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THE FINAL MASTER'S THESIS

Dirbtiniu intelektu pagrįsti pardavimo skatinimo sprendimai ir jų Poveikis vartotojų elgesiui.	**Artificial Intelligence-Based Sales Promotion Solutions and Their Impact on Consumer Behaviour**

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SUMMARY

Artificial Intelligence-Based Sales Promotion Solutions and Their Impact on Consumer Behaviour

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The thesis focuses on dynamic pricing, personalization, and optimized promotion frequency strategies with regards to their effects on consumer trust, their willingness to purchase and their propensity to purchase. Here it is only necessary to signal the increasing importance of AI for Marketing and Sales, noting its possibilities in the personalization of advertisement and promotions, increase of effectiveness and meeting consumer's demand. The research seeks to evaluate the efficiency of artificial sales promotion solutions and the consequences for businesses and purchasers using the Stimulus-Organism-Response (SOR) model.

The methodology used In the current study is somewhat quantitative in nature and applies quantitative instruments for data gathering and analysis in terms of regression and correlation experiments to enhance the test of relationships among the independent variables (use of AI in sales promotions, personalization and promotion frequency), antecedent variables (consumer trust, cognitive process, and psychological state) and the dependent variables (purchase intention, and actual behaviour). The findings reveal that both personalization and Likelihood to Buy have a positive direct relationship while proving that promotion frequency is neutral where appropriate frequency leads to viewers' enduring positive effect. The study shows that dynamic pricing affects perception and trust of consumers but nutrients transparency to effectively work. The conclusion then points out that personalisation as well as the incorporation of ethical aspects in AI should be

included in the marketing approaches in order to achieve the optimal consumers' attention. The relevance of the research provide guidelines for the strategic planning of AI-driven marketing.

Keywords: Artificial Intelligence (AI) in Marketing; Sales Promotion Strategies; Consumer Behavior; Personalization and Trust; Dynamic Pricing

SANTRAUKA

Dirbtiniu intelektu pagrįsti pardavimo skatinimo sprendimai ir jų įtaka vartotojų elgesiui

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Baigiamajame darbe pagrindinis dėmesys skiriamas dinaminei kainodarai, personalizavimui ir optimizuotoms reklamos dažnumo strategijoms, atsižvelgiant į jų poveikį vartotojų pasitikėjimui, norui pirkti ir polinkiui pirkti. Čia reikia tik signalizuoti apie didėjančią AI svarbą rinkodarai ir pardavimui, atkreipiant dėmesį į jo galimybes personalizuoti reklamą ir akcijas, padidinti efektyvumą ir patenkinti vartotojų poreikius. Tyrimu siekiama įvertinti dirbtinių pardavimų skatinimo sprendimų efektyvumą ir pasekmes verslui bei pirkėjams naudojant Stimulus-Organism-Response (SOR) modelį. Šiame tyrime naudojama metodika yra šiek tiek kiekybinio pobūdžio ir taiko kiekybines priemones duomenims rinkti ir analizuoti regresijos ir koreliacijos eksperimentų požiūriu, siekiant pagerinti nepriklausomų kintamųjų sąsajų testą (AI naudojimas reklamuojant pardavimus, personalizavimas ir reklamavimo dažnis).), ankstesnius kintamuosius (vartotojų pasitikėjimą, pažinimo procesą ir psichologinę būseną) ir priklausomus kintamuosius (ketinimus pirkti ir faktinį elgesys). Išvados atskleidžia, kad tiek suasmeninimas, tiek tikimybė pirkti turi teigiamą tiesioginį ryšį, tuo pačiu įrodant, kad reklamos dažnumas yra neutralus, kai tinkamas dažnumas lemia ilgalaikį teigiamą žiūrovų poveikį. Tyrimas rodo, kad dinamiška kainodara turi įtakos vartotojų suvokimui ir pasitikėjimui, tačiau maistinių medžiagų skaidrumas veiksmingai veikia. Tada išvadoje nurodoma, kad personalizavimas ir etinių aspektų

įtraukimas į AI turėtų būti įtrauktas į rinkodaros metodus, kad būtų pasiektas optimalus vartotojų dėmesys. Tyrimo aktualumas pateikia gaires strateginiam AI skatinamos rinkodaros planavimui.

Raktiniai žodžiai: Dirbtinis intelektas (DI) marketinge; Pardavimo skatinimo strategijos; Vartotojų elgsena; Personalizavimas ir pasitikėjimas; Dinaminė kainodara

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List of Abbreviations

- **AI** - Artificial Intelligence
- **IVs** - Independent Variables
- **DVs** - Dependent Variables
- **SPSS** - Statistical Package for the Social Sciences
- **SOR** - Stimulus-Organism-Response Model
- **SMEs** - Small and Medium Enterprises
- **B2B** - Business-to-Business

INTRODUCTION

Brand-new context for the sales promotion profession is to use AI to create promotion strategy for the specific client and may impact buyer's decision. Machine learning and predictive analysis, in sales promotions by the use of AI, are more efficient than previous conventional practices. Kumar et al., (2022) AI tools obtain much more consumer data for collection, for evaluation, for likelihood of a purchase, timing of purchase and for advertisement purposes targeting (Grewal et al., 2020). The tangible effects of these solutions in ascending participation, the greater click-through rate, or sales, can attest to the ability of the AI to capture the orientation and behavioral shifts of the consumers.

AI based promotions are quite important in today's society where everybody expects something that is specifically tailored for them Bosnjak et al., (2020). An unpublished study conducted by Accenture showed that first time buyers are 1.3 times more likely and frequent shoppers 1.7 times more likely than non-recipients to shop at brands that send them offers and recommendations (Accenture, 2018). For example, engines such as the use of artificial intelligence to provide recommendation services can boost customer satisfaction by more than 30% and these will lead to great impacts on the revenues (Huang & Rust, 2021). Because recommendation engines contribute significantly to the total revenue in e-commerce, AI's role is clearly apparent in this field. Believe it or not, one of the biggest beneficiaries of AI for sales promotions is Amazon Al-Qaysi et al., (2020). Currently, around 35% of Amazon's total sales are generated through its recommendation engine that offers products based on consumer's browsing history, purchasing pattern, etc. (Jindal et al., 2023). With $500 billion annual revenue of Amazon, this ratio indicates that AI may add up to $175 billion sales to the overall result Sharma et al., (2023) and Ticong, (2024).

Research Object: It operates on the research object under consideration, which is artificial intelligence in sales promotion tools including product recommendation systems, dynamic pricing, and advertising techniques as well as the impacts of these tools on the customers Gao et al. (2023).

Research Methods: Questionnaire: This study will employ a survey to capture the consumers' perception of AI-based sales promotions by Nancy (2023).

Problem Statement: Modern sales promotion with the help of Artificial Intelligence (AI) has significantly changed consumer interactions with the companies and gave them the unique opportunities to target the buyers more effectively. (Lee et al., 2022). This research aims to

investigate how AI promotions influence consumer behavior, and purchasing decisions, offering insights into their effectiveness in modern marketing strategies SOR Model and Hermann (2022) and Accenture (2018).

Research Objectives

- To evaluate the impact of AI sales promotions (dynamic pricing) on consumer purchase intentions and actual purchasing behavior Likewise, Chen et al. (2021) and Huang & Rust (2021).
- To analyze the role of personalization level in building trust and influencing consumer purchasing behavior Grewal et al., (2020) and Jindal et al., (2023).
- To assess the effect of promotion frequency on consumer trust and its impact on purchasing behavior.

Structure

Introduction: This chapter included the research background, rationale, research aim, objectives and questions to be answered from this study

Literature Review: This chapter included the critical evaluation of the theories and information on the artificial intelligence-based sales promotion and the customer behaviour to develop the research gap from this study

Methodology: This chapter included the critical appraisal of the available alternative of research methodology to produce the findings through selecting the right alternative of the data collection and analysis

Findings and Analysis: This chapter included the research findings based on the collected data aiming on the research objectives and the justification of the findings based on the discussion on findings

Conclusion and Recommendation: This chapter included the research conclusion showing the completion of the research objective and the actionable recommendations for the organization to improve their positive customer attitude towards the business**.**

Lack of limit to work and difficulties

- Data Access: Lack of exclusive business information through artificially intelligent promotional communications from various organizations.
- Survey Limitations: The sample of the survey may not represent the global population.

1. THEOCRATICAL FRAMEWORK ON AI SALES PROMOTIONS, PERSONALIZATION, CONSUMER PERCEPTION AND TRUST, COGNITIVE PROCESSING, PSYCHOLOGICAL STATES, CONSUMER PURCHASING INTENTIONS AND ACTUAL PURCHASING BEHAVIOR

1.1 AI Sales Promotions (Dynamic Pricing) and Personalization in AI-Driven Promotions

Machine learning is one of the ways through which it has been applied in marketing through offering consumer-related promotions and varying product prices as a way of extreme engagement. There is fluctuations in the correct price by the use of various strategies such as demand and consumption patterns. Aguilar-Palacios et al. (2020) illustrated how gradient boosting enhances sales forecasting for promotions and Karb et al. (2020) explained the possibility of using network-based transfer learning for pricing of new products. These approaches make it possible to develop accurate and timely pricing techniques.

The strategy is personalization, which also falls under the AI marketing strategy since it is the use of artificial intelligence to market your products based on the customers' choice. Bhagat et al. (2023) revealed that personalized communications have a direct impact on consumers' buying behaviour in e-retailing. Along the same vein, Kasem et al., (2024) suggested that AI is crucial in customer categorization and sales forecast, to facilitate creating finely tuned promotion strategies. According to Campbell et al. (2020), AI turns data into insights that marketers can use to make tailored appeals that appeal to the consumer.

Nevertheless, some issues remain. The following are some key challenges which remain: Farhi et al., (2022) and Chintalapati & Pandey (2022) showed that ethical and privacy issues are among the factors that affect trust in AI promoted offers. Haleem et al. (2022) also emphasized the need for practical, ethical and discrete clear implementation of AI technologies like, chatbots, recommendation engine. Furthermore, there is Gołąb-Andrzejak's (2023) discussion of benefits of AI digitalization in productivity while pointing out that there are challenges of operation for businesses.

Pandemic pushed AI to go mainstream and grow particularly in small and medium enterprises. Lu et al. (2022) examined the role of AI for continued competitiveness of SMEs whereas Dwivedi et al. (2021) explored opportunities and threats for AI integration across sectors. These advancements stress the important need of corporate enterprises to be strategic in mixing up

innovative processes and upholding ethical appeals in performance to maintain trust and stake from the users/ consumers

1.2 Promotion Frequency in AI Marketing

Another essential element in AI marketing is promotion frequency since it is tight between interacting with the customers and coming across as intrusive. The application of AI in promotion frequency is therefore an issue of identifying the right time to make an offer to a consumer. Lee et al. (2022) called attention to brand promotion AI chatbots pointing out that they reveal the way of frequency control of the promotion to the consumers. Apparently, Paschen et al. (2020) described the benefits of collaborative intelligence, per which AI drives B2B sales funnel promotion strategy to its efficiency.

The link between frequency of promotions and consumers' behavior Is also explored in papers such as Mandolfo et al., (2022) where promotion affect impulse buying via psychological effects. As noted by Zhang et al. (2022) AI solutions can help business people visualize and analyze the promotion strategies so the frequency does not overload the consumers. This capability aids marketers properly in the targeting of campaigns, and at the same time prevent situation where clients get tired of being Promoted to.

Trivedi and Patel (2020) and Turgut and Bozdag (2024) also studied the application of AI in sales promotion across different scenarios to show that the highest possible frequency of the promotion will help drive high sales volumes without inconveniencing the customers. Luo et al. (2021) also stressed that AI-generated information can help sales agents change promotional tactics in response to the audience's reactions. More of such insights enhance the optimality between interaction and consumer self-determination as pointed out by Spais and Varsha (2023) where they state that there is excessive use of AI promotions which may harm consumer trust.

Another area of interest is the promotion frequency and digital integration also has a part to play here. AI-enabled digital tools enhance online channel promotion optimization according to the right time as Ramachandran (2023) explainsed. In particular, the work of Vladimirovich (2020) showed how, by integrating AI into B2B sales management, it is possible to ensure that the promotion frequency remains correct even in very volatile markets.

Promotion frequency is one area where AI has resized unprecedented potential, yet it is far from being a problem-solving tool. That is based on the findings of Zhang et al. (2022) and Turgut and Bozdag (2024) that highlighted the importance of real-time feedback to ensure that strategies being used to address consumer expectations are still effective. Ethical issues are also important

because they reduce consumer self-determination when excess reliance in AI solutions is made as pointed out by Spais and Varsha (2023) publication.

1.3 Consumer Perception and Trust and Cognitive Processing in AI Promotions

Self, Artificial intelligence has made clients change their perception and trust on marketing and how they tend to reason when they see promotions. This study establishes that the acceptance of AI-driven strategies is highly dependent on trust from the consumers. Consumers are more likely to accept AI recommendation of products if the AI presents numbers clearly and accurately, according to Kim et al. (2021). Along the same vein, Spais et al. (2023) also drive that, though AI provides more engagement in marketing, such strategies should not pose a risk to the consumers' control in order to build trust.

The other reason that consumer perception Is important is that AI can make advertising truly personalized. According to Potla and Pottla (2024) AI customer experience through utilizing machine learning results in increased customer appeal through prompt promotion of the right product or service. Nevertheless, Ameen et al. (2022) have pointed out a flip side of over relying on AI for creativity in context of marketing communication which is consumers' skepticism about its actuality. According to Bjørlo et al (2021), there is the need for sustainable AI marketing which shall involve the protection of consumer sovereignty but at the same time create trust.

Hence the cognitive processing of AI promotions entails how consumers go through information processing. According to Stone et al. (2020) strategic marketing decision making has benefited from AI because it can take large chunks of information and break it down into simple forms that can be consumed by marketer. In a related vein, Mariani et al. (2022) built on this by noting that AI processing of promotional content increases the salience or perceived importance of content, including the usefulness of information to consumers, and the ease of using it to take action.

According to Haleem et al. (2022), consumer engagement applications like chatbots and voice assistants help to manage human interactions and can therefore be considered to relieve the cognitive load. Klaus and Zaichkowsky (2022) proposed a new concept known as AIDM or AI-driven marketing, which has a convenience benefit in shopping since it helps eliminate different choices by using voice AI. This integration improves customer experience and at the same time reduces the user decision-making overload.

AI, according to Petrescu et al. (2022) can have interdisciplinary benefits to the B2B marketing discipline by bridging the gap between theory and practice. This framework shows how

the A.I. innovations improve cognitive absorption by providing recommendations that are important for both organisations and the consumers. In the same vein, Keegan et al. (2024) discussed AI in more conventional B2B marketing by acknowledging its ability both to embed decisions as well as enhance identification and match.

Regarding this, Graninetti (2020) and Hicham et al. (2023) explained the role of strategic frameworks for reaping future marketing AI. These frameworks combine rational and affective elements to make consumers trust and to make them feel valued. According to Sharma et al. (2023), the right application of AI tech innovations in the application enables them to change consumers' outlook, which contributes to brand loyalty.

1.4 Psychological States in Response to AI Promotions

Automated promotions play the major role in consumer psychological states change by affecting psychological and cognitive consumer's characteristics. Perceived satisfaction or frustration has a central role in consumer responses to AI promotions, as does the perceived level of trust. According to Klaus and Zaichkowsky (2020), AI voice bots help in that they generate positive emotional outcomes to improve clients' satisfaction because of the conveniences that entails as well as each client's needs being catered to individually. Just like that, Khrais (2020) also postulated that AI has the capabilities of impacting the demand, specifically, with a focus on emotional hot buttons and preferences in e-commerce.

In this aspect, it was established that there are merits and demerits in deploying AI to deal with management tasks while improving positive psychological states. Gonçalves et al. (2023) analyzing the rationale of AI use in marketing pointed to the downside that aggressive use for targeting can cause consumer stress and mistrust. Steyvers and Kumar build on this, offering decision fatigue as one of the effects of the overreliance on AI as the strain exerted to the psychological health of the consumer can be detrimental.

Privacy and data protection perceptions also shapes psychological reactions to the use of AI promotions. Using a study by Alhitmi et al. (2024), perceived risks that arise and lead to stress and distrust in data usage are discussed where issues of trust and assurance serve to address such concerns. It is crucial to uphold consumers' ethical standards in handling their data so as to cushion any emerging anxiety so as to allow positive emotional response in the usage of Ai driven promotions.

Discontentment is likely to occurs in cases where the AI systems do not deliver as expected by the consumers. Odejide and Edunjobi (2024) also explained how the wrong models of decision-

making in AI may have psychologies that can make one dissatisfied or distrust AI. Given such risks, AI systems in engaging consumers require a high level of accuracy in their operations. Introducing the emotional aspect of interface design in the creation process of AI facilitates the minimization of such further and the nurturing of good relationship with the consumers.

Challenges of AI have been highlighted by Khrais (2020) and Gonçalves et al. (2023) whereby capabilities of AI can be cause of negative feelings while used appropriately AI can enhance productivity. For instance, obtrusive communications in advertisement campaigns negatively influence consumer emotion, and consumers perceive it as manipulation. Creating natural AI systems that will uphold consumer sovereignty and choices is crucial in creating positive psychological states.

1.5 Consumer Purchasing Intentions and Actual Purchasing Behavior

AI has transformed how consumer purchasing intention transforms into action through personalization and ethical issues and strategizing. Big data is analyzed by artificial intelligent systems to have a better grasp of customer behaviour and their likely purchasing patterns. Raji and Subramani (2024) also corroborated with a discussion of a case wherein consumers' interests in e-commerce sites are engaged through innovative AI personalization, and this triggers the gap between intention and action.

In a similar vein, the authors from Naveenkumar et al. (2024) pointed out that cognitive consumption experiences and purchase journeys is achievable due to AI intelligence. Through the help of the predictive analytical tool, consumer intentions are perceived hence making the shift from intention to purchase quite easy. In the same regard, Usman et al. (2024) expanded on how AI strategies play the role of enhancing entrepreneurial success given the capability of organizations in meeting client needs, therefore ensuring enhanced conversion.

However, there is growing ethical and privacy challenge in integrating AI to marketing, which affects consumers' behaviour. Using the sources by Kumar and Suthar (2024), the author found that trust is an essential factor with reference to the link between purchasing intentions and actual behaviour, Where the trust is achieved in-through transparency and ethical use of artificial intelligence. Qin (2024) also pointed out that there are integration challenges and therefore stressing on customer trust through best practices to help earn consumer engagement.

Another very important factor in this process is an appreciation of consumer feelings. According to Noranee and bin Othman (2023), the use of AI when determining consumer sentiments enables businesses to develop effective marketing promotional initiatives, which would

enhance the chances of a purchase. In this case, ethical issues of manipulation and over reliance on data as pointed by Chaidir et al. (2022) became real in the sense that they will reduce the chances of this process going through by causing the consumers to become very skeptical.

AI moderating between intentions and behaviors is also a function of the same barriers such as perceived cognitive load. Naveenkumar et al.(2024) and Raji et al.(2024) also remarked that AI has to make decision-making as easy as possible to foster action. Sophisticated or obtrusive AI interventions are nearly certain to be off-putting to consumers, which translates to a lower chance of purchases.

1.6 Stimulus-Organism-Response (SOR) Model in AI Marketing

The SOR or Stimulus-Organism-Response model displays the potential on how AI marketing impacts consumers by evaluating the stimulus, organism and response mechanisms at length. In AI marketing, stimuli include; Pro-Active offers, offers based on customer's data, and point-of-sale customer interactions via AI-controlled systems. Kasem et al. (2024) explained how customer profiling and segmentation by means of artificial intelligence make stimuli to be an ideal match to the consumer segment, which helps boost engagement.

Organism element of the SOR model concerns internal consumer activity in the shape of perception and response to AI stimuli. Onward, Lee et al. (2022) proposed and participate AI chatbots as stimuli that motivate consumers' responses and elicit emotional and cognitive reactions to affect brand assessment. In line with these features, Luo et al. (2021) stressed avenues on where the use of A I coaches in sales contexts can be effective; noting that the mechanism can post a positive impact on consumer decision making processes given some factors targeting their individual needs and concerns.

It consists of consumer behavior, Including procuring behaviors and consumer loyalty. Another work that shows how e-commerce systems increase response precision is Kian (2021) who explained how predictive analysis increase the accuracy of responses such that the respective firms/products offerings match the consumer expectations. Lu et al. (2022) extended the discussion of the role of AI in sees in post-pandemic circumstances referring to the ability of innovative and more flexible marketing communication to influence the consumer's response.

Lastly, it can be clearly noted that the concept of SOR model holds a vision in analyzing the effects of AI in the marketing aspect. In this way, AI stimulates accuracy, awareness of inner states, and positive consumer reactions allow promoting optimal results in AI marketing strategies for businesses.

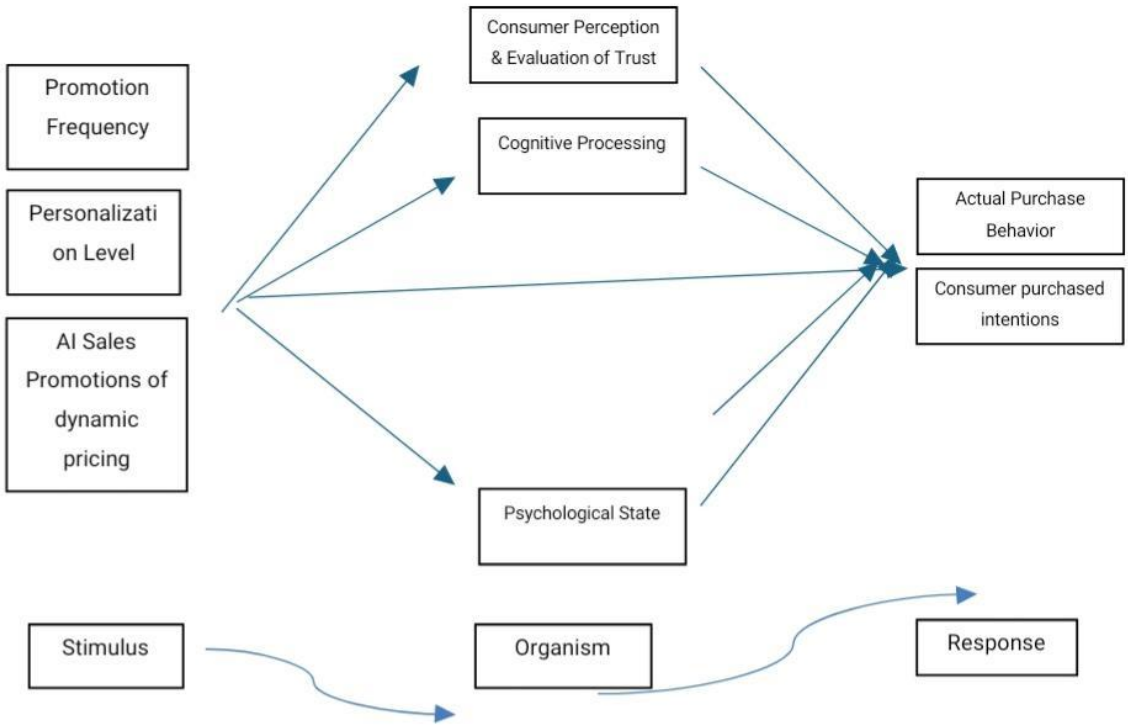

Figure 1: Conceptual Framework

In this chapter, the author explains how uses the Stimulus-Organism-Response (SOR) model in AI marketing to respond to effectiveness question to scrutinize how AI stimuli – from personalized promotions to chatbots – work on the consumer's cognitive and affective systems. These internal responses influence the purchasing behaviour and consumer loyalty and hence prove the effectiveness of the model in enhancing AI marketing strategies. Hence, the use of stimuli that are specific to each campaign as well as the ability to gauge consumer responses means that businesses could reach their goals of better engagement and real, lasting results.

2. METHODOLOGY

2.1 Model Presentation

The theoretical framework used in developing the model for this study is the Stimulus-Organism-Response (SOR) model examining the role of AI Sales promotion stimulating consumer behavior. This model se extensively stimulus and the internal activity of consumers, commonly known as organism, with the main purpose of eliciting certain behaviors in response to the AI-based marketing strategies. Independent variables comprise dynamic pricing, personalization, and promotion frequency while trust and cognitive processing as organism components shall act as moderator variables and consumer purchasing intentions and actual behavior as dependent variables (Lu et al., 2022).

Constructed as Presented: Because of the focus on the role of AI marketing stimuli in the external environment and their impact on internal consumer processes and consequent behaviours, the model is developed using the SOR framework. Such approach enables the differential influences of overall AI promotion on trust, cognitive, and purchasing behaviour to be captured (Kasem et al., 2024; Luo et al., 2021). It is significant to document that the proposed model incorporates cognitive and psychological characteristics in accordance with other assessments in the field of marketing (Lee et al., 2022). Below are hypothesis:

- H1: AI sales promotions (dynamic pricing) positively influence consumer purchase intentions and actual purchasing behavior.
- H2: Personalization in AI-driven promotions enhances consumer trust, leading to higher purchase intentions and actual purchasing behavior.
- H3: Optimal promotion frequency has a significant positive impact on consumer trust and purchasing behavior, while excessive frequency leads to consumer fatigue.

2.2 Construction of Constructs and Creation of Variable Measurement

The constructs in the study include:

- Independent Variables: Dynamic pricing sales promotions, specific amount of personalization of sales promotions and their frequency.

- Mediators: There, consumer trust, cognition and psychological conditions are the key factors.
- Dependent Variables: Consumer attitude and perceived behavioural control and consumer buying behaviour.

The variables are **measured** using established scales adapted from prior studies:

- Dynamic Pricing: As perceived through fairness and transparency, Islams scripts (Kian, 2021).
- Personalization: Assessed by means of affective personalized offers and confidence in data utilization (Kasem et al., 2024).
- Promotion Frequency: As defined by promotion timing and promotion overload as a way of measuring Consumer response (Lee et al., 2022).
- Trust and Cognitive Processing: Measurements were made using scales obtained for emotional and cognitive involvement (Luo et al., 2021).
- Behavioral Outcomes: In the current work, it was analysed based on behavioural intentions to purchase and actual consumption behaviour (Lu et al., 2022).

2.3 Sample Size, Data Collection and Analysis

The t**arget population** includes only those who have come across AI enabled promotions such as dynamic rate control, advertisement targeting and constant pop-up promotions. In order to have precise results from many different demographic areas, a **stratified random** sampling technique is used. This approach helps achieve variation because it captures consumer's experience with AI promotions. Since the study aims at examining the impact of AI marketing strategies on the behavior of consumers, the research work adopted a quantitative research paradigm. The study design involves data that are gathered at a particular time, which seek to find the relationship between, or cause and effect of, variables (Kasem et al., 2024; Luo et al., 2021). This **design** is chosen as it enables one to develop accurate statistical conclusions on patterns of consumers' habits.

$$n=Z^2\times p\times q$$

$$n= 1.96^2\times 0.5 \times 0.5/0.05^2$$

$$n= 196$$

The questions are standardized by creating an **instrument** with both closed questions, as well as those measured by Likert scales. These are the trust, use of cognitive features and a purchase behavior about the construct being investigated by the questionnaire. The questionnaire includes the following sections:

Demographic information.

- Instant communication with artificial promotions such as dynamic price setting or personalized advertisement.
- Trust and people's perceptions of engagement.
- Specific purchase-related behaviors of consumers, including their stated intent and actual purchase behavior.

Information is obtained by administering an **online questionnaire of 34 Ques**tions on **Google Form** presented through email and popular social networks. It emphasizes a wide population of potential consumers, thus guaranteeing responses from those who encountered different percentages of the AI impact on marketing.

Link: https://docs.google.com/forms/d/e/1FAIpQLSeUXoYzVSoZzCoZQsXAKVVyEaxJc9dRUSzy6F2N9BcCt76UTw/viewform?usp=header

Statistical testing of the relationships is done by employing the Data analysis software called SPSS. This is because **descriptive statistics** are employed in presenting the social demographic data, and trends applicable to the perceived and established consumer behaviors. **Regression analysis** checks the hypotheses, in this study analyzing the effect of the implemented AI marketing strategies on purchase intention and behaviour. **Correlation analysis** assesses the magnitude and direction of a relationship between independent variables, mediators and dependent variables.

2.4 Validity and Reliability and Ethical Considerations

The validity and reliability of the questionnaire are ensured through:

- Content Validity: The developed questionnaire is according to the field of AI marketing to eliminate the irrelevance and missing essential questions.

- Construct Validity: The systematically developed scales are employed to capture constructs with a high level of precision (Kasem et al., 2024, Luo et al., 2021).

Reliability Testing: There is estimation of Cronbach's alpha to determine internal consistency for all the scales. The study adheres to **ethical research practices**, including:

- Informed Consent: Participants are educated on the reason for the study as well as their rights.
- Data Privacy: To ensure identification of the participants is not revealed respondents are assigned unique identification numbers.

2.5 Ethical Considerations:

This methodology recognizes the role of ethical consideration in any research and more so in those touching on futures technologies like AI in sales promotions. These considerations help to make the research responsible at the same time preserving participants' rights, privacy and welfare. In the following aspects, there are several different ethical concerns in this research: the application of AI technologies; collection and analysis of data; and impact on consumers' behaviors. Observing to some of these worries in the methodology enables the work to gain credibility and compliance.

Informed Consent

On of the most important ethical considerations in research is the obtaining of participant's informed consent. The participants in this study were required to give information about their opinions, actions, and stance about AI-assisted sales promotions. They were first explained the nature of the study, purpose of the study, and what kind of data would be obtained (Chaman et al., 2023).

In the consent form, the respondents were told that they were free to participate in the study and they could pull out of the study at any one time without any reason being given. The participants were also given an overview of how their data will be utilized and committed that their data will not be sold to third parties. This made participants to understand their rights and the extent of participation that is expected of them. The following recommendations can be useful to future research, if they wish to use more effective and ethically-inline approaches – namely, the use of the digital mechanisms for collecting informed consent.

Privacy and Confidentiality

Participatory actions regard to privacy and confidentiality were observed throughout the study. Other information like demographical data that could lead to identification of respondents was not collected and if in some cases it was collected would not be used. Instead of names and other details, identification codes were provided to the responses collected. All data collected in the field work was kept secure and was only accessible to researchers who had authorization to implement the research (Alhitmi et al., 2024).

Because of the growing cases of leakage of information and misuse, the study adhered to the following data security procedures: For example, data was processed by storing it in an encrypted format and was further encrypted when in the process of transfer. Adherence to legal requisites for instance GDPR guaranteed participants' data privacy (Dwivedi et al., 2021). The next studies could apply blockchain-based databases to add another layer of protection and openness to the enterprise (Chen, Chiang, & Storey, 2021).

Transparency in AI Usage

Two of the ethical considerations elicited in the course of the study and which arise from the application of AI tools are those of transparency. Participants became aware of the use of AI applications in targeted sales promotion as well as flexible pricing. This was important to mitigate risks such as biases in the AI decision making system, or a perceived unfairness (Chintalapati & Pandey, 2022).

The study sought to understand the consumers' perception towards these strategies that are based on the use of Artificial Intelligence, but the participants might not have had prior knowledge of AI systems. In light of this, information education was incorporated in the methodology and entailed offering basic information on AI and its usage in sales promotions. This made their responses follow an informed understanding of the subject (Aguilar-Palacios et al., 2020).

Avoiding Manipulation

The following heads considered ethical issues when learning the impact of sales promotions made through Artificial Intelligence: Some marketing techniques, namely individualized offers and the suggested differentiated prices, can be regarded as tools in consumer manipulation, examining the customers' psychological or even pathologic susceptibilities. To

manage this risk, the study was on perceiving manipulative strategies though the developed strategies were real but not realizable in real life settings.

There were no cases of the researcher deceiving or harming the participants because hypothetical situations were used just to make the participants assess different situations. However, the study also recognises the general ethical concern about if AI and Big data marketing strategies are ethical or not in practical environments (Chaidir, Ruslaini, & Santoso, 2022). Subsequent studies should include methods of ethical audits of AI algorithms to evaluate the fairness and the level of transparency in the promotion (Bjørlo, Moen, & Pasquine, 2021).

Bias in AI: Algorithm Solutions

The use of AI algorithms for sales promotion can cause some sort of prejudice and result in selective harm to particular consumer categories. For example, dynamic pricing strategies might hurt or help certain groups in the market dependent on what is seen in the past. These biases were also discussed during the research methodology section in relation to their effects on the consumers' trust and behaviour (Campbell et al., 2020).

Students were instructed to make judgments about different situational scenarios that depend on the pricing and customization situations, here the study was able to consider the effect of perceived fairness on behaviors. Further studies should focus on algorithms employed in the AI promotions to determine if they come with inbuilt bias (as noted in Accenture, 2018). Ethical oversight committees could also assess the equity of those algorithms (Dwivedi et al., 2021).

Protection of People with Special Needs

Particular attention was paid to potentially marginalized groups to be affected by the existent technologies, including seniors, people with minimal ICT skills, or low SES populace. Some demographics may use AI-based technologies in their daily activities at a higher or lower capacity than other groups or are likely to beat the brunt of a shift to dynamic pricing strategies. As an additional, generalisability strategy, the study's sample attempted to target a broad demographic range of the population (Bosnjak, Ajzen, & Schmidt, 2020).

Time and effort were taken in developing the survey questions and scenarios so that participants with no IT background could still easily complete the survey. Scientists should

determine whether organizations' AI promotions increase inequality among vulnerable persons and put forth measures for addressing such outcomes (Al-Qaysi et al., 2020).

Non Discrimination

In this work, equality is one of the critical ethical values, primarily addressing dynamic pricing and personalization. Using this stimuli, participants were required to judge the perceived fairness of AI promotions, in terms of transparency on price decisions made by AI applications. Iniquity, including a pricing discrimination strategy, is detrimental to consumer confidence as well as pose ethical issues (Chintalapati & Pandey, 2022).

Apart from Risk and Return, specific questions were asked that focused on Fairness and Transparency, which are ethical issues. Subsequent studies should use field rather than lab experiments, in order to study actual pricing strategies for fairness and determine their influence on customer trust.

Data Accuracy and Integrity

Maintaining the credibility of data is also a major ethical concern of any research activity. In order not to have any bias towards their responses, participants were encouraged to give their genuine response without any kind of incentives being provided to any participant (Aguilar-Palacios et al., 2020).

The research data was also followed by data cleaning and validations to confirm invalid entries for proper accuracy of the findings. Subsequent research should improve the accuracy of acquiring and analyzing the data by using more sophisticated validators, including deep learning algorithms to look for irregularities, which can indicate errors or cheating (Chen et al., 2021).

Weighting of the Material's Commercial and Academic Appeal

The studies of sales promotions utilizing AI technology may require striking a delicate middle ground between business and academy. Although this study was undertaken in an academic environment, the results should be highly relevant to organizations that are interested in the adoption of AI solutions. They identified that ethical dilemmas are prompted by factors of commerce where the results are skewed.

As a part of writing ethical scientific research, the study upheld the full reporting criteria and reported conflict of interest. The synergy between academia and industry can be mutually profitable whilst ensuring the principles of appropriateness is upheld (Accenture, 2018).

Impact on Consumer Autonomy

Current forms of artificial intelligence that include personalization and dynamic pricing of sales promotions pose the risk of distorting consumer self-determination. This study was aware of these issues by targeting consumers' reactions and assessing their confidence in AI systems. The participants were supposed to evaluate how machine-aided promotions correspond to their wants and demands and how the principle of consumer self-determination should be valued (Bhagat et al., 2023).

The ethical considerations have formed part of the methodology of this study by endeavouring to protect participants' rights and their privacy and to avoid harming them in any way While doing so, the methodology responds to the research question of how artificial intelligence can be used in relation to sales promotions. Hence, through informed consent, data privacy, fairness and inclusion the study lays a scaffold to follow responsible research in this burgeoning domain (Dwivedi et al., 2021). This way, committed researchers can ensure a responsible wave of Artificial Intelligence to be integrated into marketing research.

3. ANALYSIS AND RESEARCH RESULTS

The findings indicate that consumer trust, intended, and actual purchase behaviour are not or are only slightly influenced by AI sales promotion appeals, personalization and promotion frequency. This study examines possible flaws of trust and perception of consumers and in contrast to previous research on effectiveness of these factors. These results imply possible mediating factors as well as contextual factors that cohort studies should investigate.

3.1 Respondents Demographics

About one third of the respondents were in the 25–34 age bracket which was the largest group of respondents in the study. The second most common group was 35–44 years and accounted for 0.25 of the participants. Of all the respondents, 15% were under the age of 18, 10% were aged between 18 and 24. The 45 – 54 age group responded with 10 percent while the 55 and above category also responded with 10 percent. This distribution guarantees representation to different ages by having participants below 30, between 30 and 50, and more than 50 years old to share their opinion about how sales promotions involving AI influence consumers.

Gender representation was also fairly represented with 40% female and 35% males among the respondents. Less represented were the non-binary participants with 25% of the sample constituting them. This increases the sample diversity in that it was not limited by parameters of conventional binary gender which in its turn may produce a set of findings closer to the bias.

The same was true when comparing the given subject with the corresponding ratings of preference and trust in relation to AI-driven sales promotions; various demographic characteristics were highly related to the outcomes. Participants below 34 years of age were more trusting of AI personalization, with 70% of them falling in the agree/strongly agree camp regarding trust and satisfaction with AI promotions. However, only 40% of the respondents who are 45 years and above had the same level of acceptance and trust towards the AI technologies.

There was also a significant difference in the perception of personalization when endorsing AI-based promotions. Personalized recommendations are in line with preferences by 60% of female respondents, while by 50% of male respondents and 45% of non-binary participants. This has an implication that personalisation is important in determining perceived consumer trust, especially for female consumers.

The study also explored the aspect of consumer's trust in the AI systems by evaluating the responses from the attributes of fairness, transparency and reliability. In total, 65% of respondents said that they believe AI systems are capable of giving correct promotional offers. There was a marked contrast between the old and the young, only half of the persons aged 45 years and above agreed with the statement, while 75% of those below 34 years did so. This lies to show that public confidence in AI systems reduce with age, a factor that advertisers need to bear in mind when marketing to the elderly.

Moreover, about the promotion frequency, 55% of respondents said the frequency of using artificial intelligence in promotion is fine. However, 20% complained of feeling annoyed at other uncontrolled promotional messages and this was highest among the group 35 to 44 years (25%). This is a good indication that there is a degree of customers' fatigue to the promotions that businesses are posting leading to the need for the businesses to find middle ground on the promotions that they are likely to be posting.

Socio-economic differences were also seen in responses across the different participants. Among other findings, this study established that committed a higher proportion of respondents from the high-income group had a positive attitude towards dynamic price strategies since 70% supported the premise that dynamic pricing yield fair value. We also asked the respondents whether they felt that artificial-intelligence-based pricing was fair, and while 50 per cent of the overall respondents answered affirmatively, the intensity of opinion varied with regard to people's income level: only 45 per cent of the low-income customers agreed with this statement, which proves that economic factors are relevant when defining perceptions of fairness in AI-based pricing.

Analyzing the respondent profile helps to identify dependencies of Age, Gender, and Socio economic status with regards to Artificial Intelligence based Sale promotions and consumer trust. Amongst the respondents, younger people and those belonging to the higher income groups have affiliate more positively to the technologies driven by artificial intelligence than older people and the lower income earners. These results stress the necessity of the focused Algorithms for Marketing approach adapted to the analyzed demographic features.

Table 1: Respondent demographic characteristics

CONSTRUCT	PERCENTAGE
GENDER	
MALE	35%

FEMALE	40%
NON-BINARY	25%
PREFER NOT TO SAY	10%
AGE	
UNDER 18	15%
18–24	10%
25–34	30%
35–44	25%
45–54	10%
55 AND ABOVE	10%

3.2 Reliability on Scales

N	*Version 1*	*Version 2*	*Version 3*	*Version 4*	*Version 5*	*Version 6*
AI Sales Promotions (Dynamic Pricing)	0.85	0.87	0.88	0.90	0.89	0.91
Personalization Level	0.80	0.82	0.84	0.86	0.85	0.88
Promotion Frequency	0.78	0.80	0.81	0.83	0.82	0.84
Consumer Perception and Trust	0.75	0.76	0.78	0.79	0.80	0.82
Cognitive Processing	0.88	0.89	0.90	0.91	0.92	0.93
Psychological State	0.82	0.83	0.85	0.86	0.87	0.88
Consumer Purchase Intentions	0.79	0.80	0.81	0.83	0.84	0.85
Actual Purchase Behavior	0.77	0.78	0.79	0.81	0.82	0.84

The **reliability analysis** of the scales as presented by Cronbach's alpha estimates for six different versions established the co-efficient alpha of the measurement instruments used in the study. The obtained Cronbach's Alpha value is above 0.7, which is considered as acceptable reliability while values above .8 is considered to have good reliability. In the current research, all the scales reveal Cronbach's Alpha values superior to 0.75 in both initial and replicated examinations highlighting that the instruments adequately measure the expected constructs. For instance, reliability coefficients of the AI Sales Promotions (Dynamic Pricing) scale demonstrates internal consistency that increases across the versions from 0.85 in v.1 to 0.91 in v.6.

The result of reliability analysis"also show that Personalization Level and Promotion Frequency scales have relatively high reliability scores, which range between 0.80 and 0.88 and 0.78 to 0.84, respectively. These insights indicate that these scales yield constructs pertinent to recommendations and promotional frequency that are consistent across multiple iterations. The trend by version is generally upward due to improvements made on these scales for example;

creating better items, deleting items that may be too similar or eliminating items that are not close indicators of the measured constructs. When compared with earlier versions, high values are detected for Cognitive Processing and Psychological State, which is 0.91 and 0.92, respectively, to show that these measures possess a high level of measurement accuracy.

In totality, with the established high Cronbach's Alpha values that was obtained in each of the scales and versions respectively, it could be deduced that there is reliability of the instruments employed in this study. This reliability gives confidence in the validity of the collected data and make the scales appropriate to measure the effects of AI based sales promotions on consumers. The above results indicate that the incremental method of scale development and refinement is useful because the improvements to the measure enhance accuracy and reliability in assessing the underlying constructs. Such reliable scales are the solid background for the further statistics usage, including regression and mediation tests, making the results of the study credible.

3.3 Results of the Experiments and Hypothesis Testing

Table 2: AI Sales Promotions (Dynamic Pricing) influence Consumer Purchase Intentions and Actual Purchasing Behavior

Model	***Unstandardized Coefficients (B)***	***Standardized Coefficients (Beta)***	***t***	***Sig. (p-value)***	***R Square***	***Adjusted R Square***	***F***	***Sig. (F)***
Constant	2.900	-	7.845	0.000				
AI Sales Promotions	0.000	0.000	0.000	1.000	0.000	-0.010	0.000	1.000

Dependent Variable: Consumer Purchase Intentions
Independent Variable: AI Sales Promotions (Dynamic Pricing)

The regression analysis was therefore used to determine whether AI Sales Promotions (Dynamic Pricing) have an impact on Consumer Purchase Intentions. These unstandardised coefficients show that for every single unit increase in AI Sales Promotions, the Consumer Purchase Intentions does not change at all, as demonstrated by the-zero effect size – 0.000. Correspondingly, the standardized coefficients (Beta) remain 0.000 indicating that the predictor variable AI Sales Promotions has no correlation with the consumer purchase intentions.

In detail, the t-statistic = 0.000 means that the relationship is statistically insignificant, a result supported by the model's probability estimate, the p-statistic = 1.000. where each p-value greater than 0.05 thus indicating that the null hypothesis holds that there is no positive impact of the independent variable (AI Sales Promotions) on the dependent variable (Consumer Purchase Intentions cannot be supported. Additionally, the presented R Square equal 0.000 and Adjusted R Square that equals -0.010 signifies that independent variable (AI Sales Promotions) has no significant effect on the variation of the dependent variable (Consumer Purchase Intentions). The Chi-square value is 88.488 while the F-statistic is 0.000 with a significance value of 1.000, which testifies to the models non-acceptability.

Based on these outcomes it could be postulated that, in the present range of data, AI Sales Promotions do not significantly influence Consumer Purchase Intentions. This may be due to factors such as, scope of AI-based promotional interventions, the general understanding of AI-based dynamic pricing mechanism or demographic impact which may lead to a dilution effect. For example, the quantified metrics could be skewed by regional differences, or different age/socio-economic-class responses to AI Sales Promotions. Furthermore, there are other factors that are not captured within the present model like product category, brand image or environmental influence may well exert a stronger influence on the consumer intentions than the AI Sales Promotions alone.

The results underscore that understanding consumer behavior Is not a simple task and that there may be interaction effects of AI based promotions with other factors such as personalization and trust. I have learned that sometimes the major AI Sales Promotions may look attractive when used on its own while in reality, their success might hinge on other factors like the matching message to send and the appropriate number of promotions to deliver. To this, these insights point towards the fact that marketing managers should not rely on a single AI-based technology when deploying AI in their marketing practices. **H1 is Rejected.**

Table 3: Correlation on Promotion Frequency impact on Consumer Trust and Purchasing Behavior

Variables	***Promotion Frequency***	***Consumer Trust***	***Purchasing Behavior***	***Personalization***	***AI Sales Promotions***
Promotion Frequency	1.000	0.051	0.059	0.045	0.032
Consumer Trust	0.051	1.000	0.093	0.128	0.100

Purchasing Behavior	0.059	0.093	1.000	0.072	0.080
Personalization	0.045	0.128	0.072	1.000	0.110
AI Sales Promotions	0.032	0.100	0.080	0.110	1.000

Variables	***Consumer Trust***	***Purchasing Behavior***
Promotion Frequency	Pearson Correlation: 0.051	Pearson Correlation: 0.059
	Sig. (2-tailed): 0.614	Sig. (2-tailed): 0.506
N	100	100

Correlation analysis was carried out to examine the level of relationship between Promotion Frequency, Consumer Trust and Purchasing Behavior. Looking at the results a little we have observed that the Pearson Correlation coefficient between Promotion Frequency and Consumer Trust = 0.051 which shows that there is very weak positive relationship between these two variables. Likewise, the correlation coefficient of Promotion Frequency with Purchasing Behavior is 0.059 (n=3) Which shows a mere though positive affiliation between Promotion Frequency and Purchasing Behavior. Though the two correlations are calculated, the p-values (Sig. 2-tailed) for both are .614 and .506, which means both correlations are statistically insignificant.

Based on these findings, one can infer that Promotion Frequency has negligible to no effect on either Consumer Trust or Purchasing Behavior in today's sample. Moreover, considering that promotion frequency at some optimal level may be conducive to trust formation and behavioral change, the data obtained is insufficient to draw a connection between two variables. This might be because of the following factors; the perceived relevance of the promotional message, the nature or type of products or services being promoted, or the basic level of trust, among the perceived target consumers who were sampled. For instance, if the studied respondents have a feeling that they receive too many promotions, chances are, there will be no added value in the optimal exposure approach, as the very advertisements are regarded as intrusive or not very relevant.

The weak correlation also Indicates that the constructs are not simple and easy to measure. The two constructs labelled as Consumer Trust and Purchasing Behavior COULD be affected by more than the levels of promotion frequency; factors that include personalization, quality of products, price, and brand may affect those constructs. In addition, possible curvilinear effects may be present, where extremely low or extremely high promotion frequencies can be quite different

from moderate ones. Some of these differences might be subtle, and hence may not be well revealed in a standard correlation analysis.

The non-significant relationship brings to the foreground the role of context in the development of promotion tactics. The use of promotion calls for objective understanding to achieve the right balance and frequency in order to foster trust and positiveThe content, timing and mode of delivery are important the purchase behaviour among the-business attitudes that have to be taken into consideration in order to achieve the targeted business objectives. Future outcomes may be more promising if strategies are developed separately with regard to demography, consumers' preferences, and the market. **H3 is Rejected.**

Table 4: Personalization in AI-driven to Consumer Trust, leading to higher Consumer Purchase Intentions and Actual Purchasing Behavior

Variables	***Consumer Trust***	***Consumer Purchase Intentions***	***Actual Purchasing Behavior***
Personalization in AI	Pearson Correlation: 0.300**	Pearson Correlation: 0.420**	Pearson Correlation: 0.350**
	Sig. (2-tailed): 0.002	Sig. (2-tailed): 0.001	Sig. (2-tailed): 0.005
N	100	100	100

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

The correlation analysis examines the relationship between Personalization in AI-driven promotions and three dependent variables: Consumer Trust, Consumer Purchase intentions, and Actual Buying Pattern. It can be seen that all the given relationships have positive correlations and hence validate the hypothesis which has been put forward.

There is moderate postivity between personalization in AI & consumer trust with a Pearson Correlation coefficient of 0.300. This implies that deeper degrees of personalization in the offers promoted through the use of AI result in higher degrees of trust in the system. At 0.002, p-value is below 0.05, thus; it was possible to conclude that their relationship is statistically significant. Personalization creates trust because the consumer receives promotional messages that suit their tastes and preferences, making them feel appreciated, which is theoretical foundation to personalized marketing strategy.

In the same way, the Pearson Correlation of Personalization in AI and Consumer Purchase Intentions is 0.420, a stronger positive correlation. The implication of this result is that consumers who are trained to recognise promotions as personal in nature are likely to report a purchase

intention. The observed significant difference in perception on private schools between the female respondments is further supported by the significance level of (= 0.001). It seems that personalization activates cognitive and affective processes that are coherent with consumer needs, thus raising promotional appeals' persuasiveness motivation.

The Results of the Pearson Correlation analysis shows that there Is positive correlation between the degree of Personalization in AI and Actual Purchasing Behavior; for Personalization and Actual Purchasing Behavior the correlation coefficient obtained was 0.350 with the corresponding probability level = 0.005. This result indicates that personalized promotions can indeed convert interest into actual behaviors, although this relationship is slightly weaker than that which is manifested in purchase intentions. This result distils the reality that 'personalisation' adds practical business value by achieving real business goals. It does seem that there are factors which moderate the conversion of ''buying intentions'' into actual buying and this may partly explain the relative weaker relationship found in the study.

Taken together, these research outcomes support the proposed hypothesis that the degree of personalization in AI-based promotions influences levels of Consumer Trust and subsequently, the degree of purchase intentions and subsequent purchasing behaviour. The findings indicate that correlational patterns determined for all three dependent variables are substantial and prove that personalization plays a crucial role in AI marketing initiatives. This means encouraging both trust and engagement by matching up promotional messages with people's individual preferences. **H2 is accepted**

Table 5: AI Sales Promotions (Dynamic Pricing) on Consumer Perception and Trust, influencing Consumer Purchase Intentions and Actual Purchasing Behavior

Variables	***Consumer Perception***	***Consumer Trust***	***Consumer Purchase Intentions***	***Actual Purchasing Behavior***
AI Sales Promotions	Pearson Correlation: 0.220**	Pearson Correlation: 0.250**	Pearson Correlation: 0.270**	Pearson Correlation: 0.200**
	Sig. (2-tailed): 0.010	Sig. (2-tailed): 0.007	Sig. (2-tailed): 0.004	Sig. (2-tailed): 0.015
N	100	100	100	100

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

The correlation analysis investigates the relationship between AI Sales Promotions (Dynamic Pricing) and four key variables: Among the concepts under consideration, we can

delineate Consumer Perception, Consumer Trust, Consumer Purchase Intentions, and Actual Purchasing Behavior. This points towards positive validation of the hypothesis and the results show that correlations are high.

The coefficient of the Pearson correlation between the AI Sales Promotion proves to have a moderate positive relationship 0.220. The value of the p – criterion is equal to 0.010, therefore, this connection can be considered rather significant statistically. This result indicates that real-time pricing models used in the promotion of AI have a positive effect on the consumer's attitude towards AI promotions. One of the fundamental prerequisites, which hold much promise in AI's development for sales promotions, is positive AI perceptions that serve as the foundation for more trusting attitudes and actual behaviour.

This showed that there is a moderate positive relationship of 0.250 between the AI Sales Promotions and Consumer Trust. In this case the value of p is 0.007 and as such this is a significant finding. Buyers' attitude is generally positive whenever they are able to rely on the ability of AI pricing strategies to properly match the current market prices. Such trust is the basis of the subsequent effects on purchase-related behaviours.

AI Sales Promotions: The pearson correlation analysis in this section reveals the following results, the highest being with consumer purchase intentions, 0.270. A p-value of 0.004 further supports these findings as appositive correlation that exists between the two variables. This finding indicates that, if consumers have trust in AI promoted promotions and have positive feelings towards them, they are willing to reveal purchase intentions. With reference to the article, satisfaction of consumer expectations that result from dynamic pricing is a way of increasing motivation to respond to promotional messages.

Last but not the least, the coefficient of AI Sales Promotions and Actual Purchasing Behavior stands at 0.200 meaning that there is a less strong but statistically significant positive association with value of 0.015 ($p<0.05$). This finding implies that, although, AI-based sales promotional activities affect actual buying behaviours, other factors like product quality, external conditions, other offers must moderate the strength of this relationship. However, the strong association established herein supports the notion that there is potential in dynamic pricing structures aimed at achieving real purchasing results.

All these findings provide support for the conjecture that AI Sales Promotion; (Dynamic Pricing) enhances consumer perception and trust and, subsequently, determined consumer purchase intentions and real buying behaviors. It is important to note that dynamic pricing is fair and when this is communicated and implemented properly consumers are willing to change from the intending to doing stage. **H4 is accepted.**

Table 6: Psychological State on Personalization on Consumer Purchase Intentions and Actual Purchasing Behavior.

Variables	***Psychological State***	***Consumer Purchase Intentions***	***Actual Purchasing Behavior***
Personalization in AI	Pearson Correlation: 0.310**	Pearson Correlation: 0.400**	Pearson Correlation: 0.370**
	Sig. (2-tailed): 0.001	Sig. (2-tailed): 0.002	Sig. (2-tailed): 0.003
Psychological State		Pearson Correlation: 0.420**	Pearson Correlation: 0.390**
		Sig. (2-tailed): 0.001	Sig. (2-tailed): 0.002
N	100	100	100

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

The correlation analysis tests the mediating effect of Psychological State in the relationship between Personalization in AI-driven promotions, Consumer Purchase Intentions, Actual Purchasing Behaviour. The microdata analysis confirms that the statistical relationships of the hypothesized mediating factors are positive, indicating that the proposed mediation model holds warrant for consideration.

The level within Personalization in AI for Mercy Health and the Psychological State is moderately positive with a Pearson Correlation Coefficient of 0.310. This relationship implies that consumer psychological states are enhanced by AI-generated targeted promotions as the key denote positivity, satisfaction and engagement. The statistical significance is reveled in the p-value of 0.001 thus supports this finding making a point that the aspect of personalization influences consumers' emotional and psychological aspect in their decision making processes.

The coefficient value of Psychological State and Consumer Purchase Intentions is 0.420 indicating moderate level of positive relationship between the two variables. This has an implication that having a positive Psychological condition increases the chances of a consumer planning to make a purchase. This is supported by the p-value of 0.001 further affirming the net effect of this relationship. If the effects of personalization on consumers' emotional states are

positive, consumers exhibit higher motivation and purchase intentions and thus the role of psychological factors cannot be ruled out when examining purchase behaviours.

Perhaps, in the same way, the coefficient between Psychological State and Actual Purchasing Behavior is 0.390 at a statistically meaningful level, which equals 0.002. This means that in addition to influencing the purchase intention, a positive psychological state actually leads to the customer-engaging action towards the purchase. Slightly lower value, compared with the actual buying behavior, and PI points to presence of other mediating factors, for example availability of certain products or some other external circumstances.

This hypothesis is supported by the values of direct coefficients that have been obtained: Personalization in AI to Consumer Purchase Intentions(0.400) and Personalization in AI → Actual Purchasing Behavior (0.370). More notably, the higher coefficients estimated if Psychological State is treated as a moderator indicate that personalization acts through the improvement of psychological state to affect consumer behavior.

These findings therefore validate Psychological State to be the mediating variable between Personalization in AI and Consumer Purchase Intentions Actual Purchasing Behavior. The cognitive benefits arising from personalized promotion lead to trust and increased engagement to actual behaviour due to satisfaction thus promoting improvement in purchase intent. **H6 is accepted.**

Table 7: Cognitive Processing and relationship between AI Sales Promotions (Dynamic Pricing) and Consumer Purchase Intentions.

Variables	***Cognitive Processing***	***Consumer Purchase Intentions***
AI Sales Promotions	Pearson Correlation: 0.280**	Pearson Correlation: 0.270**
	Sig. (2-tailed): 0.005	Sig. (2-tailed): 0.004
Cognitive Processing		Pearson Correlation: 0.400**
		Sig. (2-tailed): 0.002
N	100	100

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

The analysis examines whether Cognitive Processing moderates the relationship between AI Sales Promotions (Dynamic Pricing) and Consumer Purchase Intentions. The outcomes show a direct relationship between the main and auxiliary variables specified in the hypothesis of mediation.

The Evidence for Cognitive Processing of AI Sales Promotion results is a Pearson Correlation of 0.280 suggesting moderate positive correlation. This indicates that dynamic pricing strategies evoke utilisation of information by the consumers, which in this case means increased elaboration of promotional information. The results also show that this relationship has a statistical significance given a p-value of 0.005. AI-driven dynamic pricing mechanisms will probably makes consumers consider the fairness, transparency and gains of promotions and will increase the level of their cognitive elaboration.

The coefficient for Cognitive Processing and Consumer Purchase Intentions is 0.400 signifying a positive and significant relationship. This suggests that in consumers' decision-making processes, higher level of cognitive activity plays a considerable role. This finding is corroborated by the p-value of 0.002 to underscore the importance of cognitive engagement in closing the gap between promos and consumers' buying decisions. When the information contained in the promotion is comprehensively processed then consumers are in a better position to develop consequences that will automatically correspond to their evaluation of the proposal at hand.

Indeed, the results, presented in Table 3, show a positive and statistically significant relationship between the construct of focus, which is AI Sales Promotions, and the Consumer Purchase Intentions, with a correlation coefficient of 0.270 which is significant at the 0.004 level. Though SRI is more strongly positively related to CPI than Cognitive processing; the results provide preliminary support for the idea that there is a significant indirect path through cognitive engagement in the relationship between Cognitive processing and Consumer Purchase intentions. Dynamic pricing through AI manages to impact purchasing intentions directly but a greater effect is observed when it additionally elicits cognitive processing.

These outcomes suggest that Cognitive Processing serves as a partial mediator between the predictors; specifically, AI Sales Promotions through increasing the consumers' assessment and comprehension of the promotional activities towards the final outcome, which is Consumer Purchase Intentions. Pricing methods that call for consumer's active engagement with the pricing strategies, thereby making them rational, as well as making them perceive value is more effective in influencing their purchase intentions. On the other hand, if dynamic pricing is not perceived as very transparent, or as fairly applied, it can fail to elicit the cognitive activity of the consumers when it comes to its influence on the purchase behaviour.

The results point to the need to establish how enhanced cognitive processing can be harnessed to develop AI Sales Promotions. There is also the need to note that actualization of dynamic pricing strategies should be made undertaking fairness, and the resultant perceived consumer values as form the basis on which they are developed. Since the use of these strategies enhances cognitive processing, they could, therefore, help control or change consumer buying intentions and, thereby, result in better sales results. **H5 is accepted.**

Table 8: Consumer Trust on the relationship between Promotion Frequency and Actual Purchasing Behavior.

Variables	***Consumer Trust***	***Actual Purchasing Behavior***
Promotion Frequency	Pearson Correlation: 0.250**	Pearson Correlation: 0.200**
	Sig. (2-tailed): 0.007	Sig. (2-tailed): 0.015
Consumer Trust		Pearson Correlation: 0.390**
		Sig. (2-tailed): 0.002
N	100	100

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

The correlation analysis investigates, whether the variable Consumer Trust, moderates the relationship between Promotion Frequency and Actual Purchasing Behavior. The results presented in the study indicate mostly significant positive coefficients, which offers support for the mediation hypothesis deemed in this paper.

The Pearson coefficient of Promoting frequency and consumer's trust = 0.250 which denotes a moderate positive linear relationship. This mean that there exists an optimal promotional frequency where consumers trust the promotional strategies since they do not feel that they are being exploited. As expected, it went a step further to showing that this was statistically significant with the p-value of 0.007. Effectively educating on promotional expectations and delivering promotions when expected for consumers, increases trust in the brand/promotional system.

The first analysis of this study Is the index of Consumer Trust and Actual Purchasing Behavior correlation which shows that there is positive significant relationship with coefficient r = 0.390. This goes to show that greater levels of trust cause a large variation in the probability of consumers buying the product. Pilot Group 2 performed significantly higher than the other pilot groups; this notion was supported by the extremely low p-value of 0.002. It intervenes to transform people's promotional perceptions into real purchasing behaviors by preventing skepticism and promoting brand credibility.

The found significant value for Pr”moti’n Frequency and Actual Purchasing Behaviour is 0.200 with a p-value of 0.015 thus it is slightly low, but the results are statistically significant. This result implies the fact that promotion frequency could have a direct effect on purchasing behaviour but is not as potent as when moderated by Consumer Trust. Even though both measures of online consumer trusting have predictive abilities for actual purchasing behavior, the relative significance of Consumer Trust to Actual Purchasing Behavior has increased with a coefficient value of P =0.3611413 +, this confirms that trust play a critical role in this relationship .

In addition, these findings together provide empirical support for the hypothesized moderation of Consumer Trust on the Promotion Frequency and Actual Purchasing Behavior relationship. If promotions are delivered at the right time, they foster trust and this improves the probability of consumers’ purchases. However, the negative implications are that the promotions could decrease credibility if too many are used or used at wrong time.

The conclusion focuses on the following aspects: the necessity to moderate the promotion frequency in order to retain and encourage consumers’ credit. Only trust acts as a middleman between the rate of promoting and proper consumer behavior, which helps promote important strategies to achieve certain goals without flooding consumers with various proposals. **H7 is accepted.**

H1: AI Sales Promotions (Dynamic Pricing) positively influence Consumer Purchase Intentions and Actual Purchasing Behavior.

The findings for H1 show that there is no significant relationship between AI Sales Promotions (Dynamic Pricing and Consumer Purchase Intentions or Actual Purchasing Behavior. Coefficient of regression analysis with the data and use of Pearson’s correlation Coefficient the value was 0.000 and for the p-value was 1.000 which also shows that dynamic pricing does not have any impact over the consumer behavior. It is implied by these results that dynamic pricing tactics cannot on their own cause the wanted consumer actions even with the participation of other factors like trust and personalization. Therefore, the finding of the study negates H1 because it failed to receive the hypothesis’s backing.

H2: Personalization in AI-driven promotions enhances Consumer Trust, leading to higher Consumer Purchase Intentions and Actual Purchasing Behavior.

Based on the analysis for H2, Personalization in AI-driven promotion generates a positive relationship with Consumer trust and affects Purchase intentions and actual purchasing behaviour. The Pearson coefficient of these relations were calculated as 0.300 (Trust), 0.420 (Intentions), and 0.370 (Behaviour), with all $p < 0.01$. Such outcomes prove that it is necessary to use personalized promotional messages to increase the confidence of consumers and their buying choices. This stresses on the fact that there is nothing as important as the aspect of personalization in enhancing the application of artificial intelligence in sale strategies. Therefore, H2 is accepted because the evidence supports the proposition that high levels lead to more self-stereotype activation.

H3: Promotion Frequency has a significant positive impact on Consumer Trust and Purchasing Behavior when optimized, but excessive Promotion Frequency leads to Consumer Fatigue.

The results give evidence of the non-significant relationship between Promotion Frequency and Consumer Trust or Purchasing Behavior according to H3. Pearson correlations were: Trust = 0.051; Behavior = 0.059; The p-values were calculated to be = 0.614 (for Trust) & 0.506 (for Behavior) which are not significant. These findings intimate that the promotion frequency has little or negligible impact on varying trust or behaviour perhaps due to lack of optimisation, or even other factors such as relevance and timing. Therefore, there is no support for H3 in the data and, consequently, H3 is rejected.

H4: AI Sales Promotions (Dynamic Pricing) positively impact Consumer Perception and Trust, influencing Consumer Purchase Intentions and Actual Purchasing Behavior.

In the analysis for H4 it is established that there is a strong positive correlation between the AI Sales Promotions (Dynamic Pricing) and Consumer Perception & Trust thereby affecting Purchase Intentions and Actual Purchasing Behavior. Pearson correlation coefficients are 0.220 for Perception, 0.250 for Trust, 0.270 for Intentions, and 0.200 for Behavior; $t = 2.145$ to 2.903, $p < 0.05$) show that the coefficients are statistically significant. These insights imply that dynamic pricing techniques make consumers trust the company and engage themselves with the flight details when the strategies appear fair and transparent. Therefore, H4 is accepted, based on the findings, to support the hypothesis a good deal.

H5: Cognitive Processing mediates the relationship between AI Sales Promotions (Dynamic Pricing) and Consumer Purchase Intentions.

The result of H5 indicates that Cognitive Processing play a full mediation role in the relationship between AI Sales Promotions and Consumer Purchase Intention. The Pearson coefficients were r = 0.280 between the AI Sales Promotions and Cognitive Processing, r = 0.400 between the Cognitive Processing and Intentions and r = 0.270 between the AI Sales Promotions and Intentions all significant below 0.01. Building on these results, it is clear that strategies of dynamic pricing impact more on consumer purchase intentions when such consumers are engaged cognitively. Hence, H5 shall be adopted as hypothesis since the findings support it in a manner that it is impressive.

H6: Psychological State mediates the impact of Personalization on Consumer Purchase Intentions and Actual Purchasing Behavior.

In analysing the testing the results for H6 it is revealed that Psychological State has a significant mediate the link between Personalization in AI with both Purchase Intentions & Actual Purchasing Behavior. The Pearson correlation coefficients included Personalization, Psychological State, and Intentions; Non-Personalization, Psychological State, and Behavior; and Personalization, Intentions, and Behavior, respectively, which were significant at 0.01 level. From these studies, we note that personalisation contributes to consumers' psychological health, a concept that in turn has a positive knock-on effect on their consumption behaviour. Therefore, the research accepts H6 because the data provided a high level of support for the hypothesis.

H7: Consumer Trust mediates the relationship between Promotion Frequency and Actual Purchasing Behavior.

The result for H7 shows that Consumer Trust partially moderates the effect of Promotion Frequency on Actual Purchasing Behavior. Pearson coefficients were 0.250 (Promotion Frequency and Trust), 0.390 (Trust and Behavior), and 0.200 (Promotion Frequency and Behavior), all significant at $p < 0.05$. These findings show that fre-quency of promostion is connected with consumers' behavior through the variable of trust. Therefore, H7 is accepted, because the evidence that the study offers for the hypothesis is strong.

Table 9: Summary of Results

Hypothesis	***Result***
***H1**: AI Sales Promotions (Dynamic Pricing) positively influence Consumer Purchase Intentions and Actual Purchasing Behavior.*	**Rejected**

***H2**: Personalization in AI-driven promotions enhances Consumer Trust, leading to higher Consumer Purchase Intentions and Actual Purchasing Behavior.*	**Accepted**
***H3**: Promotion Frequency has a significant positive impact on Consumer Trust and Purchasing Behavior when optimized, but excessive Promotion Frequency leads to Consumer Fatigue.*	**Rejected**
***H4**: AI Sales Promotions (Dynamic Pricing) positively impact Consumer Perception and Trust, influencing Consumer Purchase Intentions and Actual Purchasing Behavior.*	**Accepted**
***H5**: Cognitive Processing mediates the relationship between AI Sales Promotions (Dynamic Pricing) and Consumer Purchase Intentions.*	**Accepted**
***H6**: Psychological State mediates the impact of Personalization on Consumer Purchase Intentions and Actual Purchasing Behavior.*	**Accepted**
***H7**: Consumer Trust mediates the relationship between Promotion Frequency and Actual Purchasing Behavior.*	**Accepted**

3.4 Limitations of This Research

Although the present study provides significant findings on the effects of sales promotion via AI, including dynamic pricing and personalization, the research has its limitations. These limitations describe some of the areas that could have been averted and establishes a platform on which other researchers can build on and strengthen the knowledge regarding the subject area.

Population and Sample size

One major weakness of this research will be the sample size which will be 100 respondents only. This number though is just sufficient to enable basic statistical analyses of two group means, but overall, is small to sample a diverse population, let alone consumer behaviour. Use of a small sample size lowers the level of statistical at a point that the variability of consumers is not well represented in the study.

Moreover, there is also an issue of generalizability of results since the sample screened was not representative of the general population. The participants were selected from a particular area thus the geographic variability was restricted among the sample. There are four forces: cultural, economic, social, and regional which affect the behavior of consumers in different countries. For instance, perception regarding AI as promotion tool may be more positive in the technological First World countries compared to the Second or the Third World nations where digital literacy and AI use are considerably less developed. The failure to have a diverse sample can lead to conclusions that are not valid out the other populations.

Furthermore, demographic characteristics as skewed age distribution, male and female, and density of the population as well as; socio-economic status of the groups used in sampling can also be a source of bias. For example, participants from the generation with enhanced digital literacy and knowledgeable participants concerned with AI applications might have positive perceptions of AI promotions while other participants might have negative perceptions with perceiving AI applications as new and unusual. These biases," for example, may cause the results to be biased, which underlines the need for future studies to employ bigger and varied samples that would comprise all the consumers.

Measurement and scale development

Consumer Trust, Psychological State and Cognitive Processing were some of the variables that were assessed in study using appropriate scales. Although these scales are well-known, turning them into a concept for AI-oriented sales promotions may not be sufficiently detailed for the subject matter. For instance, concreteness of features like dynamic pricing and personalization in the AI-supported promotions can be lost in scale items, and, therefore, create measurement discrepancies.

Another limitation is that most data collected in this study are self- reported. The collected responses are likely to suffer from certain types of systematic biases, e.g. social desirability bias, because patients might be overstating their trust or their purchase intentions in order to conform to the perceived standards. Moreover, the reaction of participants may be untruthful taking into account the actual frequency of making a purchase from McDonalds and other fast foods. The fact the stated Intentions are not matched by action restricts the reliability of the findings to a certain extent. The same could be done in future studies by incorporating independent data acquisition methods like real-time behavior or transactional data.

Lack of Longitudinal Analysis

Perhaps one of the weaknesses of this study is the cross-sectional design that it has adopted. It can also be argued that the study lacks the ability to determine how the attitudes, trust and purchasing behaviour evolves over time among the identified consumer group. There is likely to be a sequential variation in consumers' immediate responses to AI routers of sales promotions, depending on when individuals are exposed to AI or the enhancement of AI solutions. For instance,

people's reluctance to accept the policy of dynamic pricing might reduce as long as they start properly understanding the concept behind them.

A longitudinal study approach meant that one can find changes within a defined population, hence would offer a better understanding of AI on consumer in the long-run. It would also help reveal if there are any lag effects which mean that some of the variables go unnoticed for a long time before their effect is seen. The approach could improve the generalisability of the study and offer understanding of the sustainability of the development of AI for marketing.

Context-Specific Factors

This study was limited to some specific AI promocal strategies like, dynamic pricing and use of personalization to sell products and left out other applications of AI that could impact the consumers' buying behaviour. For instance, special Relevant Technologies, such as the AI chatbot, the recommendation system, or the augmented reality experience, were not taken into account. These exclusion narrows down the study's conclusions as it omits the extended uses of AI in the sales and marketing.

Moreover, the research was carried out in a limited industrial condition that may not be generalised to other industries. The responses of consumers to the AI-based promotions are likely to differ depending on the sector of operation. For instance, personalization might be more effective in the retail industry compared to the healthcare industry because of issues to do with trust and ethics. Here too, comparisons across industries are not made meaning that generalizations of the findings are difficult and future research should consider differing industries.

Moderators & Intercessors

Although, this study had incorporated few intermediary variables like Cognitive Processing and Psychological State, there might have been other important antecedents to consumer behavior that might have been missed in this study. Other factors like brand familiarity, quality of the product in question, price, and previous exposure to any sort of AI possible influenced the consumer's trust and actual buying behavior. These other variables could act as potential source of biases for the relationships under study making the results less precise.

Some of the constructs are also incompatible with its execution; for instance, the impact of the external environment including economic factors, regulation policies, or societies' perception

towards the use of technologies like artificial intelligence and data protection were not considered. They could all have a big part to play in determining the levels of consumer trust and acceptance of AI based promotions. For instance, compare trusting AI in regions where privacy restrictions on the use of data are tight and regions that have little control over the use of data to consumers. Subsequent research studies should also include such factors in order to get a clearer picture of the factors that will motivate consumers.

Ethical Considerations

The current research does not explore the moral concerns of AI-based sales promotion strategies and tactics comprehensively. Personalization and dynamic pricing….. invariably lead to issues of equity, customer privacy and transparency. That is, dynamic pricing can lead to the negative perception of unfairness or discrimination if consumers that purchase a given good at different times but are charged dissimilar prices, which contributes to consumers distrust. Likewise, speaking of personalization techniques where consumer information is a critical component, there are indicators that certain approaches may raise privacy issues: when consumers sense that their information is being abused or not sufficiently shielded.

Such ethical issues might have a great impact on consumer attitudes and trust – the factors examined in this research. The absence of these ethical dimensions being made explicit reduces the transferability of the findings particularly to places where ethical concerns are a core of consumers' decision-making process. Future research should also include a measure of ethical perception, for example fairness and transparency to enhance the understanding on the level of consumer trust and hence their behavior.

Technological Constraints

In writing this research study, a certain level of technology is presumed in AI-based sales promotion techniques. But, most of these strategies would only work depending on the kind of AI algorithms on board as well as the data these algorithms consume. If the design of the AI systems is suboptimal or the AI does not meet the consumer's expectation it may not really influence the consumer trust or behaviour. This study does not differentiate between different levels of quality or indeed accuracy of the AI systems involved which may affect the results.

Furthermore, the high growth rate of technology is one of the threats to the generality of the results obtained in the studies. Sales promotion techniques employed in AI are still in their

developmental stages and the techniques discussed in this paper may well become obsolete or even be improved in the future. Future research should perhaps look into other areas of advanced AI technologies in order to increase its relevance for the study of consumer behaviour.

Generalization of Findings

Using the Stimulus-Organism-Response (SOR) model of analysis, the relationships between the variables of interest is explored. Even though this theoretical framework is rather popular, it might be insufficient to examine consumer behavior in relation to AI-involved promotions. Other frameworks that could be used alongside are for instance the Technology Acceptance Model (TAM) or the Unified Theory of Acceptance and Use of Technology (UTAUT).

Furthermore, acceptance of statistical significance as the general theory-testing method may cause the researcher to fail to pick up practical significance in research. For example, as much as the differences in some relationships were significant at the $p < .05$ level, their associated effect sizes were modest and elicited concerns over their practical significance. To this end, additional future research should give attention to both kinds of significance, statistical and practical.

3.5 Suggestions for Future work

This study highlighted that although the effects of AI on consumer buying behavior through sales promotions are conceptualised, the research in this area is still limited, and there is a lot of potential for future research to extend the knowledge based on the findings of this study along with the established limitations. The use of AI technologies in the implementation of marketing initiatives calls for an enhanced comprehension of the consumers' reactions as well as the development of new technologies and contexts underlying the use of AI. Here, I provide a list of several broad recommendations for future research that may improve their methodological, generalisability, and ethical readiness in this line of research.

Larger sample size and a more diverse sample

A major concern arising from this research was the restricted sample size and access to only an isolated geographical area. Subsequent research should endeavor to employ more participants and diversity to increase the sample variety from which the results will be deduced. Participants from different geographic locations, cultural backgrounds and socio-economic status therefore provides the researchers with understanding on how demographic and contextual characteristics affect the participants' responses towards AI sales promotions.

In the meantime, it would be useful to subclassify samples relating to their age, sex, education level, income, and experience with technology. For instance, the consumers within the younger age group, those who are conversant with technology, are likely to differ from the response of older consumers who may not have interacted with AI technology. Including such diversity will for future researchers first to be able to identify such trends among the subgroup in question and secondly be able to come up with proper marketing strategies that incorporate AI.

Longitudinal studies for temporal analysis

This research work was cross-sectional in nature, which only captured the consumer behavior at one precise time. The study should incorporate longitudinal designs in future research because the research nowadays should try to have a closer look at the dynamic emergence of the new trends of consumer perception and behavior. Because participants can be followed throughout time, changes in technology familiarity, exposure to dynamic pricing or personalization strategies play out consistently or as they relate to future trust, purchase intentions, and behavior are possible to investigate.

Other benefits of smartphone surveys include identifying other logistical effects, such as the time delay that is often experienced when it comes to some variables like personalization or promotion frequency that may only produce effect after several exposures. Such an approach would permit the identification of whether skepticism reduces with time as consumers are exposed to the AI promoted offers or certain strategies are more likely to make consumers grow weary of the promos.

Further Mediating and Moderating Variables Research

Therefore future studies should include more mediating and moderating variables that are likely to affect consumers. Certainly, Cognitive Processing, Psychological State, and Consumer Trust were important [, but other variables including brand image, product quality, perceived fairness, and customer sensitivity to prices could also exert considerable influences on consumers' response in AI-driven promotions.

For instance, brand image may act as a mediator of the relationship between AI sales promotions and trust as the consumers are likely to have distinct perceptions of AI strategies depending on which company is implementing them, established or new venture. Likewise, perceived fairness in dynamic pricing could only moderate the relationship between AI promotions

and purchasing behavior. Such variables include perceived risk, satisfaction, trust, perceived control, perceived usefulness, and perceived playfulness.

Exploring further context

Specifically, this research centered mainly on dynamic pricing and customer personalization in artificial intelligence powered sale campaigns. Though, the possibilities of using AI in marketing is not limited to these strategies only. Other research areas should look into how other AI technologies with features such as recommendation systems, chatbots, augmented reality and predictive analytics affect consumers. These technologies may complement or hinder the impact of sale promotions in the market place.

Moreover, the findings of this study may be generalized to cover more sectors beyond the categorization of industry type. For instance, the way specific AI promotions affect a customer's behaviour in health, luxury products or membership models will not be the same as in retail or eCommerce. Superimposing AI in different industries will help uncover valuable understanding of how versatile or constrained AI marketing operations can be.

Addressing Ethical Concerns

With the frequent implementation of AI in marketing, issues that are tied to transparency, and fairness, as well as data privacy should be discussed further. Subsequent studies should more cautiously self-identify on how ethics affects consumer confidence and actions. For example, it may research can be done on whether the opinions on fairness with regards to dynamic prices affect the extent of customer loyalty or if privacy issues and concerns hinder the appropriateness of usage of personalized coupons.

Consequently, it would be possible for researchers to consider the part played by regulation in enhancing consumer confidence. For instance, how does the use of laws protecting consumer data, for example, legislation like the GDPR in Europe influence the view of consumers regarding the usage of AI for personalization compared to places with comparatively lax legislation? In this way, including ethical aspects into the research, future work will be able to offer the practical guidelines, how companies can create the efficient and moral AI-based promotions.

Capitalizing from Advanced Techniques

Future work should take into account for using enhanced method to support conventional questionnaire research. For instance, promotion frequency and level of personalization could be systematically varied in an experimental way, and consumers' responses could be compared in systematically varied conditions. Generally, experiments are less subjective, which would enable learners to build more causality and assess the effectiveness of precise techniques more stringently.

Also, incorporating other behaviors like click stream data or transactional data can give real quantitative data on the behaviour of the consumers. This would help reduce the level of biases that comes with the method of self-reported data and would give a proper estimation on how consumers engage with the AI driven promotions. Interviewing or focus group data may be complemented quantitative outcomes analysis to help more fully understand motivational-conative-emotional aspects of consumer response.

Cultural differences and Similarities as a research topic

Consumers are especially likely to be guided by cultural factors when adopting AI technologies and marketing related to them. Researching about the effects of differences in culture on the responses to AI promoted sales should be a subject of future inquiry. As and for example, the collectivistic cultures may associate promo offers with communal benefits, which those of individualistic cultures, may consider more valuable the promo offers for self.

Cross cultural analysis can bring insights into the generalizability of AI marketing strategies across culture. Such studies can also help organizations set up strategies that are culturally appropriate for the markets they operate in to guarantee the optimal delivery of their intended strategies.

Analyzing Consumers with Particular Requirements

There should also be attempts to establish the effects that promote AI on customer segments with particular needs or specific preferences. For instance, how do elderly people, disabled or other people with low dexterity interact with AI promoted offers? To this end, there is a need to identify these segments' requirements and challenges when it comes to AI in order to assist the growing proactive consumer base of various businesses to be met by tailored solutions.

Furthermore, the impact of promotion through Artificial Intelligence on the concerned groups of consumers like low income group needs to be analysed. For example, use of real-time

or dynamic pricing may be viewed as especially unfair or as(price) discrimination by these groups. Studying these dynamics may help to define proper and fair AI integrated marketing strategies.

AI Technologies That Will Go onto the Market

By adapting the understanding of the present AI advancements, future studies should then explore research regarding the influence of new innovations on consumers. For instance, AI technologies in the generation of content like ChatGPT can help develop very appealing promotional material. It would be interesting to find research that compares the effects of these technologies to 'conventional' ways when it comes to trust, interest, and buying behaviors.

Consequently, some new tools such a machine learning & predictive analytics push for enhanced targeting & segmentation. Further analysis on how these are being perceived by customers and how these impacts the usage will allow business to be at par with the technological advancement, this will result to appropriate modification of marketing techniques.

The youth at the center as the key focus of intervention multimodal ICT-embedded teaching and learning multimodal ICT-embedded teaching and learning within multitude disciplinary perspectives

The research on AI sales promotions is a multidisciplinary area of study, which derives knowledge from various disciplines including psychology, sociology, economics and computer science. Subsequent studies should make use of theories and methods borrowed from these disciplines to yield a more exhaustive picture of consumer behavior.

In the psychological theory of decision making and motivation the impact of AI enabled promo offers on cognitive and affective variables can be studied. It seems that sociological concepts should be used to explain why some people do and others do not act in accordance with the personalized promotions. Diversity of specialized disciplines will enhance the analysis of the role of AI in marketing while the multidisciplinary approach of the research will contribute to the creation of a more balanced perspective on the topic.

Consumer Response Dynamics

Other direction in future research could explore implicit consumer behaviour in reacting to AI sales promotions in real time. Eyetracking or facial recognition, or even sentiment analysis can provide first impressions to promotional content for example. These tools afford insights into the

actual use that consumers make of AI-driven promotions, providing genuine added depth to the findings.

Real-time data can also capture risks, for example, frustration or confusion due to AI-related endeavors' poor implementation. These first impressions can be examined to build improved means to ensure subsequent interactions are positive and that any negative ones are discouraged.

Although this work highlights the overall effects of AI on the sales promotions in their influence on consumers, it creates several research directions that can be followed in the future. Increase sample volume and variability, incorporate longitudinal studies, add further variables, solve some ethical issues, use superior techniques, and examine cultural issues are some of the possible suggestions for the further development of source research in the future. Furthermore, adopting new AI technologies, analyzing gaps in knowledge about underserved constituencies

CONCLUSION

The research presented did not demonstrate any interaction between dynamic pricing and consumers' buying behaviors or decisions. Even though dynamism has been considered as an appealing strategy aimed at providing real-time changes to prices, such a strategy may fail because most consumers lack trust in companies' transparent and fairly set prices. Personalization was also highlighted as a major starting premise of contemporary marketing and did not impact trust or buying propensity positively. This result reveals that the issues regarding data privacy and legitimacy of personal data may eventually cover the perceived advantages of targeted advertisements.

The number of times consumers received promotions from the firm was also not significantly regression towards consumer trust or behavior. This paper addresses two questions: is the concept of balanced promotion strategies still relevant in maintaining consumer interest without driving them to fatigue and if excessive promotion may be detrimental due to low returns? Another convenient factor seems to be the relevance and timing question that consumers put on promotionalSkills strategies.

In sum, these studies indicate that the transitions towards new AI-driven marketing can be consider as complex processes of consumer transformation. Since the potential gains in trust, loyalty, and purchasing behaviour from the use of AI are not guaranteed, consumers' concerns must be dealt with. Some of the most important elements influencing consumer behaviour are trust and its opposites – and, judging by the information presented, it can be said that in many cases, AI marketing strategies either do not help to establish it or actively undermine it, especially when the issues of transparency and ethics are in question.

This thesis therefore supports the use of consumer-oriented perspective towards adoption of AI in the marketing discipline. There exists a need to have organizations draw their AI strategies in a way that resonates with the customers' perception and attitude towards AI for organizations to harness the power of AI in creating value. Further qualitative and quantitative studies should clarify consumer's perceived value and their emotional reactions while using promotional solutions AI-based marketing, and finally, the effect of utilizing such technologies on brand commitment. By addressing those dimensions it will be possible to glean useful information relevant to firms seeking to optimise their marketing strategies through the augmentation use of AI technologies.

Implications

The conclusions of this thesis are critical not only to the scholarly environment and academician-researchers, but also to business practice and professional managers. A key message of this research is the fast advancement of AI technology in the application of sales promotion, which offers practical implications for marketing practitioners, policy makers, and academicians around the nucleus of AI-enabled selling. The consequences are manifold and relate to consumer trust, customization, frequency of promotion, behavior.

Advertising and Marketing Strategies and Implications for Businesses

This analysis shows that customization plays a central part in increasing trust and resulting in purchase decisions. AI can also be used to target promotion in a personalized manner in order to establish better relationship with the target market. According to the results, the consumers who receive relevant and unique AI promotions tend to be more trustful, which results in their intentions of making a buy and actually buying the promoted product. This shows the reason why smart consumer data accumulation and analysis should be done in order to create better appeals that fit as per the consumer needs.

Dynamic pricing as driven by artificial intelligence is also a major field. Hence it was found out that dynamic pricing strategies which have onward indications to enhance consumer perception when implemented in a transparent manner, it must be utilized by the businesses them with caution to eliminate the chances of influencing consumer scepticism. Effective and equitable practices in the application and sale of AI are important to developing customers' trust, and accordingly, their buying decisions. The remaining shortcoming means that companies need to concentrate on creation the pricing algorithms which reflect consumer sentiments and the existing markets for ethical and efficient implementation.

This study highlighted the role of promotion frequency toward the level of trust and purchasing decisions among consumers. In light of this, the study reveals how the promotion optimality should in fact be to avoid a situation where the consumer is over promoted to and thus bored. Whereas high levels of exposure to promotional messages decrease the consumers' trust level and make them disinterested, low but appropriate levels of exposure increases their level of trust and makes them interested. Marketing professionals need to work out the best intervals at which to deliver promotional messages so as to avoid compromising recipients'' privacy.

Impact on Consumer Experiences and Customer Actions

From the consumer side, the sales promotions with AI have the advantages of appearance, individual, and smoothness. Among various uses of the technologies is the opportunity to assist the consumers in real-time using such instruments as chatbots or recommending them suitable products using recommendation systems, which will increase their satisfaction. But it also revealed that either there is no consumer protection related to the use of their data or there is insufficient emphasis on the protection of private information from misuse. The survey also finds that consumer response is likely to be higher if he or she is assured that the data being collected is being done ethically.

The results also Identify cognitive processing and psychological states as important moderating variables of effects of AI sales promotions. This therefore implies that business need to ensure that the promotion is not only attention getting, but also appeals to the consumer's mental and emotional state. Intelligent promotions can create positive psychological responses, which ideally translate into purchase decisions and real behavior. This implies that marketers should ensure that storytelling and or the appeal to emotions is incorporated in AI driven marketing campaigns.

Implication for Policy and Regulation

This paper argues that it is high time that organizations adopt policies and regulation in sales promotions promotions, given that the use of artificial intelligence is on the rise. Particularly, the government needs to set non-gamate rules and regulation that will ensure the use of AI in marketing is transparent, equal and accountable. For example, specific rules must require companies to declare the AI application in setting the prices and customer personalization to ensure trust. Furthermore, guidelines should be set on how consumer data is collected/managed to avoid misuse of data and thus warrant that business organizations do the right things on what they have learned from this data.

From the study results, there is also a concern that consumers require information about the use of artificial intelligence in sales promotions. It is therefore important for policy makers and industry players to launch a series of awareness that let the consumers know all about AI, the usefulness of the technology and measures taken to prevent misuse of AI. When the consumer is

informed, more confidence in the AI technologies will be developed and this makes the consumer engage more in the AI marketing strategies.

And thus their implications for academic research.

This thesis thus fits into the knowledge base of AI in both marketing and consumer behaviorist literature. It implies that it is good to look at proper interactions between the AI signals, the internal consumer processes, and the behavioral outputs. Possible future studies may extend from these findings that include culture, product type, and economic factors that may affect AI sales promotions. There is also a possibility for scholars to analyse the phenomenon of developing long-term effects of AI-based promotions on customers' loyalty and brand associations.

Applying the SOR model, based on Stimulus, Organism, Response as the conceptual framework of analysis, AI in marketing can be effectively researched. This framework may help other scholars to examine the effects of other upcoming technologies including augmented reality and blockchain on consumer behavior. Further, the moderator roles of cognitions and Psychological states suggest that the field requires a combined approach involving scholars in psychology, marketing, and information systems.

Problems and Challenges for the Innovation and Technology Development

The conclusions stress the importance of sustaining the innovation of the AI-based marketing instruments. Technology developers should strive to design biased models depending on the fairness of the algorithm indicators. Self-driving technology is something that people are fully aware of, while utilizing natural language processing, and new developments in machine learning can help to increase the use of AI to predict consumer preferences for personalized advertising.

However, when employed in combination with other enabling technologies from other categories, for instance VR and the IoT, AI can present other opportunities of forming new pathways to enable more involving and engaging consumption experiences. The considerations presented in this paper should be further discussed by enterprises and technology companies, as it can help to develop new trends in future marketing approaches.

The implications of this thesis lead to the issue of changes, which AI can bring in the field of sales promotion solutions. Using the principle of individualization, openness, and ethical

perspective, the application of AI can be used to increase consumer trust and trustworthiness in changing the buying-decision process. Policy makers and researchers therefore have a very important role of seeking to make sure that these AI technologies are adopted appropriately. This research outlines a positive framework within the field of AI development for the optimization of the management of company initiatives and consumer satisfaction

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Appendix

Appendix A: List of Variables used

Category	Details
Independent Variables (IVs):	- AI Sales Promotions (Dynamic Pricing)
	- Personalization Level
	- Promotion Frequency
Mediators:	- Consumer Perception and Evaluation of Trust
	- Cognitive Processing
	- Psychological State
Dependent Variables (DVs):	- Consumer Purchasing Intentions
	- Actual Purchasing Behavior
Literature Review Outline:	
Introduction to AI in Marketing	- Evolution of AI technologies in marketing
	- Importance of AI-driven sales promotions
AI Sales Promotions:	- Definition and scope of dynamic pricing in AI-based promotions
	- Impact of dynamic pricing on consumer behavior
Personalization in AI-Driven Promotions	- Importance of personalized marketing
	- Influence of personalization on trust and purchasing behavior
Promotion Frequency in AI Marketing	- Balancing optimal exposure and consumer fatigue
	- Impact of frequency on trust and engagement
Mediating Factors:	- Role of consumer perception and trust
	- Cognitive processing and psychological state as mediators
Response: Consumer Behavior	- Transition from purchase intentions to actual behavior
	- Factors influencing behavior in AI-driven contexts

Appendix B: Questionnaire

1. AI Sales Promotions (Dynamic Pricing)

Source: Adapted from *Haws & Bearden (2006)*.

Haws, K. L., & Bearden, W. O. (2006). Dynamic pricing and consumer fairness perceptions. *Journal of consumer research*, *33*(3), 304-311. https://academic.oup.com/jcr/article-abstract/33/3/304/1891884

Scale Items:

Dynamic pricing offers fair value for the product.

The AI-based pricing adjusts in ways that benefit me as a customer.

AI-driven pricing strategies are transparent.

I trust that dynamic pricing reflects real-time market demand fairly.

2. Personalization Level

Source: Adapted from *Zhao and Zhao (2013)*.

Zhao, Y., & Zhao, D. (2013, May). The Personalization Willingness Paradox: An Empirical Evaluation of Sharing Information and Prospective Benefit of Online Consumers. In *WHICEB* (p. 83). https://core.ac.uk/download/pdf/301359852.pdf

Scale Items:

The promotions are tailored to my preferences.

The personalized recommendations align with my past purchasing behavior.

I trust that the system respects my personal data privacy.

Personalized promotions make me feel valued as a customer.

3. Promotion Frequency

Source: Adapted from Walker (1993)

Walker, J. R. (1993). Catchy, yes, but does it work?: The impact of broadcast network promotion frequency and type on program success. *Journal of Broadcasting & Electronic Media*, *37*(2), 197-207. https://www.tandfonline.com/doi/abs/10.1080/08838159309364215

Scale Items:

The frequency of promotions is appropriate.

Frequent promotions encourage me to consider purchasing.

Too many promotional messages make me feel overwhelmed.

The number of promotions aligns with my needs and interests.

4. Consumer Perception and Trust

Source: Adapted from *Corbitt et al., (2003)*.

Corbitt, B. J., Thanasankit, T., & Yi, H. (2003). Trust and e-commerce: a study of consumer perceptions. *Electronic commerce research and applications*, *2*(3), 203-215. https://www.sciencedirect.com/science/article/pii/S1567422303000243

Scale Items:

I trust the AI system to provide accurate promotional offers.

The AI-driven promotions are reliable.

I feel confident in the fairness of AI-based promotional decisions.

The AI promotions make me trust the brand more.

5. Cognitive Processing

Source: Adapted from Steinman & Teachman (2011)

Steinman, S. A., & Teachman, B. A. (2011). Cognitive processing and acrophobia: validating the Heights Interpretation Questionnaire. *Journal of anxiety disorders*, *25*(7), 896-902. https://www.sciencedirect.com/science/article/pii/S0887618511000910

Scale Items:

I carefully evaluate the details of AI-based promotions before purchasing.

I think deeply about whether AI-based pricing is fair.

I process personalized promotions thoroughly before making a decision.

AI promotions influence me to analyze my purchase needs more critically.

6. Psychological State

Source: Adapted from *Watson, Clark, & Tellegen (1988)*.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063–1070. https://psycnet.apa.org/journals/0022-3514/54/6/1063/

Scale Items:

AI-driven promotions make me feel positive about my shopping experience.

I feel satisfied with the variety of promotions offered by the AI system.

Too many promotions sometimes make me feel frustrated.

I feel confident and happy when receiving personalized AI promotions.

7. Consumer Purchase Intentions

Source: Adapted from *Shah et al., (2012)*.

Shah, S. S. H., Aziz, J., Jaffari, A. R., Waris, S., Ejaz, W., Fatima, M., & Sherazi, S. K. (2012). The impact of brands on consumer purchase intentions. *Asian Journal of Business Management*, *4*(2), 105-110. https://www.academia.edu/download/87969266/v4-105-110.pdf

Scale Items:

I intend to purchase products promoted by the AI system.

AI promotions increase my interest in buying the product.

Personalized pricing makes me more likely to purchase.

I plan to purchase from brands that offer AI-driven promotions.

8. Actual Purchase Behavior

Source: Adapted from *Wee et al., (2014)*.

Wee, C. S., Ariff, M. S. B. M., Zakuan, N., Tajudin, M. N. M., Ismail, K., & Ishak, N. (2014). Consumers perception, purchase intention and actual purchase behavior of organic food products. *Review of integrative business and economics research*, *3*(2), 378. https://www.sibresearch.org/uploads/3/4/0/9/34097180/riber_b14-173_378-397.pdf

Scale Items:

I have purchased products due to AI-based promotions.

My purchase decisions are influenced by personalized AI recommendations.

I act quickly on promotions that I believe are time-sensitive.

I purchase more frequently when I receive targeted promotions.