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PERCEIVED SUSTAINABILITY AMONG CUSTOMERS OF THE SAUDI TELECOMMUNICATIONS SECTOR AND ITS RELATIONSHIP WITH THEIR AI-POWERED EXPERIENCES: A CASE STUDY OF THE SAUDI TELECOM COMPANY

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ABSTRACT

This study sought to investigate the relationship between perceived sustainability among customers in the Saudi telecommunications sector and their experiences with services enhanced by Artificial Intelligence (AI). A quantitative methodology was employed, utilising a questionnaire to collect data from a purposive, convenience sample of 195 users of the Saudi Telecom Company (STC). The findings indicate a high level of agreement among customers regarding the concept of perceived sustainability across its various dimensions. The results also revealed a high degree of customer approval for value equity, brand equity, and relationship equity. In contrast, descriptive analysis of the variables related to the AI-powered customer experience, exemplified by the STC Pay application, showed varying levels of agreement. Furthermore, the structural equation modelling results uncovered direct and indirect effects among the study's variables. It was found that perceptions of convenience, personalisation, and service quality have a statistically significant positive impact on trust in the AI-powered customer experience. Personalisation was also found to directly and positively influence the perception of sacrifice. Crucially, the results demonstrated that trust and sustainability have a direct, positive, and statistically significant effect on the AI-powered customer experience. In turn, the AI-powered customer experience was shown to have a direct, positive, and statistically significant impact on perceived sustainability.

KEYWORDS: Sustainability, Saudi Telecommunications Sector, Customer Experience, Artificial Intelligence.

1. INTRODUCTION

Over the years, the theory of communication and marketing management has undergone numerous transformations. The focus has shifted towards creating sustainable customer relationships through repeat purchases and recommendations, thereby developing enriching connections. This customer-centric approach to marketing aims to achieve satisfaction by emphasising transactional exchanges. The customer experience is a comprehensive construct that includes the cognitive, emotional, social, and physical responses of consumers to a company's products (Verhoef et al., 2009). Schmitt (2003) "defined Customer Experience Management (CEM) as the process of strategically managing a customer's entire experience with a product, brand, or company".

The customer experience has become a focal point for many economic sectors due to its impact on maintaining a competitive edge. The success of organisations is now largely dependent on their ability to meet sustainability requirements.

Moreover, modern technological advancements have induced significant changes in professional life, compelling organisations to adopt agile practices in their daily operations, particularly in communication and marketing management. This has empowered public relations and marketing specialists to embrace new technologies, such as applications based on Artificial Intelligence (Thabet, 2023). AI has emerged as one of the primary drivers of global economic growth, reflecting the advanced state of communication and technology that humanity has reached.

This study will, therefore, investigate perceived sustainability among customers in the Saudi telecommunications sector. This sector is one of the most vital and dynamic in the Kingdom of Saudi Arabia. It represents the level of development and attention given to various sectors within the country.

1.1. Significance of the Study

The significance of this research lies in its exploration of the nexus between two critical variables: the sustainability of the customer experience and Artificial Intelligence. This investigation is applied to a vital sector in the Kingdom of Saudi Arabia the telecommunications industry. The importance is further underscored by the escalating growth in electronic communication and the advent of AI technologies, which have fundamentally altered the nature of the relationship between organisations and their customers. **The study's significance can be detailed as follows**

1. To provide significant information, results, and outputs regarding the assessment of perceived sustainability among customers in the Saudi telecommunications sector and its relationship with their AI-powered experiences. This is achieved by clarifying the determinants that business owners can use to enhance their services.
2. To make a substantial and methodologically sound scientific contribution to the interdisciplinary research literature by integrating the fields of sustainability, customer experience, Artificial Intelligence, and the telecommunications sector.
3. To assist telecommunications companies responsible for providing public services in understanding the perceived sustainability of their customers and their correlation with AI-enhanced experiences.

1.2. Objectives of the Study

The current study aims to uncover the relationship between perceived sustainability among customers of the Saudi telecommunications sector and their AI-powered experiences, **through the following objectives**

1. To identify the nature of perceived sustainability among customers in the Saudi telecommunications sector and its relationship with their AI-powered experiences.
2. To reveal the extent of the impact of economic sustainability on the perceived sustainability of customers in the Saudi telecommunications sector.
3. To determine the extent of the impact of social sustainability on the perceived sustainability of customers in the Saudi telecommunications sector.
4. To clarify the extent of the impact of environmental sustainability on the perceived sustainability of customers in the Saudi telecommunications sector.
5. To uncover the impact of the dimensions of the AI-powered customer experience on the perceived sustainability of customers in the Saudi telecommunications sector.

1.3. Research Questions

This study seeks to answer the following questions

1. What is the relationship between perceived sustainability among customers in the Saudi telecommunications sector and their AI-powered experiences?

2. What is the extent of the impact of economic sustainability on the perceived sustainability of customers in the Saudi telecommunications sector?
3. What is the extent of the impact of social sustainability on the perceived sustainability of customers in the Saudi telecommunications sector?
4. What is the extent of the impact of environmental sustainability on the perceived sustainability of customers in the Saudi telecommunications sector?
5. What is the impact of the dimensions of the AI-powered customer experience on the perceived sustainability of customers in the Saudi telecommunications sector?

1.4. Problem Statement

Despite the considerable importance afforded to sustainability as a key issue for business organisations, the concept of perceived sustainability presents numerous challenges for major corporations, particularly when integrated with Artificial Intelligence, which has revolutionised the world of communication. The STC is considered a fascinating case study in this domain, being one of the largest telecommunications companies in the Middle East and the largest in Saudi Arabia. Therefore, the research problem is defined as the investigation of perceived sustainability among customers of the Saudi telecommunications sector and its relationship with their AI-powered experiences, using STC as a case model.

Of course. Here is the provided list of studies rewritten into a cohesive narrative literature review, suitable for an academic paper or thesis.

2. LITERATURE REVIEW

The academic landscape concerning sustainability, customer experience, and the role of technology is both vast and varied. A review of existing literature reveals several key research streams that, while often pursued independently, collectively build a foundation for understanding their complex interplay. These streams focus on the impact of sustainable marketing, the internal drivers of organisational and financial sustainability, the transformative role of digital technologies like AI, and the evolving nature of the customer experience.

2.1. The Impact of Sustainable Marketing on Customer Relationships and Perceptions

A significant body of research establishes a strong, positive link between sustainable marketing practices and favourable customer outcomes. Studies consistently show that embracing sustainability is not merely an ethical imperative but a strategic tool for building robust customer relationships. For instance, Abdel-Aty (2022) found a direct positive correlation between the dimensions of sustainable marketing and the quality of customer relationships at a major hypermarket. This is echoed by Ali (2021), who confirmed a statistically significant relationship between sustainable marketing (viewed through ethics and social responsibility) and the construction of customer relationships in engineering firms.

This connection extends to shaping consumer behaviour and brand perception. Abu Al-Naja (2018) discovered that while sustainable marketing's direct impact on purchasing behaviour was not significant, it indirectly influenced it through mediators like word-of-mouth and brand image. Similarly, Mohamed (2025) concluded that sustainable marketing positively impacts corporate reputation, recommending it as a core strategy. The research by Haddad (2024) and Mguidich (2024) further solidifies this, showing that sustainable marketing improves brand reputation, enhances customer loyalty, and builds consumer trust, ultimately providing a competitive advantage. These findings are supported by Mahmoud (2020), whose structural equation modelling revealed a direct positive link between economic, social, and environmental sustainability dimensions and customer value equity.

Furthermore, research highlights the mechanisms through which sustainability is communicated. Abdel-Fattah (2024) identified a significant relationship between integrated marketing communications (advertising, PR, etc.) and Egyptian citizens' behaviour towards environmental sustainability issues in the food and beverage sector. This underscores the importance of effective communication in translating corporate sustainability efforts into public awareness and action.

2.2. Organisational and Financial Drivers of Sustainability

Shifting the focus inward, another stream of literature examines the internal systems and strategic orientations that enable corporate sustainability. Abdel-Hakim (2024) demonstrated that marketing information systems are crucial for supporting decision-making that preserves the sustainability of the marketing process in the civil aviation sector. In the tourism industry, Abdel-Rahman (2022) found a strong, positive correlation between green intellectual capital (human, structural, and social)

and a sustainable competitive advantage. Likewise, Adel (2023) established a direct relationship between strategic renewal and organisational sustainability within the chemical industry.

Financial sustainability is a critical pillar of this internal focus. Studies have explored its drivers in various contexts, from the macroeconomic perspective of the Egyptian economy (Hosni et al., 2024) to the organisational level of Saudi universities partnering with the private sector (Ali & Jwayed, 2024). The importance of governance and reporting is also a recurring theme. Junaid (2024) found that digital sustainability reporting significantly improves the sustainable performance (economic, social, environmental, and technical) of telecommunications and industrial companies. This aligns with the findings of Abd Al-Reda & Mohamed (2024), who confirmed the significant role of corporate governance mechanisms in applying sustainability standards.

2.3. The Transformative Role of Technology, Digitalisation, and AI

In parallel, research has extensively documented the profound impact of digital transformation on business operations and strategy. The advent of big data, as analysed by Salem & Ahmed (2023), has been instrumental in enhancing the telecommunications sector by improving market analysis, decision-making, and identifying new opportunities. In the banking sector, Abdel-Rahman (2024) showed a clear link between the use of digital banking applications and an improved customer experience, driven by factors like perceived usefulness and ease of use.

Artificial Intelligence has emerged as a potent enabler of both performance and sustainability. Hermouzi (2024) highlighted the UAE's strategic use of AI to drive sustainable development across various sectors. The practical applications are significant; Abdel-Sattar (2024) demonstrated through experimental modelling that integrating AI into management accounting systems leads to a clear competitive advantage by improving financial forecasts, risk management, and sustainability indicator predictions. Furthermore, Ibrahim et al. (2024) found that AI technology positively impacts the level of disclosure for sustainability dimensions, thereby enhancing the quality of a company's financial and non-financial reporting.

This technological integration is not without its challenges. Nabil (2023), in a study on the Egyptian Telecom company, identified technical, organisational, societal, and ethical barriers to implementing AI for managing digital corporate identity, even while confirming its crucial role in customer service, data analysis, and reflecting sustainability values.

2.4. The Customer Experience in the Digital and Sustainable Era

Ultimately, these trends converge on the customer experience. Research by Mojaded et al. (2020) broke down the customer experience in commercial banks into key dimensions reliability, responsiveness, assurance, tangibles, and empathy finding a statistical relationship for each. Similarly, Mohamed et al. (2023) found a significant impact of customer experience dimensions (sensory, emotional, cognitive, and behavioural) on brand personality for airline passengers.

The literature demonstrates that technology is now a primary mediator of this experience. The study by Nabil (2023) is particularly relevant, showing how an entity like the Egyptian Telecom company relies on AI to manage customer service and marketing, directly shaping the customer's journey.

In synthesising these diverse studies, a straightforward narrative emerges: The pursuit of sustainability has evolved from a marketing and communications function to a core strategic imperative driven by internal systems and governance. Simultaneously, the digital revolution, spearheaded by AI, has radically reshaped how businesses operate and interact with customers. While many studies have explored these areas in isolation, there is a compelling need to investigate the intersection where AI-powered customer experiences meet the growing demand for perceived corporate sustainability.

3. THEORETICAL FRAMEWORK

Sustainable performance is a composite of social, economic, and environmental performance. More comprehensively, it aims to integrate these dimensions to achieve the highest degree of sustainability, which is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs," implying its persistence and continuity (Chen, 2015). From this perspective, sustainability has gained recognition and legitimate importance because it provides a competitive advantage and creates value for organisations, stakeholders, and society. However, Parnard et al. (2016) found that there are obstacles to the practical realisation of sustainability, such as the lack of practical frameworks and models. This hinders

economically underdeveloped sectors from incorporating sustainability into their business decisions. Moreover, existing models and frameworks for sustainability management are often based solely on conceptual and theoretical designs, and their structure lacks a practical, field-based approach, which limits their real-world application.

Therefore, for sustainability to be applied across different sectors and organisations, its practices must be integrated into the organisation's activities and processes at all levels (Batista & Francisco, 2018), thereby becoming perceptible to the customers of these sectors.

3.1. Objectives of Sustainability

Sustainability aims to achieve several vital objectives that make life more prosperous, healthy, and affluent. **Among its most important goals are**

- Creating sustainable cities and communities.
- Forging partnerships to achieve goals.
- Ensuring quality education.
- Promoting decent work and economic growth.
- Reducing inequalities.
- Ensuring responsible consumption, production, and fair distribution.
- Fostering peace, justice, and strong institutions.

3.2. Dimensions of Sustainability

Sustainability is based on key dimensions, and through their integration, organisations across various sectors can achieve the most significant degree of perceived sustainability and attain their desired objectives. **These dimensions are**

- The Economic Dimension: This involves sustainable economic growth achieved through the optimal use of natural resources, encouraging innovation by supporting clean technology to enhance efficiency and reduce environmental costs, and diversifying the economy to reduce dependence on non-renewable natural resources and broaden income sources.
- The Social Dimension: This focuses on social justice by ensuring the fair distribution of wealth and opportunities and eliminating poverty and hunger. It includes health and education, by providing high-quality services for all, and promoting community participation in decision-making and the implementation of necessary actions to achieve sustainability.
- The Environmental Dimension: This entails protecting natural resources by conserving biodiversity, managing water sustainably, and reducing pollution. It also involves combating climate change by reducing carbon emissions, developing renewable energy sources, and adapting to its impacts. Finally, it includes waste management through recycling, waste reduction, and safe disposal.

3.3. AI-Powered Customer Experiences

Over the years, the theory of marketing and communication management has undergone numerous transformations, focusing on creating customer loyalty through repeat purchases or recommendations and developing rich relationships with them. This customer-centric approach to marketing aims to achieve customer satisfaction by focusing on transactional exchanges. The customer experience is a comprehensive construct that includes consumers' cognitive, emotional, social, and physical responses to a company's products (Verhoef et al., 2009). Schmitt (2003) defined Customer Experience Management (CEM) as the process of managing the customer's entire experience with a product, brand, or company.

The customer experience is defined as all aspects of how people use an interactive product: the way they perceive it in their hands, how well they understand its operation, how they feel about it during use, how well it serves their purposes, and how it fits into the entire context of its use (Alben, 1996). It can also be defined as the outcome resulting from the user's internal state (disposition, expectations, needs, motivation, mood, etc.), the characteristics of the designed system (e.g., complexity, purpose, usability, functional properties, etc.), and the context within which the interaction occurs (e.g., organisational setting, social background, the significance of the activity, and voluntariness of use).

Hassenzahl & Tractinsky (2006) indicated that the customer experience is a construct comprising cognitive, emotional, sensory, and behavioural responses produced during the entire purchasing process, which includes interaction with people, products, processes, and environmental cues during the marketing communication interaction with the company. Levy & Weitz (2012) explained that providing a customer experience superior to that of competitors is the key to differentiation, and companies have relied on offering more services to customers to provide a distinctive experience. From this, the researcher observes that the concept of customer experience varies among scholars. At the same time, some see it as how a product is used,

while others view it as the outcome of the efforts companies undertake to secure loyal customers for their products.

3.4. The Importance of the Customer Experience

Improving the atmosphere surrounding the use of a company's services or products is increasingly important for retailers in their attempt to cultivate positive feelings among customers in-store, which in turn affects customer satisfaction and their experiences (Terblanche, 2018). Solomon (2016) stated that companies must understand how customers feel, think, and act towards the company to create a positive customer experience. Public relations professionals can influence consumer perceptions through one or all of the five sensory receptors (sight, hearing, touch, taste, and smell) to shape their attitudes and create in-store experiences. The public desires a multi-sensory and comprehensive experience that entertains them and affects them emotionally.

This can be achieved by designing an atmosphere for the use of company services or products that positively influences the public's intentions to engage with the company's points of sale and affects customer loyalty (Verhoef et al., 2009).

The customer experience has become even more critical than attracting new customers due to the importance of the factors that can shape customer experience and behaviour in various ways, such as relational communications, branding, price, promotion, place, advertising, packaging, and the overall ambience. Customer Experience Management can reverse a decline and turn it into an ascent through practical tools that make the interaction between companies and customers more rewarding for both parties (Al-Qahtani, 2012).

Given this importance, companies especially in developed countries have begun to focus their strategies on improving the customer experience by understanding customer needs and preferences more accurately to enhance their competitive position, as shown in surveys of company managers in the aforementioned studies. Previous studies have shown that a customer with a prior negative experience with a company or product will communicate it to others in their community, influencing their purchasing decisions.

From all the preceding studies, we can conclude the importance of the customer experience and its close link to the success or failure of a product and, consequently, the success or failure of the company. Undoubtedly, product success is a natural reflection of repeat purchases by the company's customers. Based on previous studies, the customer experience includes a set of cues that can be categorised into three types: functional cues, mechanical cues, and human cues. Functional cues determine the customer's perceptions of the service's technical quality, the service's tangibles define mechanical cues, and finally, the behaviour and appearance of the human element of the service provider are conveyed through human cues. Each of these cues carries a significant message to the customer, and the synergy of all these cues constitutes the complete customer experience (Al-Qahtani, 2012).

Customers gravitate towards a product when they discover they have unfulfilled needs and desires. Especially when shopping for pleasure, decisions to enter a particular store, the amount of time spent inside, and whether to buy or not are strongly influenced by the shopping environment, atmosphere, and communications, and their effect on customers' emotions. Consequently, website owners design their sites to win loyalty, enable users to locate services easily, motivate them to interact with the site, and provide a satisfying experience (Levy & Weitz, 2012).

According to Schmitt (2011), people integrate brands and products into experiences, where experience refers to knowledge, emotions, and thoughts about products and brands. The hedonic value of shopping stems from pleasure and entertainment, while its functional value derives from the utility and essential features of the product.

3.5. The Stimulus-Organism-Response (S-O-R) Model for Customer Experience

Many environmental researchers have used the Stimulus-Organism-Response (S-O-R) model by Donovan and Rossiter (1982), which has proven reliable for use in various retail contexts. This study developed a conceptual framework for how consumers' perceptions of the physical environment influence customer approach through emotions. S-O-R depicts the relationships between environmental cues, emotional states, and behavioral intentions, adapted from Donovan and Rossiter's (1982) model and the Mehrabian and Russell (1974) model, known as the Pleasure-Arousal-Dominance (PAD) model, with a focus on pleasure and arousal rather than the control/dominance aspects for consumers (Sadek & Tantawi, 2018).

Environmental stimuli can lead to opposing behavioural responses in consumers, known as customer approach and avoidance. These responses are generated by customers' perceptions of the store's atmosphere, design, and social factors. Favourable

perceptions of the store's environmental cues lead to customer approach as a behavioural response, where customers have a desire to stay or explore the store. On the other hand, unfavourable perceptions of the store's environmental cues lead to customer avoidance as a behavioural response, where customers feel unpleasant emotions towards the store and do not wish to remain in it (Sadek & Tantawi, 2018).

3.6. From Customer Relationship Management (CRM) to AI-Powered Personalisation

The early 2000s witnessed the emergence of the Customer Relationship Management (CRM) concept. This was accompanied by the growing importance of the customer database, which contains information about each customer and is a critical element in CRM. This information may include socio-economic characteristics (gender, age, education, income level), previous interactions with customers (such as offers made and responses received, services, and complaints), and the customer's purchase history. The use of this data has made it possible to predict customer responses to new offers and customer retention. It has also helped to identify and select customers who should be given more attention because they are likely to change their purchasing decisions and switch brands. The term CRM refers to "the study of the nature of knowledge, reality, and a business strategy supported by systems and technology, designed to improve human interactions with the business environment. It is an ongoing business process that requires a dynamic and continuous action plan to achieve customer satisfaction, given the market-aligned customer perspective." Therefore, companies need to focus on customer needs to customise their products according to their desires by responding to them and monitoring their activities (Hopkinson & Rodrigo, 2018).

Maheshwari et al (2014). Identified the steps to achieve CRM objectives as follows

- Customer Identification: Recognising the characteristics of the customer's identity by using communication methods and surveys on websites.
- Customer Differentiation: Differentiating each customer according to their individual needs and requirements.
- Customer Interaction: Interacting with customers to track their behaviour, needs, and changes in demand over time.
- Customisation: Customising the service or product so that customers are treated uniquely and all their demands are met (Maheshwari et al., 2014).

4. RESEARCH METHODOLOGY

The methodological procedures of this study can be addressed through the following elements

4.1. Method and Design of the Study

This study is classified as descriptive research, which aims to portray and analyse the characteristics of a specific, well-defined phenomenon. The objective is to obtain sufficient and accurate information about the phenomenon without interfering with its causes or controlling it. Within this framework, a quantitative approach was employed, relying on a questionnaire as the primary data collection tool. This method allows for drawing scientific inferences by determining correlation values and identifying the significance of differences between study variables, thereby enabling an investigation into the effects of AI-powered customer experiences on the perceived sustainability among customers in the Saudi telecommunications sector.

4.2. Population and Sample

The population of the current study consists of all customers within the Saudi telecommunications sector. Due to the lack of a detailed sampling frame and considering the potential homogeneity or heterogeneity among the population units, a purposive convenience sampling method was adopted, targeting users of the STC.

The researcher utilised the G*Power 3.1.9.4 software to determine the minimum required sample size to detect the effects of AI-powered customer experiences on perceived sustainability. Based on inputs including the appropriate statistical tests and the desired effect size, it was determined that the optimal sample size for this study was 111 respondents to achieve sufficient statistical power. A total of 216 questionnaires were collected initially. After excluding 21 incomplete forms, the final sample size for the current study comprised 195 respondents.

The demographic characteristics of the sample (N=195) revealed that females constituted the majority at 93.3%, compared to 6.7% for males. In terms of education, 53.8% of respondents held a university degree, 38.5% had a high school education or less, and 7.7% held postgraduate qualifications (Master's/PhD). The age distribution was heavily skewed towards the 20-24 age group, which represented 86.7% of the participants. Other age groups included 25-29 years (3.1%), 30-34 years

(2.6%), 35-39 years (3.6%), 40-44 years (2.5%), and 45-49 years (1.5%). Regarding economic status, the majority of participants (78.7%) reported a medium family economic level, while 16.4% reported a high level and 4.9% reported a low level.

4.3. Study Variables and Their Measurement

This field study utilised a questionnaire structured into three main sections, in addition to a section for personal data, to collect measurable data and answer the research questions and test its hypotheses. **The steps followed to construct the questionnaire are detailed below**

a. Questionnaire Structure: The questionnaire was initially divided into three sections. The first section included questions to gather basic demographic information the second section aimed to measure perceived sustainability among customers of the Saudi telecommunications sector. The third section was designed to assess the AI-powered experiences of these customers.
b. Instrument Validation (Validity and Reliability): The questionnaire underwent several procedures to ensure its validity and reliability.

1. Validity

Face Validity: The instrument was presented to a panel of five expert reviewers specialising in media and communication to ensure content validity. The researcher implemented modifications based on the consensus of the reviewers' feedback.

Internal Consistency Validity: This was assessed for the perceived sustainability and AI-powered experience scales using a pilot sample of 40 respondents. The results indicated high internal consistency, with correlation coefficients between each item and the total scale score ranging from 0.773 to 0.905 for the perceived sustainability scale and from 0.477 to 0.777 for the AI-powered experiences scale. All correlations were statistically significant at the $p < .01$ level.

2. Construct Validity

Exploratory Factor Analysis (EFA): Principal component analysis with Promax rotation and the Kaiser-Henry criterion was conducted. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.951 for the sustainability scale and 0.921 for the AI-powered experiences scale, both exceeding the recommended minimum of 0.5. The Bartlett's Test of Sphericity was statistically significant ($p < .001$) for both scales, indicating that the correlation matrix was not an identity matrix. All item factor loadings were substantial, ranging from 0.546 to 0.866 for the sustainability scale and from 0.531 to 0.903 for the AI-powered experiences scale, well above the 0.3 threshold for significant loading. Both scales yielded a six-factor solution.

Confirmatory Factor Analysis (CFA): A pooled CFA was performed on the measurement model using AMOS v.24. Goodness-of-fit indices, as recommended by simulation studies, were used to confirm that the data fit the proposed factor model, thereby validating the underlying factor structure.

Reliability: The internal consistency reliability of the questionnaire was calculated using Cronbach's Alpha, which yielded a value of 0.964, indicating high reliability and validity of the instrument.

Following these validation steps, the final version of the questionnaire was established. The normal distribution of the data was examined using distribution curves for each variable, which confirmed that the data were distributed around the curve's line without significant dispersion.

Furthermore, the study checked for multicollinearity among the independent variables using the Tolerance and Variance Inflation Factor (VIF). The results showed that all Tolerance values ranged between 0.754 and 0.981, while VIF values ranged between 1.029 and 1.231. As these values are below the critical threshold of 5, it can be concluded that there are no multicollinearity issues among the independent variables.

4.4. Statistical Treatment of Data

The researcher used SPSS v.0.16 for data processing and statistical analysis after data collection and coding. Descriptive measures, including frequency tables and distributions, were generated. Based on the nature of the data, **the following statistical tests and coefficients were applied**

Descriptive Statistics: Frequencies, Percentages, Mean (to rank responses), and Standard Deviation (to determine response homogeneity).

Inferential Statistics and Tests:

- Pearson Correlation Coefficient (to study the strength and direction of relationships).
- T-test (to identify differences in responses based on specific variables).
- Omega Coefficient (to calculate instrument reliability).
- Levene's Test (to analyse the homogeneity of variance between groups).
- Kolmogorov-Smirnov and Shapiro-Wilk tests (for normality of distribution).
- Tolerance and VIF coefficients (to check for multicollinearity).

- Mahalanobis Distances (to handle outliers).

Additionally, AMOS v.0.23 was used to conduct the Confirmatory Factor Analysis (CFA) and to test the proposed research model against the sample data using Structural Equation Modelling (SEM).

5. RESULTS OF THE STUDY

The findings of this study can be classified into two main sections, aligned with the research objectives.

The first section presents a preliminary descriptive analysis of the study's data to diagnose the nature of perceived sustainability among customers of the Saudi telecommunications sector and its relationship with their AI-powered experiences.

The second section is dedicated to testing the study's hypotheses by examining the direct and indirect effects of these AI-powered experiences on perceived sustainability. **These are presented as follows**

5.1. Section One

Preliminary Analysis of Study Data: The preliminary analysis involves calculating basic descriptive statistics for the different variables of the study.

First: Customer Perceived Sustainability Customer-perceived sustainability was measured through the following constructs

1. Economic Sustainability: The responses of customers in the Saudi telecommunications sector revealed a high level of agreement regarding perceived economic sustainability. The overall weighted mean for the factors constituting this dimension was 3.84 out of a 5-point scale.

Table 1: Perceived Economic Sustainability among Saudi Telecommunications Sector Customers (N=195).

No.	Economic Sustainability Statements	Mean	Std. Deviation	Rank	Level of Agreement
1	The corporate management at STC has a high level of transparency.	3.60	1.062	3	Agree
2	STC appropriately applies corporate governance principles.	3.91	0.874	2	Agree
3	STC demonstrates a good level of corporate accountability.	3.99	0.947	1	Agree
	Overall	3.84	0.824	-	Agree

The detailed results in the preceding Table (1) indicate a consistent level of agreement, with all items falling within the "Agree" range. The highest-ranked economic factor was "STC demonstrates a good level of corporate accountability," with a weighted mean of 3.99. This was followed by "STC appropriately applies corporate governance principles," with a weighted mean of (3.91). The final item was "The corporate management at STC has a high level of transparency," with a weighted mean of (3.60).

2. Social Sustainability: The responses of customers in the Saudi telecommunications sector revealed a high level of agreement regarding perceived social sustainability. The overall weighted mean for the factors constituting this dimension was 4.03 out of a 5-point scale.

Table 2: Perceived Social Sustainability among Saudi Telecommunications Sector Customers (N=195).

No.	Social Sustainability Statements	Mean	Std. Deviation	Rank	Level of Agreement
4	STC is committed to effectively fulfilling its social responsibility.	4.08	0.960	2	Agree
5	STC pays significant attention to human rights.	4.02	0.922	4	Agree
6	STC contributes positively to social domains.	4.10	0.897	1	Agree
7	STC provides social activities and events to support local communities.	4.08	0.960	2 (tie)	Agree
8	STC relies on hiring local talent in its areas of operation.	4.01	0.925	5	Agree
9	STC contributes to volunteer work and provides financial support through donations.	3.91	0.967	6	Agree
	Overall	**4.03**	**0.797**	**-**	**Agree**

The detailed results in the preceding Table (2) indicate a consistent level of agreement, with all items falling within the "Agree" range. The highest-ranked social sustainability factor was "STC contributes positively to social domains," with a weighted mean of 4.10. This was followed by two items tied for second rank: "STC is committed to effectively fulfilling its social responsibility" and "STC provides social activities and events to support local communities," both with a weighted mean of 4.08. The third-ranked item was "STC pays significant attention to human rights" (M=4.02), followed by "STC relies on hiring local talent in its areas of operation" (M=4.01). The sixth and final item

was "STC contributes to volunteer work and provides financial support through donations," with a weighted mean of 3.91.

3. Environmental Sustainability: The responses of customers in the Saudi telecommunications sector revealed a high level of agreement regarding perceived environmental sustainability. The overall weighted mean for the factors constituting this dimension was 3.73 out of a 5-point scale.

Table 3: Perceived Environmental Sustainability among Saudi Telecommunications Sector Customers (N=195).

No.	Environmental Sustainability Statements	Mean	Std. Deviation	Rank	Level of Agreement
10	STC relies on using environmentally friendly technology.	3.83	0.947	1	Agree
11	STC invests in projects aimed at protecting the environment.	3.75	0.960	2	Agree
12	STC produces environmentally friendly products.	3.68	0.980	4	Agree
13	STC is distinguished by its innovation in the environmental field.	3.74	0.962	3	Agree
14	STC implements recycling practices and uses recycled materials.	3.64	0.997	5	Agree
	Overall	**3.73**	**0.854**	**-**	**Agree**

The detailed results in the preceding Table (3) indicate a consistent level of agreement, with all items falling within the "Agree" range. The highest-ranked environmental sustainability factor was "STC relies on using environmentally friendly technology," with a weighted mean of 3.83. This was followed by "STC invests in projects aimed at protecting the environment" (M=3.75). The third-ranked item was "STC is distinguished by its innovation in the environmental field" (M=3.74), followed by "STC produces environmentally friendly products" (M=3.68). The fifth and final item was "STC implements recycling practices and uses recycled materials," with a weighted mean of (3.64).

4. Value Equity: The responses of customers in the Saudi telecommunications sector revealed a high level of agreement regarding perceived value equity. The overall weighted mean for the factors constituting this dimension was 3.98 out of a 5-point scale.

Table 4: Perceived Value Equity among Saudi Telecommunications Sector Customers (N=195).

No.	Value Equity Statements	Mean	Std. Deviation	Rank	Level of Agreement
15	STC provides communication services characterized by speed.	3.90	1.060	4	Agree
16	STC's communication services are innovative and modern.	4.03	0.960	2	Agree
17	STC's communication services are suitable for use.	4.04	0.989	1	Agree
18	STC provides high-quality services in general.	3.97	1.002	3	Agree
	Overall	**3.98**	**0.894**	**-**	**Agree**

The detailed results in the preceding Table (4) indicate a consistent level of agreement, with all items falling within the "Agree" range. The highest-ranked value equity factor was "STC's communication services are suitable for use," with a weighted mean of (4.04). This was followed by "STC's communication services are innovative and modern" (M=4.03). The third-ranked item was "STC provides high-quality services in general" (M=3.97), and the fourth and final item was "STC provides communication services characterised by speed," with a weighted mean of (3.90).

5. Brand Equity: The responses of customers in the Saudi telecommunications sector revealed a high level of agreement regarding perceived brand equity. The overall weighted mean for the factors constituting this dimension was 4.08 out of a 5-point scale.

Table 5: Perceived Brand Equity among Saudi Telecommunications Sector Customers.

No.	Brand Equity Statements	Mean	Std. Deviation	Rank	Level of Agreement
19	The STC brand is easily distinguishable from competing brands.	4.29	0.838	1	Strongly Agree
20	I have a high degree of familiarity with the STC brand.	4.07	0.920	5	Agree
21	The distinctive characteristics of the STC brand come to my mind.	4.04	0.944	6	Agree
22	The STC brand has a distinctive image compared to other brands.	4.12	0.950	3	Agree
23	The STC brand is considered prestigious.	4.11	0.887	4	Agree
24	The STC brand is considered modern.	4.18	0.923	2	Agree
	Overall	**4.08**	**0.796**	**-**	**Agree**

The detailed results in the preceding Table (5) indicate two levels of agreement. The first, "Strongly Agree," included the item "The STC brand is easily distinguishable from competing brands," with a weighted mean of 4.29.

The second level, "Agree," included the remaining items, **ranked as follows** "The STC brand is considered modern" (M=4.18), followed by "The STC brand has a distinctive image compared to other brands" (M=4.12). The fourth-ranked item was "The STC brand is considered prestigious" (M=4.11), followed by the fifth-ranked item, "I have a high degree of familiarity with the STC brand" (M=4.07). The sixth and final item was "The distinctive characteristics of the STC brand come to my mind," with a weighted mean of (4.04).

6. Relationship Equity: The responses of customers in the Saudi telecommunications sector revealed a high level of agreement regarding perceived relationship equity. The overall weighted mean for the factors constituting this dimension was 3.89 out of a 5-point scale.

Table 6: Perceived Relationship Equity among Saudi Telecommunications Sector Customers.

No.	Relationship Equity Statements	Mean	Std. Deviation	Rank	Level of Agreement
25	I feel a strong emotional connection to STC.	3.83	1.098	3	Agree
26	I continue to purchase STC services and products due to a positive connection.	3.94	1.085	1	Agree
27	I am satisfied with the overall performance of STC.	3.90	1.070	2	Agree
	Overall	**3.89**	**0.968**	**-**	**Agree**

The detailed results in the preceding Table (6) indicate a consistent level of agreement, with all items falling within the "Agree" range. The highest-ranked relationship equity factor was "I continue to purchase STC services and products due to a positive connection," with a weighted mean of (3.94). This was followed by "I am satisfied with the overall performance of STC" (M=3.90).

The third and final item was "I feel a strong emotional connection to STC," with a weighted mean of (3.83).

5.2. Second: AI-Powered Customer Experience

1. AI-Powered Service Quality: The responses of customers in the Saudi telecommunications sector revealed a very high level of agreement regarding the criteria related to AI-powered service quality.

The overall weighted mean for the factors constituting this dimension was 4.21 out of a 5-point scale.

Table 7: Descriptive Statistics for Criteria Related to AI-Powered Service Quality from the Perspective of Saudi Telecommunications Sector Customers.

No.	AI-Powered Service Quality Statements	Mean	Std. Deviation	Rank	Level of Agreement
1	The STC Pay application is well-designed.	4.26	0.883	3	Strongly Agree
2	The STC Pay application is reliable.	4.27	0.827	2	Strongly Agree
3	The STC Pay application is secure.	4.29	0.812	1	Strongly Agree
4	The customer service team at STC Pay is helpful.	4.03	0.913	4	Agree
	Overall	**4.21**	**0.740**	**-**	**Strongly Agree**

The detailed results in the preceding Table (7) indicate two levels of agreement regarding the

criteria for AI-powered service quality. The first level, "Strongly Agree," **includes the criteria** "The STC Pay application is secure" (M=4.29), followed by "The STC Pay application is reliable" (M=4.27), and thirdly, "The STC Pay application is well-designed" (M=4.26). The second level, "Agree," consists of only one criterion: "The customer service team at STC Pay is helpful," with a weighted mean of (4.03).

2. Relationship Commitment: The responses of customers in the Saudi telecommunications sector revealed a neutral stance towards the criteria related to relationship commitment. As shown in Table 8, the overall weighted mean for the factors constituting this dimension was 3.21 out of a 5-point scale.

Table 8: Descriptive Statistics for Criteria Related to Relationship Commitment.

No.	Relationship Commitment Statements	Mean	Std. Deviation	Rank	Level of Agreement
5	I feel an emotional connection to the STC Pay application.	3.74	1.093	2	Agree
6	STC Pay holds significant personal meaning for me.	3.71	1.104	3	Agree
7	I feel a strong sense of identity with the STC Pay application.	3.81	1.121	1	Agree
8	It would be challenging to stop using STC Pay even if I wanted to.	2.41	1.199	6	Disagree
9	My lifestyle would be disrupted if I stopped using the STC Pay application.	2.89	1.311	4	Neutral
10	Switching from the STC Pay application would be very costly for me right now.	2.70	1.228	5	Neutral
	Overall	**3.21**	**0.429**	**-**	**Neutral**

The detailed results in the preceding Table (8) indicate three levels of agreement for the criteria related to relationship commitment. The first level, "Agree," includes the criteria: "I feel a strong sense of identity with the STC Pay application" (M=3.81), followed by "I feel an emotional connection to the STC Pay application" (M=3.74), and thirdly, "STC Pay holds significant personal meaning for me" (M=3.71). The second level, "Neutral," includes: "My lifestyle would be disrupted if I stopped using the STC Pay application" (M=2.89), and the fifth-ranked item, "Switching from the STC Pay application would be very costly for me right now" (M=2.70). The third level, "Disagree," comprises the item: "It would be challenging to stop using STC Pay even if I wanted to," with a weighted mean of (2.41).

3. Trust: The customer responses revealed a level of agreement towards the criteria related to trust. As shown in Table 9, the overall weighted mean for the factors constituting this dimension was 3.93 out of a 5-point scale.

Table 9: Descriptive Statistics for Criteria Related to Trust.

No.	Trust Statements	Mean	Std. Deviation	Rank	Level of Agreement
11	The performance of the STC Pay application always meets my expectations.	3.71	1.080	5	Agree
12	The STC Pay application has good features.	3.94	1.024	3	Agree
13	The information provided on the STC Pay application is truthful.	4.01	0.914	2	Agree
14	I trust the STC Pay application.	4.09	0.907	1	Agree
15	The STC Pay application shows concern for me as a customer.	3.92	1.007	4	Agree
	Overall	**3.93**	**0.854**	**-**	**Agree**

The detailed results in the preceding Table (9) indicate a consistent "Agree" level. The highest-ranked criterion related to trust was "I trust the STC Pay application," with a weighted mean of (4.09). This was followed by "The information provided on the STC Pay application is truthful" (M=4.01). The third-ranked item was "The STC Pay application has good features" (M=3.94), followed by "The STC Pay application shows concern for me as a customer" (M=3.92). The fifth and final item was "The performance of the STC Pay application always meets my expectations," with a weighted mean of 3.71.

4. Perceived Convenience: The customer responses revealed a level of agreement towards the criteria related to perceived convenience. As shown in Table 10, the overall weighted mean for this dimension was 4.07 out of a 5-point scale. The detailed results in the preceding Table (10) indicate a consistent "Agree" level. The highest-ranked criterion related to perceived convenience was "I can use the STC Pay application from home," with a weighted mean of (4.14). This was followed by "The STC Pay application allows me to use the service at a

convenient time" (M=4.04). The third and final item was "The STC Pay application allows me to use the service at any time I choose," with a weighted mean of (4.03).

Table 10: Descriptive Statistics for Criteria Related to Perceived Convenience.

No.	Perceived Convenience Statements	Mean	Std. Deviation	Rank	Level of Agreement
16	The STC Pay application allows me to use the service at any time I choose.	4.03	0.966	3	Agree
17	The STC Pay application allows me to use the service at a convenient time.	4.04	0.981	2	Agree
18	I can use the STC Pay application from home.	4.14	0.936	1	Agree
	Overall	**4.07**	**0.857**	**-**	**Agree**

5. Personalisation: The customer responses revealed a level of agreement towards the criteria related to personalisation. As shown in Table 11, the overall weighted mean for this dimension was 3.95 out of a 5-point scale.

The detailed results in the preceding Table (11) indicate a consistent "Agree" level. The highest-ranked criterion was "I appreciate the STC Pay application because it is customised to my personal use experience," with a weighted mean of 4.03. This was followed by "I appreciate the STC Pay application for recognising my personal preferences and customising products/services accordingly," with a weighted mean of (3.87).

Table 11: Descriptive Statistics for Criteria Related to Personalisation.

No.	Personalisation Statements	Mean	Std. Deviation	Rank	Level of Agreement
19	I appreciate the STC Pay application because it is customised to my personal use experience.	4.03	0.905	1	Agree
20	I appreciate the STC Pay application for recognising my personal preferences and customising products/services accordingly.	3.87	1.022	2	Agree
	Overall	**3.95**	**0.890**	**-**	**Agree**

6. Sacrifice: The customer responses revealed a neutral stance towards the criteria related to perceived sacrifice. As shown in Table 12, the overall weighted mean for this dimension was 2.76 out of a 5-point scale.

Table 12: Descriptive Statistics for Criteria Related to Perceived Sacrifice.

No.	Perceived Sacrifice Statements	Mean	Std. Deviation	Rank	Level of Agreement
21	I worry about losing control when using the STC Pay application.	2.73	1.277	5	Neutral
22	The STC Pay application takes a long time to complete my tasks.	2.72	1.246	6	Neutral
23	I feel annoyed when using the STC Pay application.	2.81	1.301	1	Neutral
24	I worry about losing my privacy when using the STC Pay application.	2.77	1.308	3	Neutral
25	Using the STC Pay application requires extra effort.	2.76	1.314	4	Neutral
26	I worry about the lack of human interaction when using the STC Pay application.	2.81	1.273	1 (tie)	Neutral
	Overall	**2.76**	**1.163**	**-**	**Neutral**

The detailed results in the preceding Table (12) indicate a consistent "Neutral" level of agreement. The highest-ranked criteria were "I feel annoyed when using the STC Pay application" and "I worry about the lack of human interaction when using the STC Pay application," both with a weighted mean of 2.81. The following ranked items were "I worry about losing my privacy when using the STC Pay application" (M=2.77), followed by "Using the STC Pay application requires extra effort" (M=2.76). The

fifth-ranked item was "I worry about losing control when using the STC Pay application" (M=2.73), and the final item was "The STC Pay application takes a long time to complete my tasks" (M=2.72).

6. FINDINGS OF THE STUDY

Based on the preliminary analysis of the study data and the testing of hypotheses, the general findings of the current study, titled "Perceived Sustainability among Customers of the Saudi Telecommunications Sector and its Relationship with their **AI-Powered Experiences: A Case Study of the STC," can be formulated as follows**

First-Regarding Perceived Sustainability among Customers of the Saudi Telecommunications Sector

The results of the descriptive analysis indicated that customers of the Saudi telecommunications sector hold a high level of agreement with the concept of perceived sustainability across its various dimensions. A high level of approval for economic sustainability was evident, with customers expressing positive perceptions of STC's corporate management transparency, application of corporate governance principles, and level of institutional accountability. Similarly, customers showed strong agreement towards perceived social sustainability, acknowledging the company's commitment to its social responsibilities, its attention to human rights, its positive contributions to social domains, its provision of supportive activities for local communities, its reliance on local employment, and its contributions to volunteer work. On the environmental sustainability front, responses showed a good level of agreement, reflecting customers' awareness of STC's use of environmentally friendly technology, its investment in environmental protection projects, its pursuit of environmental innovation, and its application of recycling practices.

In a related context, the researcher notes an interesting paradox. While customers showed high appreciation for governance principles and corporate accountability, they also expressed scepticism about the extent to which these practices yield tangible benefits for them as customers. It was also observed that perceptions of economic sustainability are closely linked to customers' perceptions of the company's ability to balance profitability with social responsibility.

While customers praised social initiatives, the analysis revealed an implicit expectation for STC to play a more effective role in empowering local communities, one that transcends the ceremonial nature of current social programs. The findings suggest that the STC brand benefits disproportionately from its social investments, raising questions about the actual depth of the societal impact of these programs.

Furthermore, the analysis revealed a stark contradiction between the generally positive perception of environmental sustainability and the lower evaluation of specific practices like recycling. This indicates the dominance of marketing campaigns on perceptions compared to practical reality. Customers also demonstrated a growing awareness of the trade-off between technological advancement and its environmental costs, particularly concerning network infrastructure and energy consumption.

Second-Regarding Perceived Equity among Customers of the Saudi Telecommunications Sector

Regarding perceived equity, the findings revealed a high degree of customer agreement towards value equity, brand equity, and relationship equity. Customers demonstrated positive perceptions of the quality, speed, innovation, and suitability of the communication services offered by STC. The STC brand was also found to have high distinguishability among competitors, good familiarity among customers, and a distinct, modern, and prestigious image. Additionally, customers expressed feelings of positive emotional connection with STC and satisfaction with its overall performance, indicating a good level of perceived relationship equity.

Third-Regarding the AI-Powered Customer Experience

The descriptive analysis of variables related to the AI-powered customer experience, using the STC Pay application as a model, showed varying levels of agreement. Customers expressed a very high level of agreement with the quality of the AI-powered service, acknowledging the security, reliability, and sound design of the STC Pay application, as well as the helpfulness of its customer service team. In contrast, customers showed a neutral stance towards relationship commitment with the STC Pay application, with differing opinions on the difficulty of discontinuing its use, its impact on their lifestyle, and the cost of switching. As for trust in the STC Pay application, customers showed a good level of agreement, recognising the app's performance alignment with their expectations, its good features, the truthfulness of the information provided, and a sense of being cared for by the application. Customers also showed a high level of agreement with the perceived convenience of using the STC Pay application, particularly the ability to use it anytime and anywhere. Regarding personalisation,

customers expressed good agreement, appreciating that the application is tailored to their personal experience and recognises their preferences. Finally, customers showed a neutral stance towards perceived sacrifice when using the STC Pay application, with some concern about loss of control, privacy, and lack of human interaction, as well as the perception that the application might be time-consuming or require extra effort.

From the above, it is clear that customers expressed high satisfaction with the service quality provided via AI-powered applications, focusing on factors like security, reliability, and ease of use. Customers also showed significant trust in these applications, praising their accessibility at any time and from any place, which provided them with great convenience. While they acknowledged the benefits of AI-driven personalisation, some customers expressed concerns about privacy and the loss of control over personal data. This highlighted several challenges, such as anxiety over the lack of human interaction and the difficulty some customers face in relinquishing the application due to high dependency.

A new pattern of hybrid trust has formed, where customers trust the technical performance of the application but retain deep-seated doubts about the integrity of how their data is used. A state of "critical dependence" has also emerged, where users acknowledge their need for the application while maintaining a critical stance towards it, especially regarding data transparency.

While customers appreciate personalisation features, they experience what can be termed "growing privacy anxiety" where their concerns increase in tandem with the degree of personalisation. The analysis showed that customers are developing psychological mechanisms to cope with this paradox, such as using maximum privacy settings while continuing to benefit from personalisation features.

The findings revealed a phenomenon of "nostalgia for human interaction," even among younger generations who grew up in the digital age, showing an unexpected longing for human contact even in the simplest transactions. This has given rise to the need for what could be called an "emotional-technical balance" in user interface design, where customers prefer innovative systems but with the option for quick access to human representatives when desired.

Fourth-Regarding the Testing of Study Hypotheses and Relationships between Variables

The results of the structural equation modelling revealed the existence of direct and indirect effects among the study variables. In terms of direct effects, it was found that perceived convenience, personalisation, and service quality have a positive and statistically significant impact on trust in the AI-powered customer experience. Personalisation also directly and positively affects perceived sacrifice. Most importantly, the results showed that trust and sustainability have a direct, positive, and statistically significant effect on the AI-powered customer experience. In turn, the AI-powered customer experience has a direct, positive, and statistically significant effect on perceived sustainability.

On the other hand, a direct effect was not proven for service quality on perceived sacrifice, for personalisation on relationship commitment, for perceived convenience on perceived sacrifice, or relationship commitment and perceived sacrifice on the AI-powered customer experience. Similarly, no significant indirect effects were found for service quality, personalisation, and perceived convenience on AI-powered customer experiences through the proposed mediating variables.

Fifth-The Relative Importance of Variables in Shaping the AI-Powered Customer Experience

The study's findings underscored the paramount importance of the trust variable in shaping the AI-powered customer experience, followed in importance by the perceived sustainability variable. This indicates that building trust and fostering positive perceptions of STC's sustainability practices play a crucial role in enhancing the AI-powered customer experience.

It is evident from the above that a positive interactive loop exists, where successful AI experiences enhance perceptions of sustainability, which in turn reinforces the acceptance of AI solutions. This reciprocal relationship creates a positive amplification effect, where improvement in one area non-linearly enhances the other. This suggests that investing in both domains can boost overall customer loyalty and satisfaction.

Trust is a critical factor in enhancing AI experiences, as customers who trust AI-powered applications tend to evaluate them more positively and rely on them more heavily. Despite these positive aspects, there remains a need to address customer concerns, especially those related to privacy and human interaction, to ensure a balanced and acceptable experience for all segments.

7. DISCUSSION

This research sought to explore the complex interplay between perceived sustainability and AI-driven customer experience in the context of the

Saudi telecommunications industry, with STC as a case in point. The results demonstrate a bidirectional, intricate dynamic in which customer experience of corporate ethics and functional excellence of technology are inextricably linked. The following discussion will contextualise the main findings within the extant literature, exploring the subtleties of perceived sustainability, the complexity of the AI-driven customer experience, and the essential interplay between these two fields.

7.1. The Paradox of Perceived Sustainability

One of the main results of this research is the strong customer alignment with STC's economic, social, and environmental sustainability commitment. This favorable perception is consistent with an increasing literature that proves sustainable marketing and corporate social responsibility initiatives immediately contribute to brand image and customer loyalty (Haddad, 2024; Mguidich, 2024; Mohamed, 2025). The high governance and accountability scores, for example, echo research by Junaid (2024) and Abd Al-Reda & Mohamed (2024), which highlights the significance of sound governance and reporting in establishing corporate credibility.

The analysis reveals, however, an intriguing paradox. Though customers praise STC's avowed commitments, there is underlying scepticism regarding the material effect of these initiatives? That such a gap exists between perception and experienced reality indicates that though communication initiatives are pragmatic, as noted by Abdel-Fattah (2024), they might not be entirely supported by the customer's immediate experience. This is seen especially in the environmental aspect, where customers have a generally favourable impression of STC's green initiatives but provide low marks for specific, measurable practices such as recycling. This gap implies that marketing discourses are more impactful than operational realities, a finding that resonates with Abu Al-Naja's (2018) finding that sustainable marketing affects brand image more than immediate buying behaviour.

7.2. The Hybrid Nature of the AI-Powered Experience

The research's investigation into the AI-driven customer experience, as modelled by the STC Pay app, demonstrates a complex and paradoxical user relationship with technology. On the one hand, the results indicate very high satisfaction with the functional elements of the AI service its reliability, security, and convenience. This confirms research by Salem & Ahmed (2023) and Abdel-Rahman (2024), which correlates digital technology with a better and more effective customer experience.

On the other hand, the data reveals significant user ambivalence. The neutral stance on relationship commitment and the outright disagreement with the idea of being unable to switch away from the service point to a state of "critical dependence." Users value the utility of the AI tool but resist complete emotional or behavioural lock-in. This gives rise to what the findings term "hybrid trust": customers trust the technology to perform a task reliably but remain wary of the corporate entity's use of their data. This aligns with the challenges identified by Nabil (2023), who noted that technical, organisational, and ethical barriers complicate AI implementation.

In addition, the prevalence of "privacy anxiety" and a "nostalgia for human interaction" are essential findings. While customers accept the personalisation and convenience of AI, they are worried about control over data and miss the aspect of human contact. It follows that the optimal customer experience is not one that is completely automated but a hybrid model that blends technological efficiency with available human support, an essential challenge for contemporary Customer Experience Management (Verhoef et al., 2009).

7.3. The Symbiotic Relationship between AI Experience and Sustainability

The greatest contribution of this research is the validation of the direct, positive, and bidirectional relationship between the AI-based customer experience and perceived sustainability. The structural equation model identified trust and perceived sustainability as the most influential predictors of a positive AI experience. This means that a customer's intention to use and enjoy an AI application such as STC Pay greatly relies on their view of STC as an ethical and sustainable corporation. In this regard, sustainability is not an ancillary marketing endeavor but a constitutive component of digital trust.

In contrast, a good AI experience was directly and significantly positively correlated with perceived sustainability. When AI-driven services are dependable, safe, and easy to use, they seem to reinforce the customer's general impression of the company's competence and integrity, which spills over into their impression of its sustainability commitments. This generates a strong, positive feedback loop: investments in effective and transparent AI can enhance a company's sustainability credentials, while strong sustainability

credentials can enhance the uptake and appreciation of its AI services. This result empirically validates the idea that technology and sustainability are no longer distinct strategic pillars but are intertwined in the mind of the contemporary consumer. As companies like STC increasingly embed AI, its ethical implementation will be indistinguishable from the general story of corporate responsibility, ultimately influencing customer equity and long-term loyalty (Mahmoud, 2020).

8. LIMITATIONS OF THE STUDY

Although this research offers useful information on the interplay between perceived sustainability and AI-driven customer experiences, its conclusions need to be viewed against the backdrop of some limitations. These limitations, inherent in the scope and design of the research, present opportunities for future research.

8.1. Sampling and Generalizability

The major limitation of the study concerns its sample. The employment of a purposive, convenience sampling strategy yielded a sample that was largely made up of young, female customers of one telecommunications company (STC) in Saudi Arabia. This age and provider-specific concentration limits the generalizability of the results. Perceptions and behaviour could be quite different for other age groups, genders, and customers of other telecommunications providers. Hence, care should be taken in extending these findings to the general population of telecommunications users.

8.2. Cross-Sectional Research Design

The research utilized a cross-sectional design, measuring data at one point in time. Although useful for determining relationships and associations among variables, it is unable to determine causality or follow the development of customer attitudes over time. The notions of "hybrid trust" and "privacy anxiety," for example, are not static and will presumably shift as AI technology becomes increasingly pervasive and advanced. A longitudinal research design would be needed to discern these developmental patterns.

8.3. Dependence on Self-Reported Information

Data were gathered through questionnaires, which are based on self-reported perceptions and attitudes. This approach is open to a number of potential biases, such as social desirability bias (respondents may respond in a manner they think is more socially acceptable) and recall bias. Therefore, what the customers report may not necessarily reflect their true subconscious attitudes or behaviour.

8.4. Scope of AI Application

The research centered on the STC Pay app as the main example of the AI-driven customer experience. Although STC Pay is a leading case of a customer-oriented AI service, it does not represent the complete range of AI technologies applied in the telecom industry (e.g., AI-powered network management, customer service chatbots, personalized marketing algorithms). Customer experience and attitudes can differ considerably based on the concrete AI touchpoint, and the results might not be generalizable to every type of AI interaction.

Recognizing these limitations is important for an even-handed interpretation of the findings and to inform future research in this key and fast-moving area.

9. CONCLUSION AND RECOMMENDATION

This research sought to investigate the connection between perceived sustainability and AI-driven customer experience in the Saudi telecommunications industry. The study has shown that these two fields, frequently addressed as separate corporate functions, are intimately and reciprocally connected in the mind of today's consumer. The results arrive at a definitive conclusion that during a time of digital change, a firm's moral stance and its technological abilities are not independent drivers of customer loyalty but are integrated into one, multifaceted assessment of corporate trustworthiness.

The research found that although STC customers have generally favourable perceptions of the company's approach to sustainability, there is a major paradox. Corporate accountability and social responsibility are perceived as high. Yet, there is an undercurrent of scepticism about the practical effects of these initiatives, which points to a disjunction between marketing communication and everyday experience. At the same time, the customer's engagement with AI technology is one of "critical dependence." Although the functional advantages of AI-driven services such as STC Pay convenience, security, and reliability are appreciated, this admiration is guarded by concerns about data privacy, loss of human contact, and resistance to full emotional or behavioural engagement.

The key contribution of this study is the empirical validation of a symbiotic relationship in which perceived sustainability and trust are at the core of a

good AI experience. Conversely, a smooth and reliable AI experience reaffirms positive perceptions of the firm's overall sustainability. This generates a strong feedback loop in which corporate ethics and technological capability reinforce each other. Trust does not just appear as an element of this relationship, but as the critical facilitator that makes it possible.

This research has its share of limitations. The sample consisted mainly of young, female customers of one Telecommunications Company, and this may restrict the generalizability of the results to other groups and business settings. Future studies should thus attempt to confirm these findings on a more heterogeneous population and in various industries. Longitudinal research would also be useful to observe how "hybrid trust" and "privacy anxiety" develop over time with AI becoming increasingly part of everyday life.

In closing, this study offers strong evidence that for businesses working at the nexus of technology and public life, the way forward to durable customer relationships is two-tracked. It demands a concurrent dedication to open, effective sustainability and to the cultivation of human-centered, reliable AI. As organisations go forward, they should be aware that the digital trust they establish is directly intertwined with the social and environmental trust they gain. The future of customer loyalty will be marked not by technology or ethics separately, but by the flawless conjunction of the two.

9.1. RECOMMENDATIONS

- Develop a three-dimensional sustainability model that links customer economic benefits with the company's sustainable practices.
- Redesign corporate social responsibility programs to maximise tangible impact while minimising the "performative" impression.
- Develop "transparent" artificial intelligence models that allow users to understand how algorithms work and make decisions.
- Build an innovative "hybrid" system that preserves the human element at critical points in the customer journey.
- Develop communication strategies that proactively address the psychological paradoxes among customers, especially around issues of privacy and dependency.
- Design awareness programs that help customers understand the trade-offs between convenience and privacy, and the environmental benefits of digital technology.

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