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Adoption of AI in Marketing and its impact on Business Performance. A case of SMEs in Pakistan

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Fall 2023

Majors: MKT

Major/No. (07)

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FINAL PROJECT/THESIS APPROVAL SHEET

Viva-Voce Examination

Viva Date 29/01/2024

Topic of Research: *AI Adoption in Marketing and its impact on business performance. A case of SMEs in Pakistan*

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Dedication

To My Parents

Whatever I have achieved in my life is due to your continuous support and prayers.

To My Supervisor

From encouraging me to take up the thesis to the continuous guidance throughout, I am extremely grateful for all the help that you gave.

To My friends and Family

Thank you for always being there for me, you will always be my pillar of support.

Acknowledgements

There are several people who I need to thank for helping me in completing my thesis. First, the managers of different SMEs I reached out for data collection, I sincerely thank you for your help in collecting the data. Secondly my class fellows, colleagues, and professional network who helped me find my target population, without you I wouldn't have been able to complete my research in time. Lastly, my Supervisor Dr Haider Ali Shah, with your advice and supervision I was able to complete my thesis and whatever you taught me has helped me improve my research skills and increased my learning, I am extremely grateful to you for your help and support.

A special thanks to my friends and family for their support and prayers I wouldn't have been able to make it without you.

Abstract

AI has gained popularity over the past few years, and it is not unwarranted. We see its implementation in many areas, one of which is marketing. From improving customer experience to designing personalized marketing strategies, AI has played a significant role. The purpose of our study was to investigate the impact of AI in marketing (AIM) on business performance. The areas of business performance that were considered for this studied included customer performance, financial performance, internal business process performance and learning and growth performance. Our findings suggest that AIM has a positive impact on business performance and can be used for improved decision making. We also studied the mediating effect of analytical culture of an organization and found that it positively impacts the relationship between AIM and business performance. Our study presents empirical evidence to support the adoption of AI in marketing.

Keywords: AI, marketing, business performance, customer performance, financial performance, internal business process performance, internal growth performance, analytical culture

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Chapter 1

Introduction

1.1. Background Study

AI is the ability of machines to perform tasks that typically require human intelligence. AI systems can learn, reason, solve problems, and make decisions on their own. AI is a field of computer science that focuses on creating intelligent agents, which are systems that can perceive their environment, make decisions, and take actions to achieve specific goals. (Artificial Intelligence a Modern Approach Third Edition, n.d.) The transformation brought by the fourth industrial revolution has forced businesses of all sizes irrespective of their industry or location to digitize themselves (Bettoni et al., 2021). This digital transformation enables them to be creative and innovative and gives them the ability to use new ways of using technology to solve conventional problems (What Does Digital Transformation Really Mean? | CIO, n.d.) Customers expect companies to streamline their operations for efficiency and prioritize a user-friendly experience. They desire seamless interactions, swift and accurate solutions to their needs, and convenient engagement with businesses. Companies need to speed up the digitization of their business operations if they want to achieve these high customer expectations. (Accelerating the Digitization of Business Processes | McKinsey, n.d.)

AI is used in many ways in businesses today. Experts and academics believe that AI will play an increasingly key role in our society in the future. (Verma et al., 2021). The significance of AI in marketing has been acknowledged, and consumer market trends and marketing strategies are changing quickly. (Gao & Liu, 2022) When demand and marketing align, you can accomplish marketing goals and convert prospective customers into paying customers by understanding the various needs of your target market. Artificial intelligence will be able to significantly contribute to effective marketing in this way. (Yang et al., 1 C.E.) AI can be used to analyze large amount of customer data, segment customers into separate groups based on their needs and preferences as well as predicting customer behaviors based on their past activities and search history. It can be used to personalize customer experience, creating an interactive marketing experience as well as mapping the customer journey to provide a wholesome experience to the customer. AI has

transformed the consumer decision-making process, where choices are made by algorithms and the emphasis is on ease over conventional brand values (Klaus & Zaichkowsky, 2020). Another aspect of AI adoption in marketing is to make better business decisions. AI is being used by more businesses in all industries to improve innovation, supply chains, marketing, sales, and other operations. Companies that implement AI report efficiency gains from automation and better decision-making due to more accurate and timely predictions. (Leszkiewicz et al., 2022) By gaining insight using data analytics businesses can make better use of resources and devise appropriate marketing strategies. They can use real time data to make informed decisions.

Small and medium-sized enterprises (SMEs) are the foundation of the economy, but they are also extremely sensitive to market changes. This makes it difficult for SMEs to keep up with the rapid pace of technological advancement Digitalization initiatives help SMEs to adopt modern technologies, which is essential for them to be competitive and sustainable in the current technological environment. (Das et al., 2020). SMEs play a vital role in the economy by driving innovation, creating jobs, and generating income. They also contribute to industrial expansion and social development. (Das et al., 2020)

Small and medium-sized enterprises (SMEs) are typically businesses with fewer than 250 employees. The exact definition of an SME varies from country to country in the Asia-Pacific region, but it is usually based on the number of employees, assets, or a combination of the two. (Impact Analysis of SMEs Sector in Economic Development of Pakistan: A Case of Sindh, n.d.) SMEs are powerful engines of economic growth and social development. They can create jobs, allocate resources efficiently, boost exports, reduce inequality, and support rural and regional communities. (Harvie, 2004). Small and medium-sized enterprises (SMEs) play a vital but often overlooked role in driving social, environmental, and economic change. They are essential for growth, innovation, and sustainability in local, regional, and global economies. SMEs contribute more than their share to the global economy. They make up about 90% of all businesses and employ 50% of the world's workforce. In emerging markets, SMEs generate up to 40% of GDP. (Why We Should Not Underestimate the Economic Impact of SMEs Globally | World Economic Forum, n.d.)

In context of Pakistan, as the largest economic sector in Pakistan, the SME sector plays a vital role in job creation, including domestic employment, and reducing unemployment in the country.

((PDF) Impact Analysis of SMEs Sector in Economic Development of Pakistan: A Case of Sindh, n.d.) Small and medium-sized enterprises (SMEs) are considered the backbone of the Pakistani economy. In the industrial sector, they employ up to 90% of all private businesses and 78% of the non-agricultural workforce. SMEs contribute 36% of value addition in manufacturing products, 40% of GDP, and 30% of exports of manufactured products. (Zulqarnain Arshad et al., n.d.) AI is used in manufacturing, e-commerce, accounting, human resources, marketing, customer relations, and other industries to gain a competitive advantage. AI-based processes can improve organizational performance, lower costs, increase sales, automate customer management, collect, and process data more efficiently, save time, and reduce errors. AI-based marketing is especially valuable in customer-oriented times, as it can help businesses target their marketing efforts more effectively.((PDF) ARTIFICIAL INTELLIGENCE-BASED PROCESSES IN SMES, n.d.) Artificial intelligence (AI) systems will revolutionize customer service and radically improve business efficiency through the use of cutting-edge technologies.(Butenko, 2018) AI can benefit organizations by improving their performance at both the organizational (e.g., financial, marketing, and administrative) and process levels. By leveraging these capabilities, organizations can increase the business value of their transformation projects. (Wamba-Taguimdje et al., 2020). 2022 reference

AI is rapidly changing the landscape for SMEs, creating new possibilities for growth and transformation. AI-powered solutions can help SMEs automate routine tasks, boost operational efficiency, and free up human resources to focus on more complex challenges. Marketing campaigns can be personalized to specific customer segments, leading to higher conversion rates and increased sales. Additionally, AI's data analysis capabilities can reveal valuable trends and patterns that can inform strategic decision-making. SMEs are also leveraging AI to innovate and adapt by developing products and services that meet the changing needs of their customers. As AI technology continues to mature and become more affordable, its potential to revolutionize and the SME sector is expected to grow even further.

1.2.   Problem Statement

Existing literature states that performance metrics play a vital role in improving the overall performance of any organization while contributing towards the attainment of organizational goals and objectives. Tracking how well an organization is doing in terms of cost, financial performance,

quality, time, flexibility, delivery reliability, safety, customer satisfaction, employee satisfaction, and social performance has a significant positive impact on the organization's overall performance. (Ishaq Bhatti & Awan, 2014) To provide cost-effective, high-quality services that meet the needs of service users, organizations need a well-designed performance measurement system. Without feedback on all important aspects and a system for acting on that information, managers are unable to effectively improve services. (Moullin, 2004). Identifying an organization's performance is important in worldwide markets, as it can lead to increased investment, higher share value, and the attraction of top talent. (Kagioglou et al., 2001) Therefore it is important to consider how performance metrics impact the performance of an organization.

Similarly, organizations are using AI to adapt to and disrupt their industries, and to develop and improve their strategic and competitive advantages. AI can be used to optimize existing processes, improve automation, and transform information. It can also be used to detect, predict, and interact with humans. (Wamba-Taguimdje et al., 2020). Increased companies are choosing to use artificial intelligence (AI) to provide performance feedback to employees. This involves tracking employee behavior at work, automating performance evaluations, and recommending job improvements. (Tong et al., 2021) Hence using AI to measure and improve performance metrics has become popular among organizations.

Furthermore, to have a smooth implementation of AI in the organization it is important to have an analytics culture. In the digital age, organizations that use data and analytics to make decisions and run their businesses have a strategic advantage over their competitors. (Medeiros & Maçada, 2022). Organizations that want to thrive in the digital age need to have an analytical culture. It enables businesses to decide more wisely, operate more effectively, and comprehend their clients better.

Overall using AI to evaluate and enhance performance metrics can be impactful for the business performance of an organization and to ensure an efficient implementation it is important to have an analytical culture in the organization and this is what will constitute or study in which we will analyze the relationship between AI and performance metrics and the mediating effect of analytical culture on this relationship. We will be analyzing these three variables from the marketing perspective.

1.3. Research Objectives

Accordingly, the objectives of the study are to:

1. Investigate the impact of AIM on SME performance.
2. Investigate the mediating effect of Analytics Culture between AIM and SME performance.

1.4. Research Questions

Consequently, the study aims to answer the following questions:

1. What is the impact of AIM on SME performance?
2. Does Analytics Culture mediate the relationship between AIM and SME performance?

1.5. Research Contribution

This study contributes towards the theoretical development of the research by adding analytics culture as a mediator. The advent of information and communication technologies has spurred organizations globally to embark on significant endeavors to harness data's potential by synergizing technological, managerial, and personnel competencies(Fosso Wamba et al., 2020) Data-driven culture and business analytics foster a competitive edge by enabling organizational agility and facilitating big data visualization.(Duan et al., 2020)Maximizing the business value of big data and business analytics requires a well-defined data strategy, competent personnel, and adherence to data ethics.(Vidgen et al., 2017) Thus we will be evaluating the effect of analytics culture in organization while adopting AIM to improve business performance.

Furthermore, the study has been limited to Ghana (an emerging economy), so we will be adapting to another emerging economy that is Pakistan and comparing the results as suggested by the author.

Moreover, Artificial Intelligence is a new concept in Pakistan and there are many uncertainties and speculations regarding its implementation so our study can be used as a reference as to how and why implementing Artificial Intelligence in Marketing (AIM) can improve business process.

Finally, the research will contribute towards understanding the role of managers in organization towards the building of a culture that helps easing the adoption of Artificial Intelligence.

1.6.   Research Gap

There has been a lack of research around artificial intelligence in Pakistan as it is still a novel concept. But with the passage of time increased organizations are opting to use analytics and artificial intelligence, especially in the department of marketing for business decision making to improve business performance. As Eriksson concluded in his study that AI can revolutionize marketing strategy development by introducing a balance of rational and creative thinking, effectively responding to external uncertainties, and overcoming limitations in managerial decision-making. (Eriksson et al., 2020) Similarly Davenport suggests that combining Artificial Intelligence with human expertise will increase the effectiveness of marketing strategies and their impact on customer behavior (Davenport et al., 2020). Likewise, Yang in his research indicates that AI technology has ushered in a new era of precision marketing, optimizing resource allocation, minimizing expenses, and fostering stronger customer connections. (Yang et al., 2021)

Moreover, use of any kind of technology in an organization requires acceptance among the employees and is like the case with AIM. We will be studying the impact of having an analytics culture for successful implementation of AIM which has not been done previously.

1.7.   Scope of the study

The goal of the study is to research the impact of AIM on business performance of SMEs and the importance of having an analytical culture for the implementation of AIM in the context of Pakistan. Pakistan is an emerging economy where more businesses are opting to use artificial intelligence and data analytics for business decision making. Businesses are increasingly recognizing the need for personalized marketing strategies to improve customer experience. As technology matures the demand for AI in business decision making will also accelerate. Thus, our aim is to assist businesses to understand how AIM can improve their performance, help them gain a competitive advantage as well as study the impact of having an analytics culture and if it has any influence on the adoption and implementation of AIM.

Chapter 2

Literature Review

2.1. Artificial Intelligence in marketing (AIM)

In this data-driven era AIM is rapidly changing the way we do marketing. Providing businesses with unique opportunities to improve customer engagement, designing effective marketing strategies, and increasing business growth are some the aspects in which AIM has positively impacted business performance. The ability of AI to read enormous amounts of data, derive insights and predict consumer patterns has transformed the marketer's approach towards strategy making.

So, we can say that Artificial intelligence (AI) is spearheading a transformation in the business world and society. AI empowers companies to gain deeper customer understanding, anticipate customer behavior, and enhance customer engagement. Within marketing, AI adoption is experiencing rapid growth across diverse applications, ranging from providing customer service support during interactions to identifying the most effective promotions.(Campbell *et al.*, 2020)

Furthermore, AIM is revolutionizing the marketing landscape, offering businesses valuable insights, automation, reduced costs, and improved workflows. This leads to enhanced customer experiences and innovation in the industry.(Kaličanin *et al.*, 2019) AIM has been of interest for researchers and over the period research has been done on its impact on various aspects of marketing the most focused being understanding consumer sentiments, industrial opportunities, analyzing customer satisfaction, improving market performance, and using AI for brand management.(Mustak *et al.*, n.d.) The field of AI in marketing is undergoing dynamic changes, with ongoing research delving into its adoption, applications, ethical implications, organizational support, and the transformative impact on the labor market and marketers' skillsets.(Vlačić *et al.*, 2021)

Also, the integration of AIM into digital marketing is transforming the way businesses approach content creation, lead generation, customer acquisition cost reduction, customer experience management, employee recruitment, and social media conversion strategies.(van Esch and Stewart Black, 2021a) In the era of the Fourth Industrial Revolution, where intelligence holds the key to

success, companies that prioritize exceptional customer experiences are poised to emerge as victors. This revolution envisions a company that seamlessly integrates customer and product data across all channels and offerings, employing this data to gain a deeper understanding of end-user experiences and enhance visibility across all functional areas.(Verma *et al.*, 2021) The incorporation of AIM into digital marketing empowers businesses to make strategic decisions with greater precision, enabling them to anticipate consumer expectations and deliver tailored products and services, fostering stronger customer relationships.(Zaman, 2022)

Additionally AIM can elevate personalized engagement marketing by delivering customized options and insights to customers, revolutionizing branding, and customer relationship management strategies.(Kumar *et al.*, 2019a) AI has an impact on every facet of the marketing mix, affecting not just the marketing organization and management but also the delivery of consumer value.(Jarek and Mazurek, 2019) Harnessing AIM's capabilities can empower businesses to gain a deeper understanding of customer needs, identify market opportunities with greater agility, establish business objectives with enhanced accuracy, and achieve the true essence of smart and precision marketing.(Zhu, 2022)

AIM can elevate strategic marketing planning by streamlining repetitive tasks, effectively processing vast amounts of data, and deciphering intricate patterns in customer interactions and human emotions.(Lida, 2020) Collaborative AI in marketing can enhance marketing strategies by leveraging the strengths of human intelligence and employing lower-level AI to support higher-level strategic decision-making.(Huang and Rust, 2022) Artificial intelligence in marketing (AIM) is anticipated to reshape marketing strategies in the future, impacting business models, sales processes, customer service approaches, and consumer behaviors.(Davenport *et al.*, 2020) AI is poised to revolutionize marketing by anticipating not only customer preferences but also optimal pricing strategies, including the timing and effectiveness of price promotions.(Shankar, 2018)

Moreover, the adoption of artificial intelligence in marketing (AIM) is rapidly accelerating, driven by advancements in computing power, reduced computing costs, the abundance of big data, and the evolution of machine learning algorithms and models.(Huang and Rust, 2021) AIM can empower strategic marketing planning by automating repetitive tasks, facilitating comprehensive data analysis, and uncovering patterns in customer interactions and emotional responses.(Huang and Rust, 2021)AIM elevates customer satisfaction through personalized digital interactions and

optimized marketing strategies, fostering a deeper connection with customers and enhancing their overall experience.(Malviya *et al.*, 2022a)

AI's pervasive integration into marketing demands that marketing managers develop technical expertise to effectively utilize this transformative technology, leveraging its power to shape customer decisions and drive business growth.(Mr, 2021) AI's continuous evolution empowers marketers to forge deeper connections with customers, enriching their understanding of individual preferences. This enhanced understanding will facilitate more personalized marketing approaches, tailored to specific customer needs and aspirations. By leveraging AI insights effectively, marketers can refine the digital marketing experience, delivering content that resonates with customers and enhances their lives.(Tiautrakul and Jindakul, 2019)

AI can revolutionize knowledge-based marketing in B2B by extracting insights and patterns from vast amounts of data, transforming it into actionable knowledge that drives business growth.(Paschen *et al.*, 2019)AI integration in marketing enhances business operations by introducing reliable and cost-effective solutions, enabling marketers to effectively implement and manage AI technologies, fostering improved customer satisfaction.(Shembekar and Ambulkar, n.d.)The rapid adoption of artificial intelligence (AI) has ignited a digital transformation that is paving the way for the next wave of disruptive innovation in the enterprise world. Marketing is experiencing this transformation at an accelerated pace. Modern businesses are embracing innovative AI technologies and integrating them into their core operations to drive rapid growth and success.(Chintalapati and Pandey, 2022)

AI equips marketers with the tools to effectively analyze and understand customer behavior, leading to improved customer relationships and enduring customer loyalty.(Biswas and b, 2023) AI-driven creativity tools can help marketers generate new and engaging content ideas, experiment with different creative formats, and personalize campaigns for specific audiences. AI can also help marketers optimize their content for search engines and social media platforms, ensuring that their message reaches the right people at the right time.(Nair and Gupta, 2020) AI can significantly enhance marketing strategy formulation by introducing both rational and creative thinking capabilities, effectively addressing external contingencies and overcoming limitations in human cognitive abilities.(Eriksson *et al.*, 2020)

AI-driven marketing insights solutions are not only feasible but also essential for the market research industry to embrace. By harnessing the power of AI, market researchers can gain unprecedented insights into customer behavior and market trends, enabling them to make more informed decisions and deliver exceptional value to their clients.(Wirth, 2018)

Concludingly AIM can be a game changer offering businesses opportunities to gain better insights on customer behavior and optimizing marketing strategies. As technology continues to evolve the role of AIM is expected to grow presenting more prospects for innovation and growth.

2.2. Business Performance

How well a company does its business and how it achieves its goal and objectives is measured by its performance. It measures the effectiveness and efficiency of strategic decisions. There are many reasons that make it important to measure business performance such as strategic alignment, decision making, resource allocation, competitive advantage etc. In today's dynamic business landscape, success hinges on the ability to seize opportunities, embrace constant change, and consistently improve performance. Business performance serves as a key measure of an enterprise's effectiveness and impact.(Rajnoha and Lesníková, 2016) High performance in business organizations requires productivity, efficiency, and growth strategies, which are crucial in a competitive environment driven by globalization, liberalization, and privatization.

Continuous and objective performance measurement serves as an indispensable tool for businesses to enhance their decision-making capabilities and optimize their overall operational efficiency. By providing a comprehensive assessment of the organization's current state, performance measurement empowers managers to establish realistic, challenging, and motivating goals for future growth. In the absence of regular, comprehensive, and objective performance measurement, organizations risk losing crucial insights that are essential for effective decision-making across all aspects of business management, including planning, organizing, leading, and controlling.(Krstiæ, n.d.) The dynamic business landscape, characterized by evolving work environments, intensifying competition, continuous improvement efforts, quality recognition programs, shifting organizational structures, mounting external pressures, and the transformative power of information technology, has propelled business performance measurement to the forefront of organizational success.(Neely, 1999) Performance evaluation serves as a crucial tool for managers, enabling them to make informed decisions regarding resource allocation and performance

improvement initiatives across business units.(Chen, 2009) Accurate performance measurement is paramount to business success. Gathering and reacting to information that fails to inform management on how to achieve established objectives is both futile and potentially detrimental to the company's overall well-being.(Griffis *et al.*, 2004)

Concludingly, business performance is a holistic assessment of an organization's overall functioning, providing a roadmap for strategic decisions, resource allocation, and continuous improvement, contributing to long-term success and sustainability.

In this study we will be looking at the impact of AIM on different business performance factors such as financial performance, customer performance, internal business process performance and learning and growth performance. Previously financial performance was considered as a measure of business performance. But now companies are increasingly shifting their focus from traditional financial performance metrics to non-financial indicators to gain a deeper understanding of their competitive strategies and long-term success. This shift reflects the growing recognition that non-financial factors, such as customer satisfaction, employee engagement, and innovation, play a crucial role in driving sustainable growth and profitability. (Eccles, n.d.) Because leading indicators of business performance are not solely confined to financial data. Instead, metrics like quality, customer satisfaction, innovation, and market share can provide a more comprehensive and insightful picture of a company's overall health and growth trajectory. These non-financial indicators often serve as harbingers of future financial success, offering valuable insights into a company's ability to attract and retain customers, maintain a competitive edge, and adapt to changing market dynamics.(Eccles, n.d.)

2.2.1. *Artificial intelligence in marketing and financial performance*

AI capabilities revolutionize organizational performance by transforming dynamic, process-oriented functions, particularly in financial, marketing, and administrative domains.(Wamba-Taguimdje *et al.*, 2020) Social media platforms leverage artificial intelligence in marketing (AIM) to elevate user privacy protection, optimize marketing strategies, and boost profitability, with AI-driven marketing yielding threefold benefits compared to traditional approaches.(Al-Ghamdi, 2021)AI-powered marketing revolutionizes the way businesses interact with their customers, enabling personalized communication, accurate forecasting, and enhanced profitability.(Khrupovych and Borysova, 2021)

AI-driven marketing (AIM) reduces customer acquisition cost (van Esch and Stewart Black, 2021b) through targeting and personalization, optimized campaigning, and efficient resource allocation. Marketing automation revolutionizes marketing processes, empowering businesses to streamline their search efforts, measure campaign effectiveness, reach target audiences with precision, deliver engaging content, optimize costs, and maximize efficiency.(Ivanova and Vovchanska, 2021)AI-driven social media marketing emerges as a powerful catalyst for business growth, propelling the profitability of companies that embrace this technology. Revenues surge by a notable 10%, costs plummet, and productivity and logistics networks undergo significant improvements.(Al-Ghamdi, 2021) Using AIM businesses can improve their efficiency, effectiveness, and overall financial performance. This brings us to our first hypothesis,

H1: AIM has a positive impact on financial performance of SMEs in Pakistan

2.2.2. *Artificial intelligence in marketing and customer performance*

AIM empowers companies to gain insights into consumer behavior, personalize their interactions, and enhance their content creation. This intelligent approach revolutionizes the way businesses engage with their customers, fostering deeper connections and driving increased sales.(Ivanova and Vovchanska, 2021) AI is transforming the digital marketing landscape, empowering organizations to craft compelling content, identify and nurture high-potential leads, deliver personalized customer experiences, and effectively convert social media engagement into sales.(van Esch and Stewart Black, 2021b)

AI-powered precision marketing has ushered in a new era of marketing effectiveness, streamlining operations, optimizing resource allocation, and fostering deeper customer connections.(Yang *et al.*, 2021) AIM has profoundly transformed marketing strategies, revolutionizing business models, optimizing sales processes, enhancing customer service, and shaping customer behavior in the realm of marketing campaigns.(Titiani and Riana, 2022)Artificial Intelligence Marketing (AIM) revolutionizes customer experiences by crafting tailored digital messaging and optimizing marketing strategies, fostering deeper customer connections and driving unparalleled levels of satisfaction.(Malviya *et al.*, 2022b)

Artificial Intelligence Marketing (AIM) uses the power of database marketing with cutting-edge AI techniques like machine learning, enabling businesses to forge personalized customer

relationships and drive unprecedented results.(Rekha *et al.*, 2016) Artificial intelligence in marketing (AIM) revolutionizes personalized engagement marketing by delivering tailored experiences and insights, empowering businesses to forge profound connections with their customers across diverse markets.(Kumar *et al.*, 2019b) AIM transforms customer engagement by harnessing the power of big data to deliver hyper-personalized experiences and tailored messages across diverse channels, fostering deeper connections and driving unparalleled results.(Ramnarayan, 2020)

AIM delivers personalized, efficient, and gratifying customer experiences thus empowering businesses to forge stronger customer connections, foster enduring loyalty, and achieve unparalleled performance metrics. However, to harness the full potential of AI, businesses must adopt a customer-centric approach, ensuring that technological advancements align seamlessly with customer preferences and expectations. Thus, we can develop our second hypothesis,

H2: AIM has a positive impact on the customer performance of SMEs in Pakistan

2.2.3. Artificial intelligence in marketing and internal business process performance

Artificial intelligence in marketing (AIM) has facilitated a significant advancement in business operations, playing a crucial role in streamlining administrative, decision-making, and planning processes within marketing, sales, and management. This evolution is propelling organizations towards the realization of a comprehensive algorithmic enterprise.(Gentsch, 2019) The integration of AIM substantially enhances the creation of customer, user, and market insights, resulting in more informed decision-making in B2B marketing and contributing to enhanced overall firm performance.(Bag *et al.*, 2021) Artificial Intelligence Marketing (AIM), through its seamless integration of cutting-edge technology and organizational strengths, fuels exceptional business performance by empowering strategic decision-making across multiple areas, including business strategy, competitive positioning, and customer engagement.(Vishnoi *et al.*, 2021) From the above discussion we can hypothesize that

H3: AIM has a positive impact on the internal business process performance of SMEs in Pakistan

2.2.4. Artificial intelligence in marketing and learning and growth performance.

AIM empowers marketing teams to achieve unprecedented levels of learning and growth by unlocking a deep understanding of consumer sentiment, industrial opportunities, and customer

satisfaction, enabling them to optimize market performance, strengthen brand management, foster enduring customer loyalty, and trust, and formulate data-driven strategic marketing initiatives.(Mustak *et al.*, 2021) Artificial Intelligence in Marketing (AIM) revolutionizes marketing practices by optimizing strategies, enhancing customer engagement, and delivering data-driven insights, propelling organizations toward sustainable growth and competitive advantage.

Drawing from the preceding discussion and empirical evidence, this study postulates that

H4: AIM has a positive impact on the learning and growth performance of SMEs in Pakistan

2.3. Mediating effect of the SMEs Analytical Culture

An analytical culture enhances organizational performance by improving decision making and problem solving.(Rathore *et al.*, n.d.) Analytical culture in an organization impacts its business performance by enabling effective, systematic, and purposeful analysis of its competitive environment.(Bach *et al.*, 2018) A data-driven culture impacts business performance through awareness, understanding, goal setting, assessing benefits and limitations, learning to trust data, and commitment to an embedded culture.(Pugna *et al.*, 2019) Data-driven culture fuels product and process innovation, propelling firms towards enhanced performance and a competitive edge in the industry(Chatterjee *et al.*, 2021)

Considering the preceding discussion, the following hypotheses are proposed.

H5: Analytics culture positively mediates the relationship between AIM and financial performance of SMEs in Pakistan

H6: Analytics culture positively mediates the relationship between AIM and customer performance of SMEs in Pakistan

H7: Analytics culture positively mediates the relationship between AIM and internal business process performance of SMEs in Pakistan

H8: Analytics culture positively mediates the relationship between AIM and learning and growth performance of SMEs in Pakistan

2.4. Theoretical Development

The Resource-Based View (RBV) theory in strategic management underscores the pivotal role of an organization's resources and capabilities in attaining and sustaining a competitive advantage. The theory posits that firms can achieve this advantage by possessing and effectively utilizing resources.

The RBV says firms win by wielding unique, hard-to-copy assets that give them an edge over rivals. (Miller, 2019) The RBV is not just a tool, it is a magnifying glass for spotting the hidden drivers of success in complex MNEs. Think diversified giants, clustered subsidiaries, overseas ventures in uncharted territory, and empowered outposts – the RBV helps you understand how unique resources and capabilities fuel their rise. (Beamish and Chakravarty, 2021) Firms are not just clones, and the RBV champions this. It delves into the fascinating world of "firmness" – how unique resources create a landscape of diverse strengths and weaknesses, shaping competitive realities. (Fahy, 2000)

The RBV is not just theory, it is a toolbox. It equips managers with battle-tested strategies to build competitive advantage and dominate their game. Think weaponizing unique resources, crafting unbeatable capabilities, and leaving competitors in the dust. (Connor, 2002) The RBV theory helps MSMEs unlock their unique strengths to excel in areas like online marketing, marketplaces, learning, and networking, paving the way for strategic success. (widjaja and Yuga, 2020)

The RBV is a dynamic theory that helps managers understand how customized, time-tested capabilities can fuel success and set firms apart in the competition.(Almarri and Gardiner, 2014) The RBV, a leading theory in strategic management, offers managers practical tools to build sustainable competitive advantage and achieve strategic success.(Connor, 2002) The Resource-Based View of the firm (RBV) comprises interconnected theories that operate on the assumptions of diverse resources and their limited mobility among firms. According to this perspective, a firm can be seen as a collection of resources, capabilities, or routines that generate value and are challenging for competitors to replicate or seize, primarily due to isolating mechanisms. (Miller, 2019)

The dynamic landscape of AI-driven marketing strategies necessitates a deeper understanding of its impact on the business performance of small and medium enterprises (SMEs) in emerging

economies like Pakistan. This research investigates this relationship through the lens of the Resource-Based View (RBV) theory, focusing on how specific AI-driven marketing capabilities (AIM) contribute to competitive advantage and subsequently influence various performance dimensions.

Within the context of Pakistani SMEs, AIM serves as a unique resource that firms can leverage for a competitive edge. This translates to advanced analytics, personalized customer targeting, and automated decision-making processes, collectively forming the resource bundle that drives a firm's competitive position.

Business performance, the dependent variable in our study, encompasses four distinct dimensions, financial performance, and customer performance. internal business performance and learning and growth performance. The RBV framework suggests that the effectiveness of AIM in marketing is reflected in these diverse performance metrics. However, the mediator variable, analytical culture, adds another layer of complexity to the analysis. It represents the internal organizational mindset and practices related to data and insights utilization. This mediator plays a crucial role in shaping how effectively AI resources are assimilated into existing routines and deployed to achieve strategic objectives.

Guided by the RBV theory, this research systematically investigates the interconnected relationships among AIM, analytical culture as a mediator, and the multifaceted dimensions of business performance within Pakistani SMEs. By doing so, the study aims to:

• Unravel the intricate ways in which AIM contributes to competitive advantage and business success by providing insights into how specific AI capabilities drive improvements across various performance dimensions.

• Analyze the mediating role of analytical culture in the effectiveness of AIM, exploring how internal organizational culture influences the utilization and deployment of AI resources for strategic objectives.

• Identify key factors influencing business performance in the context of AI-driven marketing strategies within the Pakistani SME landscape, providing valuable insights for managers and researchers alike.

This research contributes to a deeper understanding of the impact of AI adoption on SME performance in emerging economies. By analyzing the interplay between AIM, analytical culture, and performance dimensions within the Pakistani context, the study offers valuable insights for SME managers seeking to leverage AI for a competitive edge. It also guides future research on AI integration in marketing within specific cultural contexts, contributing to the ongoing dialogue on effective AI utilization for improved business performance in SMEs.

2.5. Theoretical Model
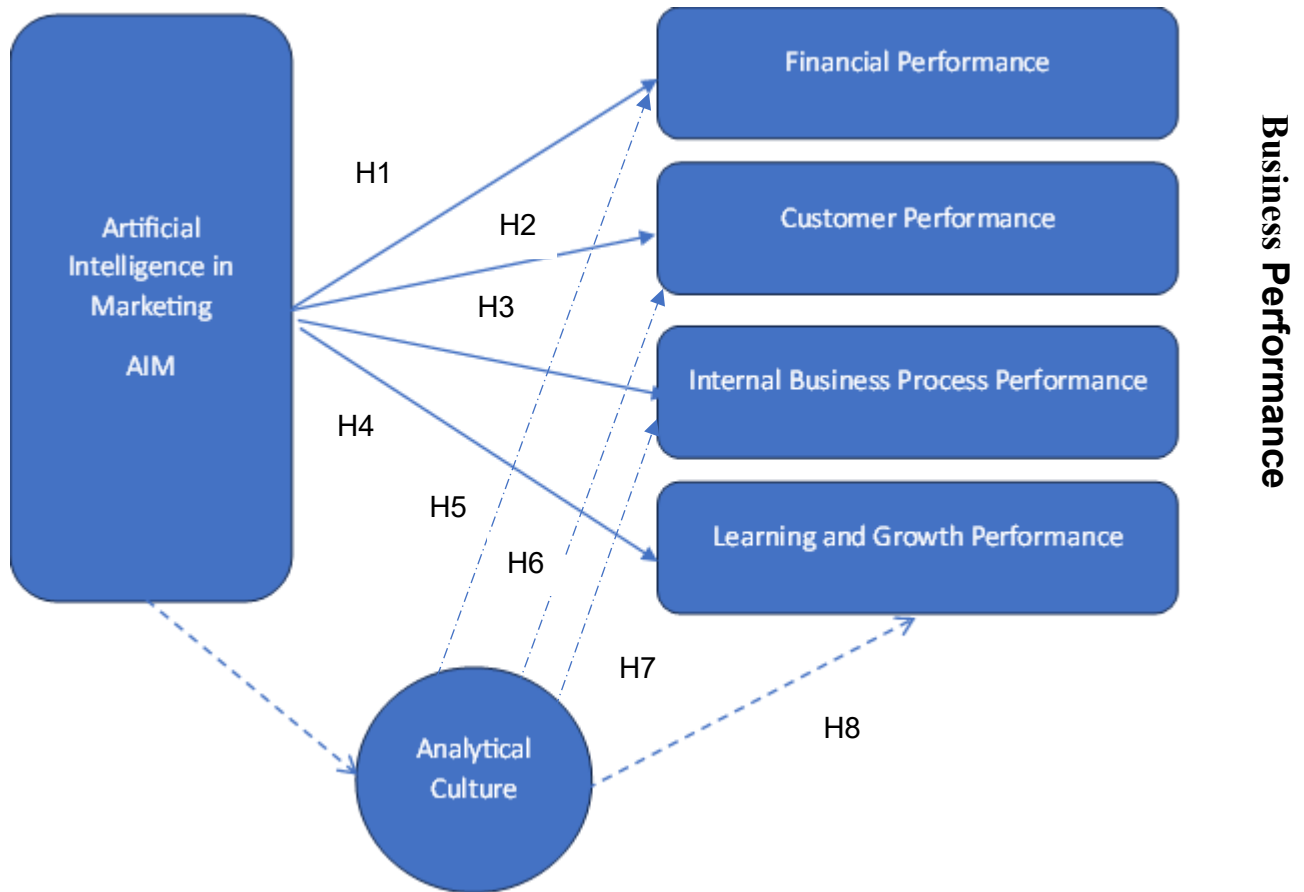
Figure 1 Theoretical Model

Chapter 3

Research Methodology

3.1. Research Design

3.1.1. Research strategies

The research strategy used for this study is survey research (online and onsite). Questionnaires were filled by the target population which consisted of 41 questions including demographics.

3.1.2. Extent of researcher interference

There was minimal interference of the researcher, and the events were studied as the occurred normally.

3.1.3. Study setting

The study setting was non-contrived as it was done in the natural environment.

3.1.4. Unit of analysis (population to be studied)

The unit of analysis for this study are individuals who are managers working in SMEs in Pakistan.

3.1.5. Time horizon

The study was conducted in One-shot (cross-sectional) over a period of one month.

3.2. Research Philosophy

The research philosophy for this study is Positivism as it involves an empirical and objective approach to research and aims to uncover causal relationships.

3.3. Research type

The research type is quantitative as we will be analyzing data collected through survey.

3.4. Research Approach

The research approach for this study is deductive as we will be analyzing the data collected test and confirm or refute our hypotheses.

3.5. Population and Sample

The population chosen for this study are SMEs in Pakistan with focus on those based in Punjab (as it has the largest number of SMEs). The sample size consisted of 308 managers.

3.6. Sample Technique

We used convenience sampling which is a type of non-probability sampling. The reason for using this method is that it is practical and time-efficient, making it suitable for studies with resource constraints such as ours where we had to complete the study in four months. Another reason was accessibility as it was easy to access managers from different SMEs. Finally, this method is cost effective, which was a crucial factor for us as we had a limited budget.

3.7. Measurement instruments

We used SPSS and SmartPLS 4 to perform different tests like Data Normality, Reliability Analysis, Descriptive Statistics Regression Analysis, Correlation Analysis and Confirmatory Factor Analysis (CFA) to confirm the relationship between our dependent and independent variables and the mediating effect of the mediator.

3.8. Sources of Instruments

The research study scales were taken from the same study as this, that was conducted in Ghana. The authors made some adjustments in the scales to fit the current study.

(Germann *et al.*, 2013)(Hoffman and Novak, 2018; Metcalf *et al.*, 2019; Tong *et al.*, 2020; Wedel *et al.*, 2020)Artificial intelligence marketing (AIM)" measure used six-item scales modified from (Hoffman and Novak, 2018; Metcalf *et al.*, 2019; Tong *et al.*, 2020; Wedel *et al.*, 2020), "Financial performance" used seven-item scales; "customer performance" used seven-item scales; "internal business process performance" used nine-item scales; and "learning and growth performance" used nine-items scales, all modified from (Kaplan and Norton, n.d.). "Analytical culture" measure uses three-items scales, adapted from (Germann *et al.*, 2013)

All the dimension items were measured on a five-point Likert-type scales that was based on 1 = strongly disagree to 5 = strongly agree to explain the level of agreement.

Variable	Source	Number of Scales
Artificial Intelligence in marketing (AIM)	(Hoffman and Novak, 2018; Metcalf *et al.*, 2019; Tong *et al.*, 2020; Wedel *et al.*, 2020)	06
Financial performance	(Kaplan and Norton, n.d.)	07
Customer performance	(Kaplan and Norton, n.d.)	07
internal business process performance	(Kaplan and Norton, n.d.)	09
learning and growth performance	(Kaplan and Norton, n.d.)	09
Analytical culture	(Germann *et al.*, 2013)	03

Table 1 Source of Instruments

Chapter 4

Results and Findings

4.1. Introduction

In accordance with the research model and hypotheses outlined in Chapter Two, and following the research methodology detailed in Chapter Three, an analysis of the survey responses was conducted to validate the proposed model. This chapter aims to offer a comprehensive examination of the data obtained through the designed questionnaire. It includes an in-depth survey response analysis, examination of data, preliminary analysis encompassing aspects such as missing data, outliers, normality, and tests for common method bias.

The subsequent section delves into the measurement model, addressing the reliability and validity of the collected data. This is succeeded by an assessment of the structural model, covering considerations like collinearity, hypothesis testing, as well as evaluations of predictive accuracy and effect size of the constructs.

The final part of this chapter encompasses a multi-group analysis and a noteworthy performance map analysis.

4.2. Survey Response Rate

The finalized questionnaire was utilized to gather data from respondents in the city of Islamabad through an onsite survey and through cities of Karachi, Lahore, and Islamabad through an online survey. The targeted demographic for potential SMEs included managers of different managerial levels, C-suite, and enterprise. To achieve the desired sample size, 300 questionnaires were distributed among the respondents and 200 respondents were approached for the online survey. Out of the distributed questionnaires, 350 were returned, resulting in a response rate of 70%, while 43 were deemed incomplete. 309 usable questionnaires were obtained, yielding a response rate of 61.6%, as outlined in Table 4.1.

According to social research standards, a response rate of 50% is considered adequate, 60% is deemed good, and 70% is considered particularly good(Babbie, 2013) . Consequently, the response

rate for the current study is deemed satisfactory. Factors contributing to this high percentage include the simplicity and straightforward nature of the questions, as well as the rigorous follow-ups conducted during the data collection process.

Survey Method	Questionnaires	Frequency	Percentage
Paper survey	Distributed	300	
	Returned	250	83
	Not Returned	50	17
Online Survey	Distributed	200	
	Returned	100	50
	Not Returned	100	50
Total Questionnaire Distributed		500	100
Defective Response and Rejected		43	12
Useable-non-defective		309	88
Total Questionnaire Received		350	100

Table 2 Survey Response Rate

4.2.1. Demographic Profile of the Respondents

Category	Number of Respondents	Percent	Cumulative Percent
Gender			
Male	168	54.4	54.4
Female	141	45.6	100
Education			
Bachelors	136	44	44
Masters	171	55.3	99.3
PhD	2	0.6	100
Organization Size			
Small= Less than 50	146	47.2	47.2
Medium= 50-250	163	52.8	100
Position Level			
Lower Management	51	16.5	16.5
Middle Management	107	34.6	51.1
Senior Management	76	24.6	75.7
C-Suite	33	10.7	86.4
Entrepreneur	42	13.6	100
Professional Experience (Years)			
1-3 Years	87	28.2	28.2
4-7 Years	76	24.6	52.8
7-10 Years	65	21	73.8
10+ Years	81	26.2	100

Table 3 Demographic Profile of the Respondents

About 47.2% of our respondents belonged to Small Businesses i.e., having less than 50 employees while 52.8 of the respondents were from Medium Enterprises. Small businesses also included sole proprietorships. Most respondents, i.e., approximately 34.6%, were from the middle management while the percentage of respondents for lower and senior management was 16.5 and 24.6% respectively.

4.3. Data Normality

It is essential to evaluate and guarantee data normality to perform trustworthy statistical analyses, draw legitimate conclusions, and get precise parameter estimates. Analysts and researchers should consider normal assumptions when selecting statistical procedures and analyzing data. Inmot and Linstedt mention in their study that the significance of data lies not only in its existence but in its capacity to function as the cornerstone for analysis. Data can be structured in various manners to facilitate analysis, and one prevalent approach is "normalization." Normalized data is characterized by its granularity and systematic organization.(Inmon and Linstedt, 2015) Normalcy of data is essential for producing high-caliber research results.(Lai and Hitchcock, 2015) In order to validate process capacity analysis and other statistical tests, normality checks are essential for small sample numbers.(Zylstra, 1994) Thus for our small sample we performed the statistical test where we measured the kurtosis and skewness of the data. As a rule of thumb, non-normality in the data is indicated by skewness values outside of +/-1 and kurtosis values within +/-1. The data was not typical, as evidenced by the results, which indicated that several values were beyond the minimal threshold. Extremely non-normal data balloon standard errors and present challenges for the assessment of parametric significance, so the results also demonstrated that the data were not too far from normalcy.(Sarstedt *et al.*, 2014)

	N	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Variance Statistic	Skewness		Kurtosis	
							Statistic	Std. Error	Statistic	Std. Error
AIM1	309	1	5	3.70	1.065	1.134	-.666	.139	-.124	.276
AIM2	309	1	5	3.68	.945	.894	-.527	.139	-.014	.276
AIM3	309	1	5	3.77	1.038	1.078	-.743	.139	.120	.276
AIM4"	309	1	5	3.66	1.077	1.160	-.577	.139	-.232	.276
AIM5	309	1	5	3.57	1.038	1.077	-.450	.139	-.300	.276
AIM6	309	1	5	3.72	.964	.929	-.469	.139	-.327	.276
FP1	309	1	5	3.77	1.046	1.095	-.737	.139	-.073	.276
FP2	309	1	5	3.43	1.057	1.117	-.323	.139	-.477	.276
FP3	309	1	5	3.61	.969	.940	-.448	.139	-.175	.276
FP4	309	1	5	3.82	1.068	1.140	-.654	.139	-.187	.276
FP5	309	1	5	3.91	1.033	1.067	-.767	.139	-.036	.276
FP6	309	1	5	3.65	1.112	1.236	-.597	.139	-.418	.276
FP7	309	1	5	3.94	1.035	1.071	-.832	.139	.129	.276
CP1	309	1	5	3.61	1.031	1.062	-.643	.139	-.051	.276
CP2	309	1	5	3.62	1.055	1.113	-.539	.139	-.303	.276
CP3	309	1	5	3.67	.957	.916	-.693	.139	.130	.276
CP4	309	1	5	3.59	.969	.938	-.514	.139	.004	.276
CP5	309	1	5	3.53	1.008	1.016	-.572	.139	-.157	.276
CP6	309	1	5	3.71	1.081	1.169	-.602	.139	-.311	.276
CP7	309	1	5	3.86	1.058	1.120	-.910	.139	.345	.276
IBPP1	309	1	5	3.70	1.018	1.036	-.634	.139	-.151	.276
IBPP2	309	1	5	3.63	.990	.980	-.540	.139	-.139	.276
IBPP3	309	1	5	3.72	.992	.984	-.650	.139	.110	.276
IBPP4	309	1	5	3.65	1.054	1.110	-.444	.139	-.504	.276
IBPP5	309	1	5	3.39	1.065	1.135	-.330	.139	-.543	.276
IBPP6	309	1	5	3.42	.979	.959	-.140	.139	-.458	.276

IBPP7	309	1	5	3.68	1.080	1.165	-.651	.139	-.113	.276
IBPP8	309	1	5	3.78	1.033	1.066	-.784	.139	.279	.276
IBPP9	309	1	5	3.78	1.092	1.192	-.594	.139	-.440	.276
LGP1	309	1	5	3.82	1.022	1.045	-.750	.139	.119	.276
LGP2	309	1	5	3.83	1.004	1.008	-.863	.139	.382	.276
LGP3	309	1	5	3.77	1.043	1.088	-.661	.139	-.202	.276
LGP4	309	1	5	3.80	1.111	1.234	-.777	.139	-.118	.276
LGP5	309	1	5	3.45	1.091	1.190	-.369	.139	-.533	.276
LGP6	309	1	5	3.69	1.063	1.129	-.504	.139	-.420	.276
LGP7	309	1	5	3.63	1.019	1.038	-.572	.139	-.128	.276
LGP8	309	1	5	3.65	1.067	1.138	-.534	.139	-.396	.276
LGP9	309	1	5	3.86	1.072	1.148	-.892	.139	.297	.276
AC1	309	1	5	3.78	1.077	1.159	-.636	.139	-.325	.276
AC2	309	1	5	3.86	.960	.921	-.709	.139	.209	.276
AC3	309	1	5	3.54	1.152	1.327	-.489	.139	-.564	.276
Valid N (listwise)	309									

Table 4 Descriptive Statistics

4.4. Confirmatory Factor Analysis (CFA)

In the fields of psychometrics and structural equation modelling, confirmatory factor analysis (CFA) is a statistical method used to assess the goodness of fit of a proposed measurement model. In the social sciences, psychology, education, and other fields where researchers seek to quantify latent constructs—unobservable variables—based on a collection of observable indicators, it is frequently used (measured variables). Utilizing structural equation modeling for confirmatory factor analysis aids in validating the dimensional structure of a measure and evaluating its consistency across different samples and in the context of multi-trait-multimethod data.(Floyd and Widaman, 1995) Confirmatory Composite Analysis (CCA) stands out as a potent alternative to Confirmatory Factor Analysis (CFA) within the framework of Partial Least Squares Structural Equation Modeling (PLS-SEM). It presents distinct advantages over alternative methods, particularly in the realm of linear composites.(Hair *et al.*, 2020)
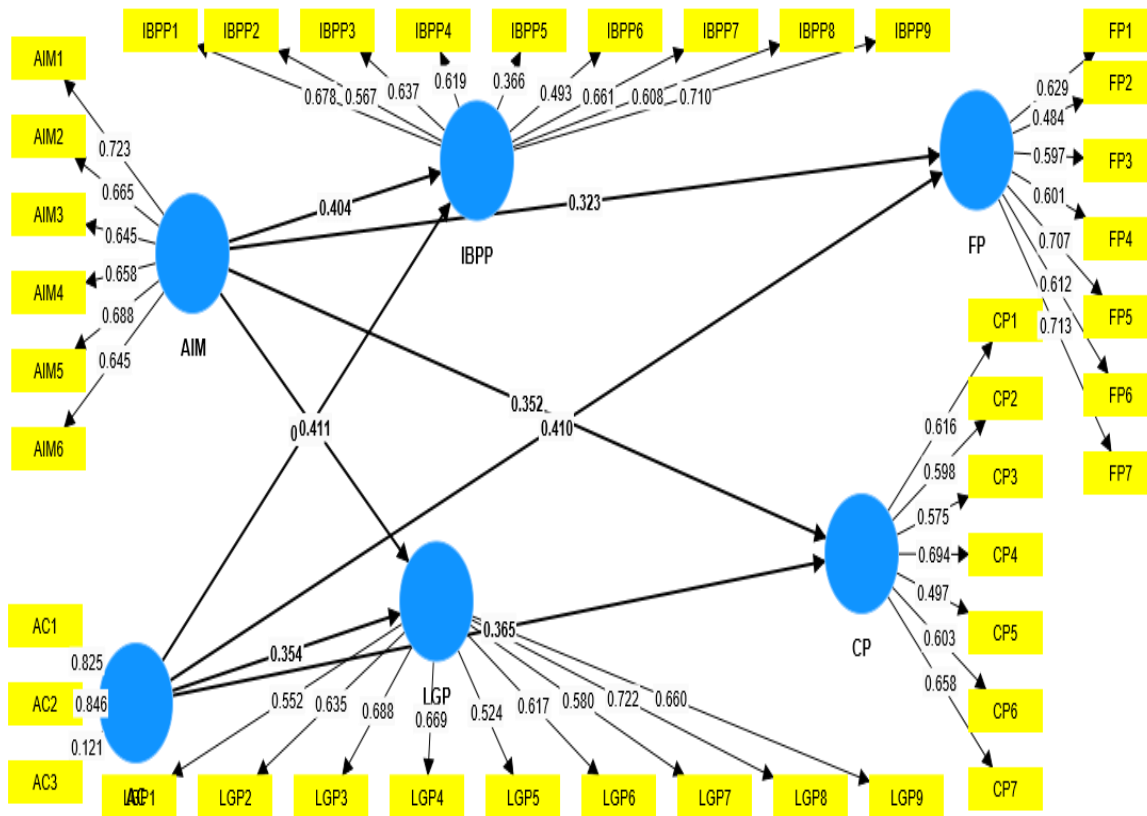
Figure 2 Measurement Model

Factor Loadings Item Code	AC Analytical Culture	AIM Artificial Intelligence in Marketing	CP Customer Performance	FP Financial Performance	IBPP Internal Business Process Performance	LGP Learning and Growth Performance
AC1	0.837					
AC2	0.847					
AIM1		0.728				
AIM2		0.659				
AIM3		0.683				
AIM4		0.627				
AIM5		0.652				
AIM6		0.660				
CP1			0.608			
CP2			0.592			
CP3			0.554			
CP4			0.708			
CP5			0.512			
CP6			0.591			
CP7			0.666			
FP1				0.619		
FP2				0.476		
FP3				0.619		
FP4				0.602		
FP5				0.695		
FP6				0.623		
FP7				0.709		
IBPP1					0.692	
IBPP2					0.572	

IBPP3	0.639	
IBPP4	0.626	
IBPP5	0.353	
IBPP6	0.486	
IBPP7	0.653	
IBPP8	0.596	
IBPP9	0.711	
LGP1		0.554
LGP2		0.644
LGP3		0.693
LGP4		0.660
LGP5		0.519
LGP6		0.614
LGP7		0.579
LGP8		0.718
LGP9		0.661

Table 5 Outer Loadings

4.4.1. Reliability Analysis

4.4.1.1.   Construct Reliability and Validity

Construct reliability and validity are two important steps in research that how well a measurement tool is determining what it is supposed to determine. Reliability measures the consistency of the tool i.e., how consistently a measuring tool measures the data regardless of the situation, time or the person who is measuring the data. Validity on the other hand is a measure of accuracy i.e., the results measured should be the same every time regardless of the situation, time and person measuring the data. Reliability and validity are crucial because they evaluate the effectiveness of measuring the intended construct and the instrument's capability to identify changes in that construct. (Davidson and Keating, 2014)Reliability and validity stand as indispensable qualities in measurement, playing a critical role in the assessment through measurement strategies, as well as being pivotal factors in the development and selection of instruments. (Dunn, n.d.)Construct

validity holds significance as it offers a more distinct and precise descriptive analysis of the concepts under investigation, thereby proving indispensable for research instruments.(Jusoh *et al.*, 2018)

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
AC	0.590	0.591	0.830	0.709
AIM	0.756	0.761	0.829	0.447
CP	0.715	0.722	0.802	0.369
FP	0.738	0.748	0.815	0.390
IBPP	0.772	0.791	0.832	0.362
LGP	0.810	0.818	0.854	0.397

Table 6 Construct Reliability and Validity

The results of our validity test show the Cronbach's alpha value for our independent and dependent variables are greater than 0.7 which means that the internal consistency for these variables is acceptable, and our data is reliable. As far as the mediator is concerned it has a weak internal consistency, the reason may be that there are only three items describing the construct. Same is the case with the composite reliability (rho_a) and Composite reliability (rho_c), both have values above 0.7 that proves the reliability of the data collected. The AVE on the other hand has low values that means the items reflecting the variable can be improved upon.

4.4.1.2. Discriminant Validity

Discriminant validity tests measure whether or constructs are distinct or overlapping, that is they are different from each other and not measuring the same thing under different labels. Discriminant validity is crucial as it guarantees that a test construct does not entirely overlap with other well-established or simpler constructs, preventing redundancy and enhancing the clarity of measurement.(Sechrest, 1963). Johnson et al. in their study suggest that discriminant validity is crucial because it delineates how convergent and discriminant validity manifest across various commitments and considers commitment to multiple constituents.(Johnson *et al.*, 2010)

To ensure that our constructs a discriminant we performed two tests 1) Hetrotrait-Monotrait and 2) Fornell-Larcker Criterion.

The HTMT criterion shows potential discriminant validity issues, while the Fornell and Larcker criterion shows established validity.(Ab Hamid *et al.*, 2017a)

Hetrotrait-monotrait ratio (HTMT)

The ratio of average heterotrait to average monotrait correlations is known as the HTMT value. Better discriminant validity is indicated by lower scores, which suggest that average correlations between distinct constructs are significantly lower than those within the same construct. The Heterotrait-Monotrait Ratio (HTMT) is significant as it evaluates the construct validity of common factors in variance-based structural equation modeling (SEM).(Henseler, 2017). Voorhees et al. in their study reinforce the same idea that the HTMT criterion is crucial as it identifies potential indiscriminancy among latent variables, thereby averting issues of multicollinearity in research that involves such variables.(Voorhees *et al.*, 2016)

The table below shows the values for our Hetrotrait-monotrait ratio (HTMT) test.

	AC	AIM	CP	FP	IBPP
AC					
AIM	0.641				
CP	0.784	0.694			
FP	0.806	0.654	0.928		
IBPP	0.675	0.693	0.927	0.874	
LGP	0.745	0.706	0.846	0.913	0.905

Table 7 Hetrotrait-monotrait ratio (HTMT)

The table shows that while most of our constructs are discriminant there is some overlapping between the AIM and IBPP, IBPP and AC, AIM and AC and FP and AIM, which means that the measurement tool used to measure the data needs improvement either by dropping some indicators/ items or by replacing them with improved versions.

Fornell-Larcker Criterion

This criterion asserts that to ensure good discriminant validity, the square root of the average variance extracted (AVE) for each construct should exceed all the correlations between that construct and any other constructs present in the model. The Fornell-Larcker testing system holds importance because it maintains internal consistency and adheres to the rules of correspondence, ensuring a meaningful connection between data and abstract variables in structural equation models.(Fornell and Larcker, 1981) The Fornell and Larcker criterion is crucial for evaluating discriminant validity in research that incorporates latent variables, helping to prevent issues related to multicollinearity. (Ab Hamid *et al.*, 2017b)

	AC	AIM	CP	FP	IBPP	LGP
AC	0.842					
AIM	0.441	0.669				
CP	0.523	0.512	0.607			
FP	0.544	0.501	0.678	0.624		
IBPP	0.462	0.534	0.698	0.672	0.601	
LGP	0.534	0.570	0.657	0.709	0.725	0.630

Table 8 Discriminant Validity- Fornell-Larcker Criterion

Like the HTMT test this test also proves our above assumption that the indicators for the constructs need to be improved upon.

4.4.1.3.   Collinearity Statistics

When two or more independent variables in a regression model have a high degree of correlation with one another, a statistical phenomenon known as "collinearity" occurs. This makes it difficult to discern the unique effects of each variable on the dependent variable. Put differently, collinearity happens when predictor variables have a strong linear relationship, which results in redundant data.

To determine collinearity in the data we used the VIF (Variance Inflation Factor). Collinearity diagnostics, such as Variance Inflation Factors (VIFs) and condition indices, play a crucial role by assisting in the assessment of the degree of collinearity present in moderated regression models.(Chennamaneni *et al.*, 2016)

	VIF
AC -> CP	1.000
AC -> FP	1.000
AC -> IBPP	1.000
AC -> LGP	1.000
AIM -> AC	1.000

Table 9 Collinearity Statistics- Inner Model

	VIF		VIF
AC1	1.213	IBPP1	1.462
AC2	1.213	IBPP2	1.285
AIM1	1.518	IBPP3	1.359
AIM2	1.412	IBPP4	1.321
AIM3	1.310	IBPP5	1.126
AIM4	1.378	IBPP6	1.197
AIM5	1.358	IBPP7	1.472
AIM6	1.283	IBPP8	1.343
CP1	1.226	IBPP9	1.554
CP2	1.263	LGP1	1.249
CP3	1.243	LGP2	1.457
CP4	1.383	LGP3	1.653
CP5	1.121	LGP4	1.609
CP6	1.280	LGP5	1.263
CP7	1.298	LGP6	1.306
FP1	1.313	LGP7	1.323
FP2	1.195	LGP8	1.614
FP3	1.268	LGP9	1.432
FP4	1.271		
FP5	1.467		
FP6	1.318		
FP7	1.436		

The VIF values for both our inner and outer model are less than 4 and greater than 0.25 (acceptable range) that means that there is no multicollinearity in the data. And all the variables are independent of each other.

4.4.1.3.   Correlation

Correlation is the measure of fluctuation in one variable with respect to another variable. It tells you the amount of change occurring in a variable due to another variable. Correlation refers to the association or connection between two sets of variables, exemplified by instances such as marksmen taking shots at targets or wind conditions at two different locations.(Hotelling, 1992) Correlation is a metric that gauges the degree of association between variables, signifying that a shift in one variable is linked to a corresponding shift in another variable, either in the same direction (positive correlation) or in the opposite direction (negative correlation). It serves as valuable tools for quantifying associations between variables, as their range from -1 to +1 signifies different degrees of strength in the relationship.(Schober and Schwarte, 2018)

	AC	AIM	CP	FP	IBPP	LGP
AC	1.000	0.441	0.523	0.544	0.462	0.534
AIM	0.441	1.000	0.512	0.501	0.534	0.570
CP	0.523	0.512	1.000	0.678	0.698	0.657
FP	0.544	0.501	0.678	1.000	0.672	0.709
IBPP	0.462	0.534	0.698	0.672	1.000	0.725
LGP	0.534	0.570	0.657	0.709	0.725	1.000

Table 10 Correlation

From the table above we can see that some of our dependent variables like FP and CP and IBPP and LGP are highly correlated. So, we can conclude that the improvement or decline of one aspect of the business' performance will impact on the other aspect. In this case an increase in customer performance will lead to an improved financial performance while a decline in the internal business process performance may impact on the learning and growth performance of the organization. The correlation between our independent variable and dependent variables is greater than 0.5 that means that there is some degree of association between them, and the correlation is significant.

4.4.1.4.   Covariance

It is the measure of combined variability of two random variables. It shows the relationship between two variables. If an increase in one variable causes an increase in the other variable, we say that they have a direct relationship. But if an increase in one variable causes a decrease in the other variable, then they have an indirect relationship.

	AC	AIM	CP	FP	IBPP	LGP
AC	1.000	0.441	0.523	0.544	0.462	0.534
AIM	0.441	1.000	0.512	0.501	0.534	0.570
CP	0.523	0.512	1.000	0.678	0.698	0.657
FP	0.544	0.501	0.678	1.000	0.672	0.709
IBPP	0.462	0.534	0.698	0.672	1.000	0.725
LGP	0.534	0.570	0.657	0.709	0.725	1.000

Table 11 Covariance

There is some covariance among the dependent variables that shows that all aspects of business performance; financial, customer, internal business process and learning and growth performance are related to each other. As for the covariance between the independent and dependent variables, all are above 0.5 that means that there is a direct relationship between AIM and FP/CP/IBPP/LGP.

4.5. Regression Analysis

It is a statistical method for determining the relationship between one or more independent variables and a dependent variable. Finding the relationship between changes in the independent variables and changes in the dependent variable is the main objective. The primary goal is to ascertain how changes in the independent variables relate to changes in the dependent variable. Exploring relationships between variables is a key application of simple linear regression analysis, making it a valuable tool that can be employed in various studies.(Zou *et al.*, 2003) Wetherill and

Seber mention in their study that regression analysis holds significance in statistical research and is regarded as an effective and precise tool within the statistician's toolkit.(Wetherill and Seber, 1977)
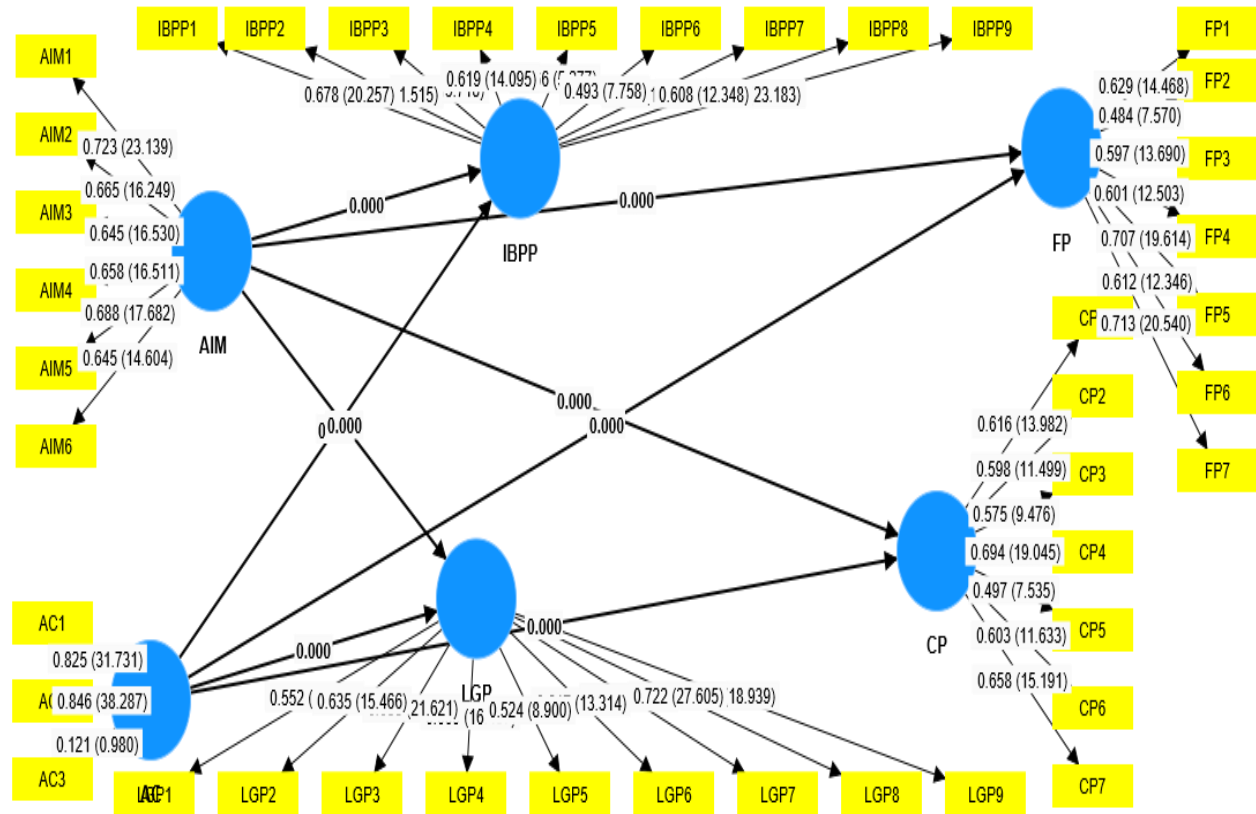

Figure 3 Structural Model

4.5.1. Path coefficients-Mean, STEDV, T values, P values

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
AC -> CP	0.365	0.367	0.058	6.281	0.000
AC -> FP	0.410	0.411	0.058	7.105	0.000
AC -> IBPP	0.294	0.296	0.064	4.592	0.000
AC -> LGP	0.354	0.355	0.061	5.776	0.000
AIM -> CP	0.352	0.356	0.058	6.025	0.000
AIM -> FP	0.323	0.326	0.063	5.127	0.000
AIM -> IBPP	0.404	0.408	0.062	6.549	0.000
AIM -> LGP	0.411	0.415	0.060	6.806	0.000

Table 12 Path Coefficients-Mean, STEDV, T values, P values

4.5.2. Path Coefficients- Confidence Intervals

	Original sample (O)	Sample mean (M)	2.5%	97.5%
AC -> CP	0.365	0.367	0.248	0.477
AC -> FP	0.410	0.411	0.294	0.522
AC -> IBPP	0.294	0.296	0.170	0.418
AC -> LGP	0.354	0.355	0.234	0.472
AIM -> CP	0.352	0.356	0.239	0.469
AIM -> FP	0.323	0.326	0.203	0.446
AIM -> IBPP	0.404	0.408	0.285	0.526
AIM -> LGP	0.411	0.415	0.292	0.530

Table 13 Path Coefficients- Confidence Intervals

4.5.3. Specific Indirect Effects- Mean, STEDV, T values, P values.

	Original sample (O) βcoefficient	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
AIM -> AC -> FP	0.181	0.182	0.037	4.853	0.000
AIM -> AC -> LGP	0.156	0.157	0.034	4.626	0.000
AIM -> AC -> IBPP	0.130	0.130	0.033	3.944	0.000
AIM -> AC -> CP	0.161	0.162	0.035	4.575	0.000

Table 14 Specific Indirect Effects- Mean, STEDV, T values, P values.

4.5.4. Specific Indirect Effects- Confidence Intervals

	Original sample (O) β coefficient	*Sample mean (M)*	*Lower-level confidence interval 2.5%*	*Upper-level confidence interval 97.5%*
AIM -> AC -> CP	0.158	0.159	0.095	0.228
AIM -> AC -> FP	0.172	0.173	0.107	0.245
AIM -> AC -> IBPP	0.122	0.122	0.065	0.186
AIM -> AC -> LGP	0.152	0.152	0.091	0.218

Table 15 Specific Indirect Effects- Confidence Intervals

The path coefficients and specific indirect effect tables provide for the basis of acceptance or rejection of the hypotheses proposed earlier.

H1: AIM has a positive impact on financial performance of SMEs in Pakistan

Since $p < 0.05$ and the β coefficient lies within the confidence interval therefore H1 is accepted.

H2: AIM has a positive impact on the customer performance of SMEs in Pakistan

Since $p < 0.05$ and the β coefficient lies within the confidence interval therefore H2 is accepted.

H3: AIM has a positive impact on the internal business process performance of SMEs in Pakistan

Since $p < 0.05$ and the β coefficient lies within the confidence interval therefore H3 is accepted.

H4: AIM has a positive impact on the learning and growth performance of SMEs in Pakistan

Since $p < 0.05$ and the β coefficient lies within the confidence interval therefore H4 is accepted.

H5: Analytics culture positively mediates the relationship between AIM and financial performance of SMEs in Pakistan

Since $p < 0.05$ and the β coefficient lies within the confidence interval therefore H5 is accepted.

H6: Analytics culture positively mediates the relationship between AIM and customer performance of SMEs in Pakistan

Since p < 0.05 and the β coefficient lies within the confidence interval therefore H6 is accepted.

H7: Analytics culture positively mediates the relationship between AIM and internal business process performance of SMEs in Pakistan

Since p < 0.05 and the β coefficient lies within the confidence interval therefore H7 is accepted.

H8: Analytics culture positively mediates the relationship between AIM and learning and growth performance of SMEs in Pakistan

Since p < 0.05 and the β coefficient lies within the confidence interval therefore H8 is accepted.

Hypothesis	*Construct structural relationships*	*Path coefficients (β)*	*P-values*	*Decision*
H1	AIM -> CP	0.433	0.000	Accept
H2	AIM -> FP	0.355	0.000	Accept
H3	AIM -> IBPP	0.332	0.000	Accept
H4	AIM -> LGP	0.412	0.000	Accept
H5	AIM -> AC -> CP	0.181	0.000	Accept
H6	AIM -> AC -> FP	0.156	0.000	Accept
H7	AIM -> AC -> IBPP	0.130	0.000	Accept
H8	AIM -> AC -> LGP	0.161	0.000	Accept

Table 16 Summary of hypothesis test results

Chapter 5

Discussion and Conclusion

5.1. Discussion and Conclusion

The purpose of this study was to investigate the impact of AIM on the business performance with the mediating effect of analytical culture on SMEs in the context of Pakistan. The findings of the study support our hypotheses that AIM has a positive impact on the various aspects of business performance like financial performance, customer performance, internal business process performance and learning and growth performance. It also supports the RBV theory that says that the adequate use of resources and capabilities can help organizations gain a competitive edge against the competitors. So, the organizations should think about incorporating AIM as a resource to improve their business performance.

The study was conducted over a period of four months and included surveys (both online and paper survey) and covered the SMEs situated in the cities of Islamabad, Lahore, Karachi, and Faisalabad. The respondents consisted of managers working at different managerial levels.

This study holds immense importance in the light of rapidly changing market dynamics and the struggle to gain a competitive advantage. Today most businesses are using data to make informed decisions and adapting to modern technologies to cater to the increasing demands of the customer. Artificial Intelligence (AI) is no longer just a futuristic concept in today's world; rather, it is a revolutionary force that is changing the way people engage with businesses and consumers. It has a considerable influence, improving client experiences, simplifying processes, and eventually resulting in increased corporate performance.

The real power is found in the combination of better customer service and increased revenue generation. Customer satisfaction leads to devoted evangelists who enhance sales and brand recognition. AI-achieved operational efficiency results in cost reductions, which boost profitability even more.

From our study we have found out that the use of AIM has an impact on business performance and not only in terms of improving customer performance but also in terms of financial performance. These two aspects of the business are of most concern for any organization and our study can be a

support to the decision of implementing AIM. Our studies prove that businesses that adopted AIM have better customer and financial performance as well as it also impacted the internal business process as well as the learning and growth of performance. Learning and growth is sometimes not giving much importance, but we have seen from the literature (Literature Review Ch3) that having a learning and growth environment empowers the employees and the organization to make better strategies and optimize operations. Similarly, the internal business process performance helps streamline the processes and improves decision making.

The potential of AI technology to improve company operations and personalize customer journeys will only grow as it develops. Businesses that adopt AI deliberately and with early acclaim stand to earn a huge competitive advantage. Using AI to its full potential may lead to amazing customer experiences, provide insightful information, and help companies grow to new heights.

Having an analytical culture in an organization also helps easing the adoption of AI. The results obtained show that Analytical culture does have a mediating role between AIM and Business performance. While doing the survey I got to visit different organizations and what I observed was that organizations that were data driven had more appreciation of AI and got more out of it. There is still some skepticism for AI (as mentioned by some managers) which hinders their ability to fully use the power of AI. This can be due to lack of knowledge or the fear of AI replacing them but this needs to be addressed and our study can be helpful in this aspect. It can be used as a convincing measure to get people to adopt AIM.

As the evolution of AI technology persists, its applications in marketing are poised to become increasingly sophisticated and influential. Adopting AIM presents businesses with the opportunity to usher in a new era characterized by personalized customer experiences, data-driven decision-making, and enhanced marketing efficiency. But we need to remember that it is just a tool and not a magic solution, its success depends on its proper implementation which involves its acceptance and having a data driven culture.

5.2. Theoretical Implications

This study was adapted from a previous study done in Ghana. The original study discussed the implications of AIM on business performance. Our contribution to the literature is the study of mediating effect of analytical culture between AIM and business performance. Studying the

mediating effect of analytical culture is important specially in the context of Pakistan since there is still some reluctance in adapting to AIM or AI in general. So, we believe that having an analytical culture can help in the successful adoption of AIM.

Our study has shown that the model proposed in the previous literature holds true in this case as well. The study provides empirical support to support the adoption of AIM to improve business performance (customer, financial, internal business and learning and growth)

5.3. Practical Implications

The study provides empirical evidence for the managers of businesses that adoption of AIM has a positive impact on business performance. It can help managers devise strategies on how to exploit the potential of AIM to improve customer experience, reduce costs and enhance decision making process to gain a competitive edge. Especially in the case of Pakistan it can encourage more businesses to move towards AI adoption in marketing and cultivating an analytical culture.

The study findings also suggest that effective implementation of AIM requires SMEs to identify key business performance metrics to assess its impact. SMEs should develop the necessary resources and competencies to reduce costs, optimize marketing team output through the automation of data-driven tasks, personalize customer experiences, foster loyalty, and encourage repeat purchases. Establishing an organized method for AIM adoption and implementation, along with organizational competence in innovative technologies, contributes positively to financial performance and growth. AIM implementation offers SMEs opportunities to stay informed about changing trends in consumer behavior, enabling them to apply improved insights to enhance customer experiences and avoid undesirable outcomes.

Moreover, the application of AIM introduces new competencies for SME owners, managers, and employees, requiring a restructuring of marketing task descriptions to accommodate new responsibilities. The valuable knowledge and information provided by AIM enable SMEs to enhance the quality of decision-making and make accurate predictions about consumer behavior.

In summary, AIM supports SME managers and owners in overcoming analytical constraints related to customers. This empowers SMEs to learn quickly, delivering unique customer experiences from acquisition to retention, thereby contributing to their growth and overall performance.

5.4. Limitations and Future Recommendations

Although the outcomes and inferences mentioned in this study are of importance, they are backed by some constraints. One of them was the time constraint due to which the sample size taken was small and only a few cities were covered. The respondents were chosen at random, and some lacked proper knowledge of AIM. Also, the results showed that some measuring items were not distinct and analytical culture had only three items in it.

The future studies can be longitudinal with a larger sample size of carefully selected respondents who have knowledge about AIM. Additionally, this study was done using quantitative methods and future studies can consider a qualitative approach in which managers can be interviewed to get their views about AIM and if their organizations have the analytical culture to adopt AIM.

Furthermore, the study considered only four aspects of business performance, CP, FP, IBPP and LGP. Future studies can add or replace various aspects to get a better understanding of the impacts of AIM on business performance.

Finally, contrary to the previous study we did not consider any AIM determinants. Studying these can help managers make better AIM strategies for their businesses.

References

Ab Hamid, M.R., Sami, W. and Mohmad Sidek, M.H. (2017a), "Discriminant Validity Assessment: Use of Fornell & Larcker criterion versus HTMT Criterion", *Journal of Physics: Conference Series*, Institute of Physics Publishing, Vol. 890 No. 1, doi: 10.1088/1742-6596/890/1/012163.

Ab Hamid, M.R., Sami, W. and Mohmad Sidek, M.H. (2017b), "Discriminant Validity Assessment: Use of Fornell & Larcker criterion versus HTMT Criterion", *Journal of Physics: Conference Series*, Institute of Physics Publishing, Vol. 890 No. 1, doi: 10.1088/1742-6596/890/1/012163.

Al-Ghamdi, L.M. (2021), "Towards adopting AI techniques for monitoring social media activities", *Sustainable Engineering and Innovation*, Research and Development Academy, Vol. 3 No. 1, pp. 15–22, doi: 10.37868/SEI.V3I1.121.

Babbie, E.R. (2013), "The practice of social research / Earl Babbie.", p. 20113411.

Bach, M.P., Jaklič, J. and Vugec, D.S. (2018), "Understanding impact of business intelligence to organizational performance using cluster analysis: does culture matter?", *International Journal of Information Systems and Project Management*, SciKA, Vol. 6 No. 3, pp. 63–86, doi: 10.12821/IJISPM060304.

Bag, S., Gupta, S., Kumar, A. and Sivarajah, U. (2021), "An integrated artificial intelligence framework for knowledge creation and B2B marketing rational decision making for improving firm performance", *Industrial Marketing Management*, Elsevier Inc., Vol. 92, pp. 178–189, doi: 10.1016/J.INDMARMAN.2020.12.001.

Biswas, K. and b, Dr.G.P. (2023), "Role of Artificial Intelligence (AI) in Changing Consumer Buying Behaviour", *International Journal of Research Publication and Reviews*, Genesis Global Publication, Vol. 04 No. 02, pp. 943–951, doi: 10.55248/GENGPI.2023.4227.

Campbell, C., Sands, S., Ferraro, C., Tsao, H.Y. (Jody) and Mavrommatis, A. (2020), "From data to action: How marketers can leverage AI", *Business Horizons*, Elsevier Ltd, Vol. 63 No. 2, pp. 227–243, doi: 10.1016/J.BUSHOR.2019.12.002.

Chatterjee, S., Chaudhuri, R. and Vrontis, D. (2021), "Does data-driven culture impact innovation and performance of a firm? An empirical examination", *Annals of Operations Research*, Springer, pp. 1–26, doi: 10.1007/S10479-020-03887-Z.

Chen, T.H. (2009), "Performance measurement of an enterprise and business units with an application to a Taiwanese hotel chain", *International Journal of Hospitality Management*, Vol. 28 No. 3, pp. 415–422, doi: 10.1016/J.IJHM.2008.10.010.

Chennamaneni, P.R., Echambadi, R., Hess, J.D. and Syam, N. (2016), "Diagnosing harmful collinearity in moderated regressions: A roadmap", *International Journal of Research in Marketing*, Elsevier, Vol. 33 No. 1, pp. 172–182, doi: 10.1016/J.IJRESMAR.2015.08.004.

Chintalapati, S. and Pandey, S.K. (2022), "Artificial intelligence in marketing: A systematic literature review", *International Journal of Market Research*, SAGE Publications Ltd, Vol. 64 No. 1, pp. 38–68, doi: 10.1177/14707853211018428.

Davenport, T., Guha, A., Grewal, D. and Bressgott, T. (2020), "How artificial intelligence will change the future of marketing", *Journal of the Academy of Marketing Science*, Springer, Vol. 48 No. 1, pp. 24–42, doi: 10.1007/S11747-019-00696-0/FIGURES/2.

Davidson, M. and Keating, J. (2014), "Patient-reported outcome measures (PROMs): how should I interpret reports of measurement properties? A practical guide for clinicians and researchers who are not biostatisticians", *British Journal of Sports Medicine*, BMJ Publishing Group, Vol. 48 No. 9, pp. 792–796, doi: 10.1136/BJSPORTS-2012-091704.

Dunn, J. (n.d.). "Establishing Reliability and Validity in Evaluation Instruments", *Journal of Park and Recreation Administration*, Vol. 5.

Eccles, R. (n.d.). "The performance measurement manifesto.", *Harvard Business Review*, Vol. 69 1, pp. 131–7.

Eriksson, T., Bigi, A. and Bonera, M. (2020), "Think with me, or think for me? On the future role of artificial intelligence in marketing strategy formulation", *The Tqm Journal*, Emerald Group Holdings Ltd., Vol. 32 No. 4, pp. 795–814, doi: 10.1108/TQM-12-2019-0303.

van Esch, P. and Stewart Black, J. (2021a), "Artificial Intelligence (AI): Revolutionizing Digital Marketing", *Australasian Marketing Journal*, SAGE Publications Ltd, Vol. 29 No. 3, pp. 199–203, doi: 10.1177/18393349211037684.

van Esch, P. and Stewart Black, J. (2021b), "Artificial Intelligence (AI): Revolutionizing Digital Marketing", *Australasian Marketing Journal*, SAGE Publications Ltd, Vol. 29 No. 3, pp. 199–203, doi: 10.1177/18393349211037684.

Floyd, F.J. and Widaman, K.F. (1995), "Factor analysis in the development and refinement of clinical assessment instruments.", *Psychological Assessment*, Vol. 7 No. 3, pp. 286–299, doi: 10.1037/1040-3590.7.3.286.

Fornell, C. and Larcker, D.F. (1981), "Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics", *Journal of Marketing Research*, SAGE Publications, Vol. 18 No. 3, pp. 382–388, doi: 10.1177/002224378101800313.

Gentsch, P. (2019), "AI Eats the World", *AI in Marketing, Sales and Service*, Springer International Publishing, pp. 3–9, doi: 10.1007/978-3-319-89957-2_1.

Germann, F., Lilien, G.L. and Rangaswamy, A. (2013), "Performance implications of deploying marketing analytics", *International Journal of Research in Marketing*, Vol. 30 No. 2, pp. 114–128, doi: 10.1016/j.ijresmar.2012.10.001.

Griffis, S.E., Cooper, M., Goldsby, T.J. and Closs, D.J. (2004), "PERFORMANCE MEASUREMENT: MEASURE SELECTION BASED UPON FIRM GOALS AND INFORMATION REPORTING NEEDS", *Journal of Business Logistics*, Wiley-Blackwell, Vol. 25 No. 2, pp. 95–118, doi: 10.1002/J.2158-1592.2004.TB00183.X.

Hair, J.F., Howard, M.C. and Nitzl, C. (2020), "Assessing measurement model quality in PLS-SEM using confirmatory composite analysis", *Journal of Business Research*, Elsevier Inc., Vol. 109, pp. 101–110, doi: 10.1016/J.JBUSRES.2019.11.069.

Henseler, J. (2017), "Bridging Design and Behavioral Research With Variance-Based Structural Equation Modeling", *Journal of Advertising*, Routledge, Vol. 46 No. 1, pp. 178–192, doi: 10.1080/00913367.2017.1281780.

Hoffman, D.L. and Novak, T.P. (2018), "Consumer and Object Experience in the Internet of Things: An Assemblage Theory Approach", *Journal of Consumer Research*, Oxford Academic, Vol. 44 No. 6, pp. 1178–1204, doi: 10.1093/JCR/UCX105.

Hotelling, H. (1992), "Relations Between Two Sets of Variates", *Biometrika*, Vol. 28, pp. 321–377, doi: 10.1007/978-1-4612-4380-9_14.

Huang, M.H. and Rust, R.T. (2021), "A strategic framework for artificial intelligence in marketing", *Journal of the Academy of Marketing Science*, Springer, Vol. 49 No. 1, pp. 30–50, doi: 10.1007/S11747-020-00749-9/TABLES/4.

Huang, M.H. and Rust, R.T. (2022), "A Framework for Collaborative Artificial Intelligence in Marketing", *Journal of Retailing*, Elsevier Ltd, Vol. 98 No. 2, pp. 209–223, doi: 10.1016/J.JRETAI.2021.03.001.

Inmon, W.H. and Linstedt, D. (2015), "Corporate Data Analysis", *Data Architecture*, Elsevier, pp. 27–31, doi: 10.1016/B978-0-12-802044-9.00005-2.

Ivanova, L. and Vovchanska, O. (2021), "MODERN TECHNOLOGIES OF MOBILE MARKETING", *HERALD OF KHMELNYTSKYI NATIONAL UNIVERSITY*, Khmelnytskyi National University, Vol. 300 No. 6 Part 2, pp. 176–184, doi: 10.31891/2307-5740-2021-300-6/2-29.

Jarek, K. and Mazurek, G. (2019), "Marketing and Artificial Intelligence", *Central European Business Review*, Economics - Prague, Faculty of Business Administration, Vol. 8 No. 2, pp. 46–55, doi: 10.18267/J.CEBR.213.

Johnson, R.E., Chang, C.-H. (Daisy) and Yang, L.-Q. (2010), "Commitment and Motivation at Work: the Relevance of Employee Identity and Regulatory Focus", *Academy of Management Review*, Academy of Management, Vol. 35 No. 2, pp. 226–245, doi: 10.5465/AMR.35.2.ZOK226.

Jusoh, M.S., Hj Din, M.S., Hazliza and Suriani, T. (2018), "Construct Validity for Measuring Entrepreneurial Readiness Among Malaysian Higher Education Students: A Stochastic Measurement Model Approach", *MATEC Web of Conferences*, EDP Sciences, Vol. 150, doi: 10.1051/MATECCONF/201815006044.

Kaličanin, K., Čolović, M., Njeguš, A. and Mitić, V. (2019), "Benefits of Artificial Intelligence and Machine Learning in Marketing", *Proceedings of the International Scientific Conference - Sinteza 2019*, Singidunum University, pp. 472–477, doi: 10.15308/SINTEZA-2019-472-477.

Kaplan, R.S. and Norton, D.P. (n.d.). *The Balanced Scorecard-Measures That Drive Performance Harvard Business Review*.

Khrupovych, S. and Borysova, T. (2021), "Using of an artificial intelligence in the marketing analysis of unstructured data", *Marketing and Digital Technologies*, Odessa Polytechnic State University, Vol. 5 No. 1, pp. 17–26, doi: 10.15276/MDT.5.1.2021.2.

Krstiæ, N.S. (n.d.). "The Contemporary Concepts Of Business Performance Measur?Ment", *Ekonomika, Journal for Economic Theory and Practice and Social Issues*.

Kumar, V., Rajan, B., Venkatesan, R. and Lecinski, J. (2019a), "Understanding the Role of Artificial Intelligence in Personalized Engagement Marketing", *California Management Review*, SAGE Publications Ltd, Vol. 61 No. 4, pp. 135–155, doi: 10.1177/0008125619859317.

Kumar, V., Rajan, B., Venkatesan, R. and Lecinski, J. (2019b), "Understanding the Role of Artificial Intelligence in Personalized Engagement Marketing", *California Management Review*, SAGE Publications Ltd, Vol. 61 No. 4, pp. 135–155, doi: 10.1177/0008125619859317.

Lai, I.K.W. and Hitchcock, M. (2015), "A consideration of normality in importance–performance analysis", *Current Issues in Tourism*, Routledge, Vol. 18 No. 10, pp. 1000–979, doi: 10.1080/13683500.2014.990423.

Lida, M.P. (2020), "A Strategic Marketing Intelligence Platform", *Operations Management Research*, Graduate School of Economics and Management, pp. 12–30, doi: 10.51697/OMR.12.4.1.

Malviya, B., Othman, B., Saxena, K., Shailmadhur, Vikas and Almashaqbeh, H.A. (2022a), "An Empirical Analysis in Measuring the Impact of Artificial Intelligence for Better Marketing Communication to the End-Users Effectively in the Digital Era", *2022 2nd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE)*, Institute of Electrical and Electronics Engineers Inc., pp. 2374–2378, doi: 10.1109/ICACITE53722.2022.9823891.

Malviya, B., Othman, B., Saxena, K., Shailmadhur, Vikas and Almashaqbeh, H.A. (2022b), "An Empirical Analysis in Measuring the Impact of Artificial Intelligence for Better Marketing Communication to the End-Users Effectively in the Digital Era", *2022 2nd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE)*, Institute of Electrical and Electronics Engineers Inc., pp. 2374–2378, doi: 10.1109/ICACITE53722.2022.9823891.

Metcalf, L., Askay, D.A. and Rosenberg, L.B. (2019), "Keeping humans in the loop: Pooling knowledge through artificial swarm intelligence to improve business decision making", *California Management Review*, SAGE Publications Ltd, Vol. 61 No. 4, pp. 84–109, doi: 10.1177/0008125619862256/SUPPL_FILE/DS_10.1177_0008125619862256.PDF.

Mr, A. (2021), "ARTIFICIAL INTELLIGENCE AND MARKETING", *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, Auricle Technologies, Pvt., Ltd., Vol. 12 No. 4, pp. 1247–1256, doi: 10.17762/TURCOMAT.V12I4.1184.

Mustak, M., Salminen, J., Plé, L. and Wirtz, J. (2021), "Artificial intelligence in marketing: Topic modeling, scientometric analysis, and research agenda", *Journal of Business Research*, Elsevier Inc., Vol. 124, pp. 389–404, doi: 10.1016/J.JBUSRES.2020.10.044.

Mustak, M., Salminen, J.O., Plé, L. and Wirtz, J. (n.d.). "Artificial intelligence in marketing: Topic modeling, scientometric analysis, and research agenda", *Journal of Business Research*, doi: 10.1016/J.JBUSRES.2020.10.044.

Nair, K. and Gupta, R. (2020), "Application of AI technology in modern digital marketing environment", *World Journal of Entrepreneurship, Management and Sustainable Development*, Emerald Group Holdings Ltd., Vol. 17 No. 3, pp. 318–328, doi: 10.1108/WJEMSD-08-2020-0099.

Neely, A. (1999), "The performance measurement revolution: why now and what next?", *International Journal of Operations & Production Management*, Vol. 19 No. 2, pp. 205–228, doi: 10.1108/01443579910247437.

Paschen, J., Kietzmann, J. and Kietzmann, T.C. (2019), "Artificial intelligence (AI) and its implications for market knowledge in B2B marketing", *Journal of Business & Industrial Marketing*, Emerald Group Holdings Ltd., Vol. 34 No. 7, pp. 1410–1419, doi: 10.1108/JBIM-10-2018-0295.

Pugna, I.B., Duţescu, A. and Stanila, O.G. (2019), "Corporate Attitudes towards Big Data and Its Impact on Performance Management: A Qualitative Study", *Sustainability*, MDPI, Vol. 11 No. 3, doi: 10.3390/SU11030684.

Rajnoha, R. and Lesníková, P. (2016), "Strategic Performance Management System and Corporate Sustainability Concept - Specific Parametres in Slovak Enterprises", *Journal of Cryptology*, Tomas Bata University in Zlín, Vol. 6 No. 3, pp. 107–124, doi: 10.7441/JOC.2016.03.07.

Ramnarayan, S. (2020), "Marketing and Artificial Intelligence", *Advances in Marketing, Customer Relationship Management, and E-Services*, pp. 75–95, doi: 10.4018/978-1-7998-5077-9.CH005.

Rathore, S., Panwar, A. and Soral, P. (n.d.). "Critical Factors for Successful Implementation of Business Analytics: Exploratory Findings from Select Cases", *International Journal of Business*, Vol. 2, pp. 11–23.

Rekha, A.G., Abdulla, M.S. and Asharaf, S. (2016), "Artificial Intelligence Marketing: An application of a novel Lightly Trained Support Vector Data Description", *Journal of Information and Optimization Sciences*, Taru Publications, Vol. 37 No. 5, pp. 681–691, doi: 10.1080/02522667.2016.1191186.

Sarstedt, M., Ringle, C.M., Smith, D., Reams, R. and Hair, J.F. (2014), "Partial least squares structural equation modeling (PLS-SEM): A useful tool for family business researchers", *Journal of Family Business Strategy*, Elsevier, Vol. 5 No. 1, pp. 105–115, doi: 10.1016/J.JFBS.2014.01.002.

Schober, P. and Schwarte, L.A. (2018), "Correlation Coefficients: Appropriate Use and Interpretation", *Anesthesia & Analgesia*, Lippincott Williams and Wilkins, Vol. 126 No. 5, pp. 1763–1768, doi: 10.1213/ANE.0000000000002864.

Sechrest, L. (1963), "Incremental Validity : a Recommendation", *Educational and Psychological Measurement*, Vol. 23 No. 1, pp. 153–158, doi: 10.1177/001316446302300113.

Shankar, V. (2018), "How artificial intelligence (AI) is reshaping retailing", *Journal of Retailing*, Vol. 94 No. 4, pp. vi–xi.

Shembekar, D. and Ambulkar, Prof.B. (n.d.). "AI IN MARKETING-IMPROVING THE BUSINESS PROCESS: A STUDY", *Journal of Emerging Technologies and Innovative Research*.

Tiautrakul, J. and Jindakul, J. (2019), "The Artificial Intelligence (AI) with the Future of Digital Marketing", *SSRN Electronic Journal*, Elsevier BV, doi: 10.2139/SSRN.3405184.

Titiani, F. and Riana, D. (2022), "Ensemble Learning for the Prediction of Marketing Campaign Acceptance", *International Journal of Software Engineering and Computer Systems*, Universiti Malaysia Pahang Publishing, Vol. 8 No. 2, pp. 67–76, doi: 10.15282/IJSECS.8.2.2022.7.0104.

Tong, S., Luo, X. and Xu, B. (2020), "Personalized mobile marketing strategies", *Journal of the Academy of Marketing Science*, Springer, Vol. 48 No. 1, pp. 64–78, doi: 10.1007/S11747-019-00693-3.

Verma, S., Sharma, R., Deb, S. and Maitra, D. (2021), "Artificial intelligence in marketing: Systematic review and future research direction", *Int. J. Inf. Manag. Data Insights*, Elsevier Ltd, Vol. 1 No. 1, doi: 10.1016/J.JJIMEI.2020.100002.

Vishnoi, S.K., Bagga, T. and Tripathi, A. (2021), "Exploring Technology and Organizational Capability from the Perspective of Marketing Intelligence", *2021 9th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO)*, Institute of Electrical and Electronics Engineers Inc., pp. 1–7, doi: 10.1109/ICRITO51393.2021.9596452.

Vlačić, B., Corbo, L., Costa e Silva, S. and Dabić, M. (2021), "The evolving role of artificial intelligence in marketing: A review and research agenda", *Journal of Business Research*, Elsevier Inc., Vol. 128, pp. 187–203, doi: 10.1016/J.JBUSRES.2021.01.055.

Voorhees, C.M., Brady, M.K., Calantone, R. and Ramirez, E. (2016), "Discriminant validity testing in marketing: an analysis, causes for concern, and proposed remedies", *Journal of the Academy of Marketing Science*, Springer New York LLC, Vol. 44 No. 1, pp. 119–134, doi: 10.1007/S11747-015-0455-4.

Wamba-Taguimdje, S.L., Wamba, S.F., Kamdjoug, J.R.K. and Wanko, C.E.T. (2020), "Impact of Artificial Intelligence on Firm Performance: Exploring the Mediating Effect of Process-Oriented Dynamic Capabilities", *Lecture Notes in Information Systems and Organisation*, Springer Science and Business Media Deutschland GmbH, Vol. 38, pp. 3–18, doi: 10.1007/978-3-030-47355-6_1.

Wedel, M., Bigné, E. and Zhang, J. (2020), "Virtual and augmented reality: Advancing research in consumer marketing", *International Journal of Research in Marketing*, North-Holland, Vol. 37 No. 3, pp. 443–465, doi: 10.1016/J.IJRESMAR.2020.04.004.

Wetherill, G.B. and Seber, G.A.F. (1977), "Linear regression analysis", *Journal of the Royal Statistical Society. Series A (General)*, JSTOR, Vol. 140 No. 4, p. 546, doi: 10.2307/2345290.

Wirth, N. (2018), "Hello marketing, what can artificial intelligence help you with?", *International Journal of Market Research*, SAGE Publications Ltd, Vol. 60 No. 5, pp. 435–438, doi: 10.1177/1470785318776841.

Yang, X., Li, H., Ni, L. and Li, T. (2021), "Application of Artificial Intelligence in Precision Marketing", *J. Organ. End User Comput.*, IGI Global, Vol. 33 No. 4, pp. 209–219, doi: 10.4018/JOEUC.20210701.OA10.

Zaman, K. (2022), "Transformation of Marketing Decisions through Artificial Intelligence and Digital Marketing", *Journal of Marketing Strategies*, Coral Publications, Coral Research and Education Systems, Vol. 4 No. 2, pp. 353–364, doi: 10.52633/JMS.V4I2.210.

Zhu, C. (2022), "Construction and Risk Analysis of Marketing System Based on AI", *Scientific Programming*, Hindawi Limited, Vol. 2022, doi: 10.1155/2022/2839834.

Zou, K.H., Tuncali, K. and Silverman, S.G. (2003), "Correlation and simple linear regression.", *Radiology*, Vol. 227 3 No. 3, pp. 617–22, doi: 10.1148/RADIOL.2273011499.

Zylstra, R.R. (1994), "NORMALITY TESTS FOR SMALL SAMPLE SIZES", *Quality Engineering*, Vol. 7 No. 1, pp. 45–58, doi: 10.1080/08982119408918766.

Appendix A

Survey Questionnaire

Section: 1: Demographics

- Gender

    - Male
    - Female

- Education

    - Bachelors
    - Masters
    - PhD

- Organization Size

    - Small= less than 50 employees
    - Medium= 50-250 employees

- Position Level

    - Lower Management
    - Middle Management
    - Senior Management
    - C-Suite
    - Entrepreneur

- Professional Experience (years)

    - 1-3 years
    - 4-7 years
    - 7-10 years
    - 10+ years

Section: 2: Artificial Intelligence in Marketing (AIM)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
AIM1= AIM helps my enterprise to accurately predict customer needs.	5	4	3	2	1
AIM2 = AIM support the marketing promotion of my enterprise through the elimination of human errors.	5	4	3	2	1
AIM3 = AIM enables my enterprise to interact with internet users through the application of analyzed data.	5	4	3	2	1
AIM4 = AIM is important to the collaborative decision-making process in my enterprise.	5	4	3	2	1
AIM5= AIM has increased my enterprises' brand awareness in real-time.	5	4	3	2	1
AIM6 = AIM enable my enterprise to personalize its marketing activities to individual customers.	5	4	3	2	1

Section:3: Financial performance (FP)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
FP7 = My firm's profitability is satisfactory.	5	4	3	2	1
FP8 = My firm's market share is high compared to competitors.	5	4	3	2	1
FP9 = The financial performance of my firm is supported by a sustainable approach.	5	4	3	2	1
FP10 = Maximizing profitability is a key business goal of my firm.	5	4	3	2	1
FP11 = My firm plans the sales revenue growth of all products/services.	5	4	3	2	1
FP12 = Managers of my firm are pursing innovative strategy to improve its return on investment, ROI.	5	4	3	2	1
FP13 = Productivity improvement is important to my firm's financial objective.	5	4	3	2	1

Section:4: Customer performance (CP)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
CP14 = Customer retention has increased in my firm within the last two years.	5	4	3	2	1
CP15 = My firm has seen a steady increase in new customers in the last two years.	5	4	3	2	1
CP16 = Product or service sales to new customers have increased in the last two years.	5	4	3	2	1
CP17 = Product or service sales to existing customers has increased in the last two years.	5	4	3	2	1
CP18 = Customer switching cost has increased within the last two years.	5	4	3	2	1
CP19 = My firm uses innovative methods of targeting customers instead of traditional methods.	5	4	3	2	1
CP20 = My firm uses technology to improve customer experience.	5	4	3	2	1

Section: 5: Internal business process performance (IBPP)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
IBPP21 = My firm's customer management process contributes to customer value addition.	5	4	3	2	1
IBPP22 = My firm's process enhancement methodology is efficient and effective.	5	4	3	2	1
IBPP23 = My firm captures employee contribution into business process designs	5	4	3	2	1
IBPP24 = My firm uses technology to develop new business processes.	5	4	3	2	1
IBPP25 = Duration of production in my firm has decreased in the last two years.	5	4	3	2	1
IBPP26 = Customer complaint processes duration is shorter compared to competitors.	5	4	3	2	1
IBPP27 = My firm integrates customer requirements into its business processes.	5	4	3	2	1

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
IBPP28 = My firm is resourced with technology for new product development.	5	4	3	2	1
IBPP29 = My firm's internal processes contribute to customer satisfaction.	5	4	3	2	1

Section: 6: Learning and growth performance (LGP)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
LGP30 = My firm have sufficient skilled and motivated employees.	5	4	3	2	1
LGP31 = We have quality database and information system to support our learning and growth.	5	4	3	2	1
LGP32 = My firm has the right organizational culture to achieve its business process objectives.	5	4	3	2	1
LGP33 = My firm provide frequent learning opportunities for our employees though different capacity building programs.	5	4	3	2	1
LGP34 = My firm has seen a steady reduction in employee turn-over rate in the last two years.	5	4	3	2	1
LGP35 =We use technology enabled approach to obtain customer insights.	5	4	3	2	1
LGP36 = My firm integrates employee suggestions into its business process approach.	5	4	3	2	1
LGP37 = Our business methodologies support knowledge and competence development.	5	4	3	2	1
LGP38 =We gather new information about new products or services.	5	4	3	2	1

Section: 7: Analytics culture

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
AC39= If we reduce our marketing analytics activities, our company's profits will suffer.	5	4	3	2	1
AC40= We are confident that the use of marketing analytics improves our ability to satisfy our customers	5	4	3	2	1
AC41=Most people in my unit are skeptical of any kind of analytics-based results (R).	5	4	3	2	1