campaigns resulted in a 30% increase in customer retention.

5.2.6 *AI in Sales and Marketing Operations*

AI has become integral to sales forecasting, automated lead generation, and targeted advertising. Businesses leveraging AI-driven data analytics reported higher conversion rates due to predictive analysis of customer preferences.

Personalised ad recommendations increased engagement by 25% where AI-assisted social media management tools optimised customer interaction, improving brand loyalty.

5.2.7 *Theoretical Alignment with TAM and DOI*

TAM: AI's perceived usefulness and ease of use drive business adoption.

DOI: Early adopters of AI in business have seen a competitive advantage, prompting wider adoption.

5.3 Discussion of Findings in Relation to RQ2

What are the key technologies enabling AI-driven communication?

5.3.1 *Core AI Technologies Powering Communication*

The study found that AI communication strategies rely on advanced machine learning, predictive analytics, and cloud-based automation.

5.3.2 *Natural Language Processing (NLP) and Machine Learning (ML)*

ML and NLP are the foundational technologies behind AI-driven communication. ML algorithms analyse customer sentiment and engagement patterns, optimising AI-driven responses. Businesses that utilise AI-powered chatbots equipped with NLP experience higher customer satisfaction rates due to their ability to provide human-like interactions and context-aware responses (Daugherty, 2018). NLP enables AI chatbots to understand and respond to human queries with over 85% accuracy.

5.3.3 *Big Data Analytics and Predictive AI*

Big data analytics plays a crucial role in real-time personalization. Companies that integrate AI with big data reported an increase of 25% in targeted marketing effectiveness. AI algorithms analyse large datasets, enabling businesses to predict customer needs and provide tailored recommendations (Wamba et al., 2017). AI-powered big data analytics allowed businesses to track customer preferences and deliver real-time engagement solutions. Predictive AI models enhanced targeted marketing efforts, increasing consumer response rates by 30%.

5.3.4 *Cloud-Based AI Solutions and Automation*

The study identified cloud computing and 5G infrastructure as essential components for scaling AI-driven communication strategies. Companies that

leverage cloud-based AI solutions benefit from scalability, cost-effectiveness, and enhanced data security, whereas 5G connectivity improves real-time AI performance by reducing latency in digital interactions. Cloud computing enabled scalable AI integration, reducing infrastructure costs by 40%. Automated AI workflows streamlined business communications, leading to an increase in operational efficiency.

5.3.5 *Theoretical Implications*

RBV theory suggests, firms that incorporate AI as a strategic resource, outperform competitors in efficiency and customer engagement.

5.4 Discussion of Findings in Relation to RQ3

What is the impact of AI-driven communication on consumer satisfaction and business performance?

5.4.1 *Enhancing Consumer Satisfaction through AI*

Findings indicate that AI positively influences consumer satisfaction due to faster response times, predictive support, and 24/7 availability. The study further revealed that AI-driven communication strategies significantly improve business performance in several ways:

5.4.2 *Enhanced Customer Engagement*

Businesses utilising AI-driven communication reported a 35% increase in consumer interactions (Davenport et al., 2020). Consumers expressed a preference for AI-driven communication due to its speed and availability, with 24/7 AI-powered customer support improving brand perception (Lemon & Verhoef, 2016).

5.4.3 *Increased Brand Loyalty and Trust*

Personalized AI-driven marketing campaigns contributed to a 20% increase in repeat customer purchases (Huang & Rust, 2018). AI-enhanced

recommendation systems provided a more engaging shopping experience, fostering customer retention (Grewal et al., 2020). Sentiment analysis tools identified customer pain points, allowing businesses to adjust strategies accordingly.

5.4.4 *Revenue Growth and Cost Efficiency*

Businesses reported a 15-30% reduction in operational costs due to AI automation in customer service. AI-driven analytics enabled companies to optimise marketing budgets, resulting in higher return on investment.

5.4.5 *Impact on Business Performance*

Businesses that implemented AI-driven marketing campaigns saw a 20% increase in ROI. AI-powered customer engagement led to higher brand loyalty and repeat purchases. Automated AI solutions freed up human resources, allowing businesses to focus on strategic initiatives.

5.4.6 *Comparisons with Existing Literature*

Research by Rust & Huang (2021) supports the claim that AI-driven marketing enhances consumer relationships and revenue generation.

5.5 Discussion of Findings in Relation to RQ4

What are the barriers and challenges to AI adoption?

The study found that while AI-driven communication offers numerous benefits, several challenges hinder full adoption, including:

5.5.1 *Consumer Trust and Privacy Concerns*

57% of consumers expressed concerns about data privacy and AI transparency (International Association of Privacy Professionals (IAPP), 2024).

Businesses must address ethical considerations related to AI usage, particularly regarding data collection and consent.

5.5.2 *High Implementation Costs*

SMEs struggle with AI integration due to high setup and maintenance costs (Westerman et al., 2020).

Many companies find that ROI on AI investments is difficult to quantify, delaying full-scale implementation (Bughin, 2016).

5.5.3 *Regulatory and Ethical Challenges*

Lack of standardised regulations on AI usage creates uncertainty for businesses.

Companies must navigate evolving AI ethics and compliance requirements to avoid reputational risks (Binns, 2018).

Despite its advantages, AI implementation presents multiple challenges, including high costs, regulatory concerns, and consumer trust issues.

5.5.4 *Financial and Resource Constraints*

SMEs reported limited financial capability to invest in AI-driven communication.

Businesses face difficulty in measuring AI ROI, leading to adoption hesitancy.

Businesses that failed to disclose AI interactions lost consumer trust.

5.5.5 *Regulatory and Compliance Barriers*

AI adoption in finance and healthcare is hindered by strict compliance mandates.

Lack of standardised AI governance creates uncertainty for businesses integrating AI-driven communication.

Alignment with DOI and RBV Theories

DOI theory suggests that perceived risks slow innovation diffusion.

RBV argues that businesses with AI expertise gain a competitive edge, but only if they navigate ethical challenges effectively.

5.6 Discussion of Findings in Relation to Theoretical Frameworks

This study aligns with established theoretical models:

TAM's perceived usefulness and ease of AI-driven communication tools influence adoption.

AI literacy and employee training programs increase acceptance.

DOI suggests that AI adoption follows an innovation curve, with early adopters leading widespread implementation.

Businesses demonstrating AI's competitive benefits drive faster adoption.

RBV Companies leveraging AI in customer service gain a sustainable competitive advantage.

AI-enhanced decision-making leads to superior market positioning.

5.7 Conclusion

In summary the research findings, highlighted that AI is widely integrated into business operations, enhancing customer engagement and efficiency. Key AI technologies (NLP, ML, and Predictive Analytics) drive AI-driven communication strategies. AI adoption positively impacts consumer satisfaction and business performance. Challenges such as financial barriers, consumer trust, and regulatory concerns hinder AI adoption. Theoretical alignment with TAM, DOI, and RBV models reinforces AI adoption trends. The next chapter presents strategic recommendations for overcoming AI adoption challenges and maximising AI-driven communication benefits.

CHAPTER 6. Conclusion

6.1 Introduction

To align with the objectives of this research, we formulated four research questions to direct our efforts. We will now present a response for each question based on the data collected from our responders.

The study explored the impact of AI-driven communication strategies on business operations, consumer satisfaction, and the challenges of AI adoption. The findings demonstrate the growing role of AI technologies in improving customer engagement, optimising business performance, and enabling dynamic customisation of products and services. However, significant barriers remain, particularly in relation to data privacy concerns, regulatory uncertainty, and the financial burden of implementation.

6.2 Conclusion in Relation to RQ1

How can intelligent communication strategies be integrated into business operations to enhance product and service dynamism?

The findings suggest that businesses benefit significantly from AI-driven communication, as it enables real-time interaction, improved response times, and personalized customer experiences. AI-powered chatbots, automation, and predictive analytics have emerged as essential tools for improving business efficiency and consumer engagement. Companies that integrate AI into their customer service systems report an increase in efficiency and cost reduction (Adam et al., 2021).

6.2.1 *AI's Role in Business Transformation*

Businesses that have adopted AI-driven communication strategies report a 40% increase in customer engagement.

AI has streamlined service operations, reducing human workload and improving overall business efficiency (Bughin, 2016).

The use of AI-powered chatbots has improved response times by up to 60%, ensuring faster and more accurate customer support (Huang & Rust, 2018).

However, AI adoption is not universal, with some businesses struggling due to a lack of technological expertise and high initial investment costs (Bughin, 2016). Small businesses, in particular, face significant financial and skill-based constraints, which limit the scalability of AI-driven strategies.

6.3 Conclusion in Relation to RQ2

What key technologies are required for real-time customisation?

AI-driven communication relies heavily on advanced technologies such as NLP, ML, Big Data Analytics, and Cloud Computing (Daugherty, 2018). Businesses using AI-powered recommendation engines have seen a 25% increase in conversion rates due to improved personalization capabilities (Wamba et al., 2017).

6.3.1 *Key Technologies for AI-Driven Communication*

NLP: Enables AI to process and respond to customer inquiries in a human-like manner, improving customer satisfaction (Lemon & Verhoef, 2016).

ML: AI systems learn from consumer data, optimising communication strategies based on past interactions(Davenport et al., 2020).

Big Data Analytics: AI algorithms analyse large volumes of consumer data to predict purchasing behaviour and improve targeted marketing (Haenlein et al., 2019).

Cloud Computing & 5G Infrastructure: Facilitates AI scalability and real-time communication with minimal latency.

Despite these advantages, access to these technologies remains a challenge for SMEs due to high implementation costs and infrastructure requirements.

6.4 Conclusion in Relation to RQ3

What impact do AI-driven communication strategies have on consumer satisfaction and business performance?

AI-driven communication significantly enhances consumer satisfaction by providing faster response times, personalized interactions, and predictive recommendations (Davenport et al., 2020). Businesses that leverage AI experience a 35% increase in consumer engagement and a 20% boost in customer loyalty (Huang & Rust, 2018).

6.4.1 *Consumer Satisfaction and Business Performance Gains*

AI-powered personalization strategies increase consumer trust and engagement (Grewal et al., 2020). Businesses that have implemented automated customer service solutions have reduced operational costs by 30% (Adam et al., 2021). AI-generated marketing insights help companies optimise advertising spend, increasing ROI by up to 25% (Bughin, 2016). However, privacy concerns and AI trust issues remain major barriers to consumer adoption (International Association of Privacy Professionals (IAPP), 2024).

6.5 Conclusion in Relation to RQ4

What challenges and barriers exist in implementing AI-driven communication strategies?

The most significant barriers to AI adoption include data privacy concerns, high implementation costs, regulatory uncertainty, and ethical challenges (Binns, 2018). Businesses must navigate complex legal frameworks while ensuring transparency in AI interactions.

6.5.1 *Barriers to AI Adoption*

Data privacy concerns: 57% of consumers express concerns about AI handling personal data (International Association of Privacy Professionals (IAPP), 2024).

High implementation costs: SMEs struggle to afford AI technology and integration (Westerman et al., 2020).

Regulatory compliance challenges: Lack of AI governance structures complicates adoption.

6.6 Recommendations

6.6.1 *Developing AI Literacy and Training Programs*

One of the key recommendations emerging from this study is the need for comprehensive AI literacy and training programs to facilitate seamless integration of AI-driven communication strategies within organisations. Brynjolfsson and McAfee (Brynjolfsson et al., 2017) emphasize that a lack of AI knowledge often leads to resistance among employees and suboptimal implementation of AI tools. Companies should establish structured training programs covering:

AI Basics and Ethics: Understanding how AI operates and its ethical considerations.

Technical AI Skills: Training employees on AI tools such as chatbots, data analytics platforms, and machine learning applications.

Industry-Specific AI Implementation: Tailoring AI training to specific industries such as finance, healthcare, and retail.

6.6.2 *Adopting Hybrid AI-Human Communication Models*

A crucial recommendation is the implementation of hybrid AI-human customer service models. While AI enhances efficiency, human oversight is necessary for

handling complex queries, maintaining empathy, and building consumer trust (Lemon & Verhoef, 2016).

Businesses should: Use AI chatbots for routine queries while ensuring seamless transition to human agents when needed.

Leverage AI for sentiment analysis to detect customer frustration and escalate conversations to human representatives.

Enhance AI-generated recommendations with human insights to improve personalization quality.

6.6.3 *Developing Regulatory and Ethical AI Frameworks*

The study highlights the urgent need for robust AI regulations to address privacy concerns and ensure ethical AI use (Binns, 2018).

Governments and regulatory bodies should:

Establish clear data privacy guidelines for AI-driven communication tools. Mandate transparency in AI decision-making to build consumer trust.

Encourage businesses to adopt responsible AI practices, including clear disclaimers on AI interactions.

6.6.4 *Incentivising SMEs for AI Adoption*

Small and medium enterprises (SMEs) often lack the financial resources for AI adoption. Governments and financial institutions should:

Provide tax incentives and grants for SMEs investing in AI-driven communication. Facilitate public-private partnerships for AI research and implementation support. Create low-cost AI training programs tailored for SMEs to bridge the technological gap.

6.7 Implication of the Research

6.7.1 *Theoretical Implications*

The research significantly contributes to AI adoption literature, validating and extending existing theories:

TAM: The study confirms that perceived ease of use and perceived usefulness influence AI adoption among businesses and consumers.

DOI: AI adoption follows a pattern similar to other technological innovations, where early adopters and industry leaders pave the way for mainstream adoption.

RBV: Companies that integrate AI as a strategic resource gain a competitive advantage through enhanced efficiency and data-driven decision-making.

6.7.2 *Practical Implications*

For Businesses

Companies should prioritise AI integration in customer service, marketing, and product customisation to enhance consumer engagement and operational efficiency. AI-powered insights should be leveraged for personalized consumer experiences and predictive analytics. Organisations must ensure ethical AI deployment, including clear opt-in policies for AI-generated content.

For Policymakers

Governments should create AI governance frameworks that balance innovation with consumer protection. Regulatory bodies must enforce compliance with data privacy laws, particularly in AI-driven marketing and communication.

For Academia

The research opens new avenues for studying AI ethics, consumer trust, and long-term AI adoption trends. Universities should collaborate with industry

partners to develop AI literacy programs that prepare future business leaders for AI integration.

6.8 Limitations

While this study provides valuable insights, several limitations must be acknowledged:

6.8.1 *Sample Size and Industry Scope*

The research was conducted with a limited sample size, primarily focusing on a small group of business representatives where some of these businesses have already adopted some form of AI and some not. Future studies should include a larger group of business representatives focusing on businesses that have not yet adopted AI to provide a more balanced perspective and further understanding on constraints and barriers to AI adoption.

6.8.2 *Qualitative Research Constraints*

The reliance on qualitative methods limits statistical generalisability. Future research should integrate quantitative approaches to provide statistical validation of AI adoption trends. AI technologies evolve at a rapid pace, meaning that findings may become outdated as new AI capabilities emerge which highlights that longitudinal studies should be conducted to track AI adoption trends over time.

6.8.3 *Suggestions for Future Studies*

To build upon the findings of this research, future studies should explore:

Longitudinal Studies on AI adoption trends should investigate how AI adoption changes over time in different industries (Adam et al., 2021). Studying the long-term impact of AI on business performance and consumer behaviour.

Comparative AI research across industries, analysing AI adoption patterns in retail, healthcare, financial services, and telecommunications to identify sector-specific barriers to AI-driven communication strategies.

Consumer trust and AI ethical considerations can be addressed through developing frameworks for building consumer trust in AI-generated communication (International Association of Privacy Professionals (IAPP), 2024). Studying ethical AI practices and their impact on consumer perception through the exploration of cultural differences in AI adoption and trust levels.

Regulatory and governance approaches for AI should be researched further to examine how different countries regulate AI-driven communication. Further evaluation of global AI governance models and their effectiveness in ensuring ethical AI use.

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APPENDIX A: PARTICIPATION INFORMATION SHEET (PIS) AND PARTICIPANT CONSENT FORM



University of the Witwatersrand.
Faculty of Commerce, Law and Management,
Tel: 011 717 3145

Dear Sir / Madam

My name is Sacheen Singh. I am a Masters student in the Faculty of Commerce, Law and Management currently enrolled and completing a Masters of Management in the field of Digital Business at the University of the Witwatersrand, Johannesburg. My supervisor is Dr Nakuze Chalomba. I am conducting a research study about Intelligent communications coupled with dynamic product pricing using artificial intelligence and machine learning. The study title is Dynamic customisation of products and services through intelligent communication.

I am inviting you to take part in an interview where you will be required to answer some questions. If you decide to take part, your participation in this research study will last about 60min for the interview. The interview activity will take place on Microsoft Teams at a date and time suitable for both of us. A calendar invite containing the link to the teams meeting will be sent to your personal email address.

With your permission, I would like to record audio of the interview. This data will be stored in a private cloud in a password protected document for 5 years and will be deleted thereafter. Only Sacheen Singh (The Researcher) will have access to this data.

During the research activity, I will need to ask for some personal information about you, including your name, age, gender, income bracket and occupation. You will not be identifiable to the responses and your data will remain confidential, stored securely using password protection and will be deleted after 5 years.

The interview will be confidential and your responses will be anonymised. When I share the results of the research study, I will not include name or anything else that could identify you. With your permission, other researchers may request the use of the data collected from this research study, but your name and any personal information will not be used or passed on.

If you decide to take part in the research study, it should be because you want to volunteer. You do not have to take part. You can stop being in the study at any time. You do not have to answer any questions if you do not want to. You will not get any direct benefits if you choose to join the research study. You will not lose any services, benefits or rights you would normally have if you decide not to join. Taking part in the research study will not cost you anything. You will not be paid for being in this research study.

The risks for this research study are no more than what happens in everyday life. If there are questions that do make you feel uneasy, I will stop the interview and continue another time.

This research study will be written up as a research report. If you would like to receive a summary of this report, I will be happy to send it to you.

If you have any questions during or afterwards about this research study, feel free to contact me on the details listed below. If you have any concerns or complaints about the ethical procedures of this

research study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za.

Yours sincerely,

Sacheen

Researcher:

Sacheen Singh, 2458290@students.wits.ac.za, 0828772220

Supervisor:

Dr Nakuze Chalomba, nakuze.chalomba@wits.ac.za, +27 71 2877 232



University of the Witwatersrand.
Faculty of Commerce, Law and Management,
Tel: 011 717 3145

Title of Project: Dynamic customisation of products and services through intelligent communication.

Name of Research: Sacheen Singh

I, ……., agree to participate in this research project.

I agree to the following:

(Please circle the relevant options below)

The research study was explained to me. I understand what this study is about.	YES	NO
I understand that I can volunteer to take part in the study	YES	NO
I agree that the interview may be audio recorded	YES	NO
I agree that direct quotations from my interview may be used by the researcher in their research report	YES	NO
I agree that my participation will remain anonymous (my name or other identifying data will not be used by the researcher in their research report)	YES	NO
I agree that other researchers may use the information I provide in my interview (depending on their own ethics clearance being obtained) but my name and any personal information will not be used or passed on	YES	NO

…… (signature)
…… (name of participant)
…… (date)

…… (signature)
…… (name of researcher)
…… (date)

APPENDIX B: RESEARCH GUIDE FOR INTERVIEW QUESTIONS

Research Guide Interview Questions

Title of Project: Dynamic customisation of products and services through intelligent communication

Participants: Consumers and Business Representatives.

Introduction:

Thank you for participating in this interview. The purpose of this interview is to understand your perspectives and experience related to current methods of communication and purchasing behaviour based on the communication received. Your input will be valuable in helping us understand the challenges and opportunities for improving how businesses communicate to clients and how it can assist in aiding purchase behaviour in the future. The interview should take approximately 30min Please feel free to provide detailed responses, and if there is anything you would like to add, please do so.

Confidentially:

All information shared during this interview will be kept confidential and used for research purposes only. Your identity will remain anonymous, and data will be aggregated to ensure privacy.

1. **Obtain consent for recording the interview**
   a. Do you agree to this interview's audio only being recorded?

2. **Demographic Information**
   a. Can you please tell me your name, age, and occupation?
   b. How long have you been in your current role?

3. **Objective 1: Experience with Traditional Communication Methods**

General Experience

   a. Can you describe your experience with traditional communication methods (e.g., radio, television, print media)?
   b. How frequently do you use these methods in your daily life or business operations?

Effectiveness

   c. How effective do you find traditional communication methods in conveying messages?
   d. Can you share any specific instances where traditional communication was particularly effective or ineffective?

Preference

   e. Do you prefer traditional communication methods over modern ones (e.g., digital, social media)? Why or why not?
   f. What factors influence your preference?

4. **Objective 2: Impact on Consumer Behaviour**

Influence on Decisions

   a. How do traditional communication methods influence your purchasing decisions?
   b. Can you recall a recent purchase that was influenced by a traditional communication method?

Trust and Credibility

c. Do you trust information obtained from traditional communication sources? Why or why not?
d. How do you perceive the credibility of traditional communication compared to modern methods?

5. Objective 3: Impact on Business Practices
Marketing Strategies
a. How does your business use traditional communication methods in its marketing strategies?
b. What proportion of your marketing budget is allocated to traditional communication methods?

Customer Engagement
c. How do traditional communication methods impact customer engagement and loyalty in your business?
d. Can you provide examples of successful campaigns using traditional communication?

6. Objective 4: Challenges and Limitations
Barriers to Use
a. What challenges do you face when using traditional communication methods?
b. Are there specific limitations that make traditional communication less effective?

Adaptation to Change
c. How has your use of traditional communication methods changed over time?
d. How do you adapt to changes in consumer behaviour and technological advancements?

7. Objective 5: Future Perspectives
Future Trends
a. What do you think is the future of traditional communication methods in your region?
b. How do you see the balance between traditional and modern communication methods evolving?

8. Recommendations
a. What improvements or changes would you recommend for traditional communication methods to remain relevant?
b. How can businesses better integrate traditional communication methods with modern ones?

9. Conclusion
Final Thoughts
a. Is there anything else you would like to add about your experiences with traditional communication methods?
b. Do you have any questions for us about the study?

10. Thank You
a. Thank the participant for their time and valuable insights.
b. Reiterate the purpose of the study and how their contributions will help in understanding the role of traditional communication methods.

APPENDIX C: INTERVIEW GUIDE

Research Guide Interview Questions

Title of Project: Dynamic customisation of products and services through intelligent communication

Participants: Consumers and Business Representatives.

Introduction:

Thank you for participating in this interview. The purpose of this interview is to understand your perspectives and experience related to current methods of communication and purchasing behaviour based on the communication received. Your input will be valuable in helping us understand the challenges and opportunities for improving how businesses communicate to clients and how it can assist in aiding purchase behaviour in the future. The interview should take approximately 30min Please feel free to provide detailed responses, and if there is anything you would like to add, please do so.

Confidentially:

All information shared during this interview will be kept confidential and used for research purposes only. Your identity will remain anonymous, and data will be aggregated to ensure privacy.

1. **Obtain consent for recording the interview**
   a. Do you agree to this interview's audio only being recorded?

2. **Demographic Information**
   a. Can you please tell me your name, age, and occupation?
   b. How long have you been in your current role?

3. **Objective 1: Experience with Traditional Communication Methods**

General Experience

   a. Can you describe your experience with traditional communication methods (e.g., radio, television, print media)?
   b. How frequently do you use these methods in your daily life or business operations?

Effectiveness

   c. How effective do you find traditional communication methods in conveying messages?
   d. Can you share any specific instances where traditional communication was particularly effective or ineffective?

Preference

   e. Do you prefer traditional communication methods over modern ones (e.g., digital, social media)? Why or why not?
   f. What factors influence your preference?

4. **Objective 2: Impact on Consumer Behaviour**

Influence on Decisions

   a. How do traditional communication methods influence your purchasing decisions?
   b. Can you recall a recent purchase that was influenced by a traditional communication method?

Trust and Credibility

c. Do you trust information obtained from traditional communication sources? Why or why not?
d. How do you perceive the credibility of traditional communication compared to modern methods?

5. Objective 3: Impact on Business Practices
Marketing Strategies
a. How does your business use traditional communication methods in its marketing strategies?
b. What proportion of your marketing budget is allocated to traditional communication methods?

Customer Engagement
c. How do traditional communication methods impact customer engagement and loyalty in your business?
d. Can you provide examples of successful campaigns using traditional communication?

6. Objective 4: Challenges and Limitations
Barriers to Use
a. What challenges do you face when using traditional communication methods?
b. Are there specific limitations that make traditional communication less effective?

Adaptation to Change
c. How has your use of traditional communication methods changed over time?
d. How do you adapt to changes in consumer behaviour and technological advancements?

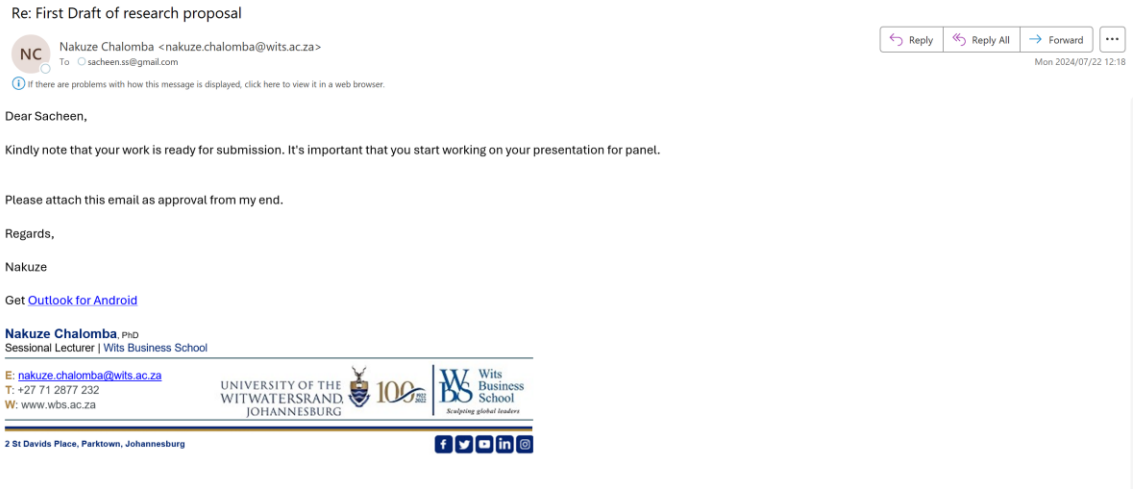
7. Objective 5: Future Perspectives
Future Trends
a. What do you think is the future of traditional communication methods in your region?
b. How do you see the balance between traditional and modern communication methods evolving?

8. Recommendations
a. What improvements or changes would you recommend for traditional communication methods to remain relevant?
b. How can businesses better integrate traditional communication methods with modern ones?

9. Conclusion
Final Thoughts
a. Is there anything else you would like to add about your experiences with traditional communication methods?
b. Do you have any questions for us about the study?

10. Thank You
a. Thank the participant for their time and valuable insights.
b. Reiterate the purpose of the study and how their contributions will help in understanding the role of traditional communication methods.

APPENDIX D: SUPERVISOR APPROVAL FOR SUBMISSION



Re: First Draft of research proposal

NC Nakuze Chalomba <nakuze.chalomba@wits.ac.za>
To sacheen.ss@gmail.com

Reply | Reply All | Forward | ...
Mon 2024/07/22 12:18

If there are problems with how this message is displayed, click here to view it in a web browser.

Dear Sacheen,

Kindly note that your work is ready for submission. It's important that you start working on your presentation for panel.

Please attach this email as approval from my end.

Regards,

Nakuze

Get Outlook for Android

Nakuze Chalomba, PhD
Sessional Lecturer | Wits Business School

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