

Conversion Funnel Optimization and Sustainable Tourism Performance: Evidence from Uganda Wildlife Authority

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Abstract

This study concerns itself with optimization of sustainable tourism performance with evidence from Uganda. The digital transformation of tourism has elevated conversion funnel optimization as a key driver of tourism performance and sustainability. This study seeks to examine the effects of sustainable tourism performance in Uganda. It examined its effect on sustainable tourism performance at the Uganda Wildlife Authority (UWA) in particular using a descriptive, correlational, cross-sectional design with mixed methods. Data were collected from 65 staff and tourists interacting with UWA digital platforms and analyzed using descriptive statistics, Pearson correlation, and regression analysis. Results show that conversion funnel optimization was moderately implemented (Mean = 3.09, SD = 1.093), with weaknesses in error recovery, booking delays, and user guidance, despite strengths in confirmation processes and session continuity. A very strong positive relationship was found between conversion funnel optimization and sustainable tourism performance ($r = 0.912$, $p < 0.001$), explaining 82.9% of the variance (Adjusted $R^2 = 0.829$). The study concludes that conversion funnel optimization significantly enhances tourist engagement, booking completion, and sustainability outcomes. It recommends improving system integration, reducing process inefficiencies, strengthening error handling, and enhancing real-time digital support.

Keywords: *Conversion funnel optimization; digital tourism; sustainable tourism performance; online booking systems; Uganda Wildlife Authority.*

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Introduction

The sustainability of tourism systems is increasingly dependent on the effective integration of digital technologies that facilitate the attraction, engagement, and conversion of potential visitors into actual tourists. This transformation is fundamental for ensuring destination competitiveness, enhancing visitor experiences, and improving tourism performance outcomes in an increasingly digital global economy (Buhalis & Law, 2008; Gretzel, Sigala, Xiang, & Koo, 2020). The growing reliance on digital platforms means that tourism success is no longer determined merely by visibility or online presence, but by the ability of destinations to efficiently manage user journeys that translate interest into completed bookings and actual visitation. Tourism in protected areas embodies a tension that has intensified in the digital era: sophisticated marketing technologies can now target and convert potential visitors with unprecedented precision, yet the ecological and social carrying capacities of the destinations being marketed remain finite and often fragile. Conversion funnel optimization the systematic refinement of the traveler journey from awareness through interest, desire, action, and loyalty has become a central concern of destination marketing organizations (DMOs) worldwide¹. Simultaneously, the imperative to measure and manage sustainable tourism performance has generated a substantial body of research on indicator systems, certification schemes, and composite indices. Yet these two literatures have developed largely in parallel, with limited cross-fertilization.

Within this digital transformation context, conversion funnel efficiency has become central to how tourism destination's structure and manage online visitor interactions. The funnel reflects a sequence of stages through which potential tourists progress, and inefficiencies at any stage may disrupt decision-making and reduce the likelihood of conversion into actual travel behavior (Lemon & Verhoef, 2016; Xiang, Magnini, & Fesenmaier, 2015). This indicates that the performance of tourism systems is increasingly shaped by how effectively digital pathways are designed to support seamless user progression across engagement stages.

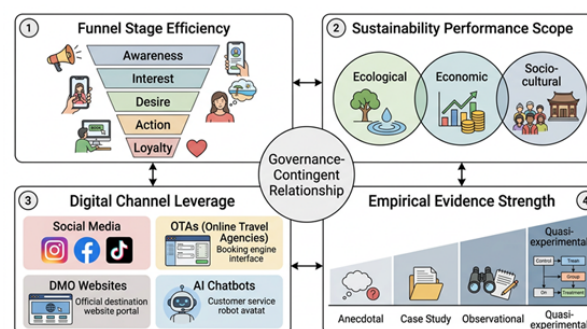
Despite this advancement, evidence from tourism literature suggests that many destinations continue to experience challenges in ensuring smooth conversion of online engagement into confirmed tourism activity. These challenges are often associated with fragmented digital systems, usability constraints, and weak integration across booking platforms, which collectively limit the efficiency of online tourism processes (Law, Buhalis, & Cobanoglu, 2020; Neuhofer, Buhalis, & Ladkin, 2019). In developing economies, these challenges may be more pronounced due to infrastructural and technological limitations that constrain the effectiveness of digital tourism ecosystems (World Bank, 2022; UNWTO, 2023).

In Uganda, the tourism sector has increasingly adopted digital platforms to support marketing, booking, and visitor engagement processes. However, sector reports suggest that challenges remain in ensuring seamless conversion of online interest into actual park visitation and tourism consumption. The Uganda Tourism Board (2023) indicates that inefficiencies such as system delays, fragmented booking processes, and limited integration across digital platforms may constrain the smooth progression of users through the tourism booking journey. These inefficiencies are particularly relevant to institutions such as the Uganda Wildlife Authority, where digital systems play a central role in managing tourism demand and visitor flow.

Such limitations may result in reduced booking completion rates, loss of potential revenue, and suboptimal utilization of tourism resources, thereby affecting overall sector performance. At the same time, global tourism studies suggest that destinations with inefficient digital conversion systems may experience reduced competitiveness and weaker tourism performance outcomes compared to those with optimized digital ecosystems (UNWTO, 2023; Li, Robinson, & Oriade, 2021). This implies that the effectiveness of digital conversion systems may have broader implications for tourism sustainability, including economic returns, conservation financing, and community benefits. The rapid shift toward digital tourism systems has intensified the need for effective mechanisms that ensure online engagement translates into actual tourist participation and measurable performance outcomes (Chaffey & Ellis-Chadwick, 2019). In this evolving context, the efficiency of conversion processes within digital platforms has become central to how tourism institutions achieve sustainability goals. Despite this shift, many destinations continue to experience inefficiencies in guiding potential visitors through complete digital booking journeys, resulting in lost opportunities for visitation and revenue generation (Uganda Tourism Board, 2023). It is against this background that this study investigates the effect of conversion funnel optimization on sustainable tourism performance at the Uganda Wildlife Authority. The study seeks to contribute evidence on how digital conversion efficiency can enhance tourism outcomes and support decision-making among tourism managers, policymakers, and destination development stakeholders in Uganda.

The ACSE matrix, as illustrated in Figure 1, organizes this review across four analytical dimensions. Including surveys of evolution of conversion funnel architectures in tourism marketing, from classical AIDA models to contemporary digital customer-decision-journey (CDJ) adaptations.

Figure 1. ACSE matrix framework for evaluating conversion funnel–sustainability interactions



Source: Authors' own conceptualization.

The rest of this paper consists of literature review in section two, methodology in section 3, results and discussion in section 4 and finally conclusion and recommendation.

Literature review

The literature review includes theoretical, conceptual and empirical studies from both marketing and sustainability disciplines, with a deliberate emphasis on evidence from wildlife-conservation tourism settings. The Uganda Wildlife Authority serves as an illustrative empirical context: its permit-based pricing model for gorilla and chimpanzee trekking creates a natural experiment in supply-constrained funnel optimization, making it an instructive case for examining the funnel–sustainability interface.

Theoretical Framework

This study is grounded on the Conversion Funnel Theory, the Customer Journey Theory, and the Sustainable Tourism Development Theory, which collectively provide a robust foundation for understanding the relationship between conversion funnel optimization and sustainable tourism performance at the Uganda Wildlife Authority (UWA). The rationale for choosing this theory is in its suitability to offer a modest explanation of the link between conversion funnel optimization and sustainable tourism performance.

Conversion Funnel Theory originates from the AIDA model (Attention–Interest–Desire–Action) developed by Strong (1925) and further refined in digital marketing literature (Chaffey & Ellis-Chadwick, 2019). The theory explains how potential customers move through sequential stages before making a final decision, with each stage representing a potential point of conversion or dropout. In the context of digital tourism, the conversion funnel represents the structured pathway through which potential tourists transition from destination awareness to booking completion. Chaffey and Ellis-Chadwick (2019) emphasize that optimizing each stage of the funnel reduces user friction, improves engagement, and increases conversion rates. Similarly, Saleh and Shukairy (2010) argue that systematic funnel optimization enhances user experience and maximizes organizational performance outcomes. Within Uganda's tourism sector, particularly at UWA, this theory is relevant because it explains how improvements in online booking systems, user interface design, and transaction processes can directly influence tourist conversion and performance outcomes.

The Customer Journey Theory (Lemon & Verhoef, 2016) provides a comprehensive explanation of how customers interact with organizations across multiple touchpoints before, during, and after purchase decisions. The theory emphasizes that customer experience is not linear but dynamic, shaped by digital interactions, emotional

responses, and service quality at each stage of engagement. In digital tourism systems, the customer journey includes stages such as information search, destination evaluation, booking, payment, and post-visit engagement. According to Lemon and Verhoef (2016), optimizing the customer journey enhances satisfaction, loyalty, and conversion outcomes. Neuhofer, Buhalis, and Ladkin (2019) further highlight that smart tourism ecosystems rely on seamless, integrated digital experiences that reduce fragmentation across touchpoints. This theory is particularly relevant to this study because conversion funnel optimization directly enhances the efficiency and smoothness of the customer journey, thereby improving sustainable tourism performance.

Sustainable Tourism Development Theory is grounded in the Brundtland Commission Report (1987) and advanced by the UNWTO (2023), which defines sustainable tourism as tourism that meets present needs without compromising the ability of future generations to meet their own needs. The theory emphasizes the integration of economic viability, environmental protection, and socio-cultural sustainability in tourism development. Butler (1999) further argues that tourism destinations must balance growth with resource conservation to ensure long-term competitiveness and sustainability. In the digital era, Li, Robinson, and Oriade (2021) note that technology plays a key role in enhancing tourism efficiency, resource allocation, and destination competitiveness. Similarly, Gretzel et al. (2020) emphasize that smart tourism technologies contribute to sustainability by improving decision-making, visitor flow management, and revenue optimization. In the context of UWA, this theory supports the understanding that improved conversion funnel efficiency contributes not only to higher booking rates but also to enhanced revenue generation and sustainable management of tourism resources.

Conversion Funnel Theory explains the structure of digital conversion processes, Customer Journey Theory explains user experience across multiple touchpoints, and Sustainable Tourism Development Theory explains the broader economic, environmental, and social outcomes of tourism systems. Together, they demonstrate that optimizing digital conversion pathways enhances both operational efficiency and sustainable tourism performance at UWA.

Conceptual Review

Conversion funnel optimization refers to the systematic improvement of the stages through which potential customers move from initial awareness to final action, such as booking or purchase, by reducing friction and enhancing user experience (Chaffey & Ellis-Chadwick, 2019; Saleh & Shukairy, 2010). In digital tourism environments, the conversion funnel represents the structured pathway that guides online users from destination discovery to actual visitation, making it a central mechanism in tourism marketing performance (Lemon & Verhoef, 2016).

In contemporary e-tourism systems, conversion funnel optimization has gained importance due to the increasing reliance on digital platforms for travel planning and booking. According to Kingsnorth (2019), effective funnel optimization requires continuous improvement of user interface design, content relevance, and transaction efficiency to maximize conversion rates. Similarly, Wedel and Kannan (2016) argue that data-driven marketing analytics enhance the ability of organizations to identify drop-off points and optimize customer journeys.

In tourism-specific contexts, Xiang, Magnini, and Fesenmaier (2015) highlight that online travel decision-making is highly sensitive to usability, trust, and information clarity, all of which influence conversion success. Neuhofer, Buhalis, and Ladkin (2019) further emphasize that smart tourism ecosystems depend on seamless digital experiences that integrate information search, booking, and post-purchase engagement. Conversion funnel optimization is therefore conceptualized in this

study as the ability of a tourism organization to streamline digital user journeys, minimize abandonment rates, enhance booking completion, and improve overall digital engagement efficiency.

Sustainable tourism performance refers to the ability of tourism systems to achieve long-term economic viability while ensuring environmental protection and social equity (UNWTO, 2023; World Commission on Environment and Development, 1987). It reflects the balance between tourism growth, conservation of natural resources, and benefits to local communities, making it a multidimensional construct in tourism development.

According to the World Tourism Organization (UNWTO, 2023), sustainable tourism performance includes indicators such as tourist arrivals, revenue generation, community participation, and environmental conservation outcomes. Butler (1999) emphasizes that tourism sustainability is dependent on maintaining destination competitiveness while avoiding resource depletion and socio-cultural degradation.

In the digital era, sustainable tourism performance is increasingly influenced by technological systems that shape tourist behavior and decision-making processes. Li, Robinson, and Oriade (2021) argue that digital transformation in tourism improves efficiency in demand generation and resource allocation, thereby enhancing sustainability outcomes. Similarly, Gretzel et al. (2020) note that smart tourism technologies improve destination competitiveness by enabling real-time interaction, personalization, and improved visitor management.

In the context of developing economies such as Uganda, the World Bank (2022) observes that digital tourism platforms can significantly improve tourism revenue and accessibility, although infrastructural and system inefficiencies may limit full optimization of benefits. Uganda Tourism Board (2023) further notes that improving digital tourism systems is essential for enhancing national tourism performance and global competitiveness.

In this study, sustainable tourism performance is operationalized as improvements in tourist engagement, booking completion rates, revenue generation, and overall tourism system efficiency.

Effect of Conversion Funnel Optimization on Sustainable Tourism Performance

Conversion funnel optimization plays a critical role in determining how effectively digital tourism platforms convert online engagement into actual travel behavior and measurable tourism outcomes. In smart tourism environments, visitor decision-making is structured through interconnected digital pathways that shape how information is accessed, evaluated, and acted upon, ultimately influencing booking completion and destination choice (Xiang & Gretzel, 2020; Buhalis, Leung, & Law, 2021). Within this process, conversion funnels function as structured mechanisms that guide users from awareness to action, where efficiency at each stage determines overall system performance.

From a theoretical standpoint, funnel optimization enhances tourism outcomes by reducing friction, improving usability, and strengthening decision clarity across the customer journey. Wedel and Kannan (2020) argue that effective optimization relies on identifying and eliminating bottlenecks that interrupt user progression, while Rodríguez-Torrico et al. (2020) emphasize that structured digital flows reduce cognitive overload and support faster decision-making. Similarly, Neuhofer, Buhalis, and Ladkin (2019) note that smart tourism systems enhance conversion efficiency through integrated services, personalization, and real-time information delivery, which collectively improve user engagement and booking completion rates.

Empirical evidence further confirms that optimized digital funnels significantly influence tourism performance indicators such as conversion rates, revenue generation, and destination competitiveness. Xiang, Magnini, and Fesenmaier (2021) observe that inefficiencies in online tourism systems, particularly between information search and booking stages, lead to high abandonment rates. In the same vein, Kim and Fesenmaier (2021) argue that tourists are more likely to complete bookings when digital platforms are intuitive, seamless, and trustworthy. Gretzel et al. (2020) further emphasize that smart tourism technologies translate digital engagement into measurable outcomes by improving service integration and visitor experience.

However, the effectiveness of conversion funnel systems is often constrained by structural and technological limitations, particularly in developing economies. The World Bank (2022) and UNWTO (2023) highlight persistent challenges such as weak ICT infrastructure, fragmented digital ecosystems, and limited data analytics capacity, which hinder seamless conversion processes. Law, Buhalis, and Cobanoglu (2020) similarly note that complex booking procedures and poor interface design significantly increase user drop-off rates, reducing overall system efficiency. In mobile-based tourism environments, Gao and Bai (2021) further confirm that slow loading speeds and excessive input requirements increase abandonment behavior among users.

In Uganda, these challenges are reflected in ongoing inefficiencies within digital tourism systems managed by institutions such as the Uganda Wildlife Authority. Reports by the Uganda Tourism Board (2023) and NITA-U (2022) indicate that fragmented booking platforms and limited system integration continue to disrupt the tourist journey from interest to confirmed visitation. Such inefficiencies reduce the ability of tourism institutions to fully convert online engagement into park visits and revenue generation, thereby constraining sustainable tourism performance.

From a sustainability perspective, effective funnel optimization contributes not only to improved economic returns but also to enhanced resource management and destination sustainability. Li, Robinson, and Oriade (2021) argue that digital transformation improves tourism efficiency by optimizing demand flows and reducing operational inefficiencies. Similarly, the UNWTO (2023) emphasizes that well-integrated digital systems enhance tourism sustainability by improving visitor distribution, conservation financing, and community benefits.

Despite these benefits, existing literature shows that many tourism systems in developing contexts still lack advanced optimization tools such as real-time analytics, AI-driven personalization, and continuous A/B testing, which are essential for identifying and correcting funnel inefficiencies (Wedel & Kannan, 2020; Dwivedi et al., 2021). This gap limits the ability of tourism organizations to continuously improve conversion efficiency and maximize performance outcomes.

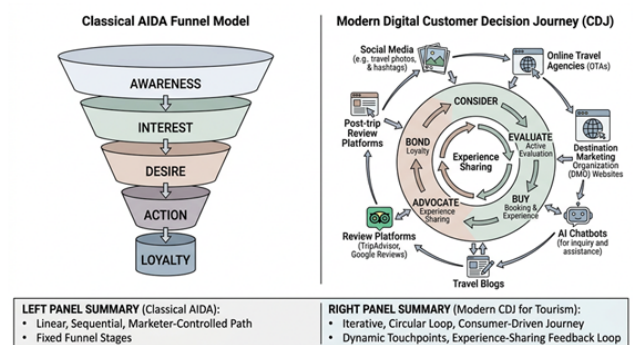
While conversion funnel optimization is widely recognized as a driver of digital tourism performance, there remains limited empirical evidence on its influence within fragmented ICT environments such as Uganda. This creates a contextual and conceptual gap, particularly in understanding how funnel optimization affects sustainable tourism performance within Uganda Wildlife Authority's digital tourism ecosystem.

The transition from AIDA to CDJ-based funnel models in tourism reflects a shift from linear persuasion to iterative, multi-touchpoint engagement, yet core conversion-stage definitions remain contested across marketing sub-disciplines. The classical AIDA model — Attention, Interest, Desire, Action — originated in personal selling and was adapted to tourism marketing in the late twentieth century, where it provided a parsimonious

framework for understanding how destination advertising moves potential travelers toward purchase⁵. Early tourism applications treated the funnel as a linear, marketer-controlled sequence: DMOs broadcast awareness messages, travelers progressed through interest and desire, and conversion was measured as bookings or arrivals.

The Customer digital journey (CDJ) framework, adapted to tourism reconceptualizes the funnel as a non-linear, consumer-driven journey with multiple feedback loops. Figure 2 contrasts the classical AIDA structure with the digital CDJ model, highlighting the shift from linear, marketer-controlled sequences to iterative, consumer-driven engagement. Lee's extended AIDA framework with CDJ-inspired evaluative mechanisms demonstrates that the contemporary tourist journey involves iterative evaluation across multiple digital touchpoints, with travelers moving between stages in non-sequential patterns¹. Kerr and colleagues provided early empirical evidence that business travelers could be converted to holidaymakers through destination exposure, anticipating the CDJ concept of cross-context journey integration⁶. However, a persistent challenge is that core conversion-stage definitions — what constitutes “interest” versus “desire” in a tourism context — remain contested. Generic marketing definitions map poorly onto the experiential, high-involvement nature of travel decisions, where the “dream phase” and post-trip experience-sharing constitute additional stages absent from standard consumer-goods funnels.

Figure 2. Comparison of classical AIDA funnel and digital CDJ model in tourism



Source: Adapted from Strong (1925) for the AIDA model and Court et al. (2009) for the Customer Decision Journey model, extended with tourism-specific digital touchpoints.

Methodology

Research Design

The study adopted a descriptive, correlational, and cross-sectional survey design. The descriptive design was used to examine the prevailing practices of conversion funnel optimization and sustainable tourism performance at the Uganda Wildlife Authority (UWA), focusing on the nature of the research problem, the processes involved, the participants engaged, and the contextual timing surrounding the study. The correlational design was employed to determine the relationship between conversion funnel optimization and sustainable tourism performance, while the cross-sectional design enabled the collection of data from respondents at a single point in time without requiring follow-up (Creswell, 2014; Saunders, Lewis, & Thornhill, 2019).

The study employed both quantitative and qualitative approaches. The quantitative approach facilitated the collection of numerical data for statistical analysis, whereas the qualitative approach provided in-depth insights into respondents' experiences and perceptions regarding digital conversion processes and sustainable tourism outcomes.

Study Area and Population

The study focused on sustainable tourism performance in Uganda, with a specific case study of the Uganda Wildlife Authority (UWA). This area was selected to explore how sustainable tourism performance is influenced by digital tourism practices, particularly conversion funnel optimization, within one of Uganda's principal conservation and tourism institutions. The Uganda Wildlife Authority was chosen because of its central role in managing wildlife-based tourism and facilitating visitor access to national parks and protected areas through digital platforms and booking systems. This provided a relevant context for understanding the factors that contribute to sustainable tourism performance, including the effectiveness of digital conversion processes and other operational practices that may influence tourist engagement, visitation, revenue generation, conservation financing, and community benefits.

The study population consisted of 80 respondents, including officers involved in digital systems, tourism marketing, reservations, communications, and customer experience management, as well as tourists who had interacted with UWA's digital tourism platforms and services. The selection of this population was driven by their direct involvement and experiences in managing and utilizing digital tourism systems that facilitate the conversion of online interest into actual park visits and tourism outcomes. Their diverse positions and experiences made them valuable participants for a comprehensive examination of the relationship between conversion funnel optimization and sustainable tourism performance at the Uganda Wildlife Authority.

Sample Size and Sampling Design

A sample size of 68 respondents was determined using the table developed by Krejcie and Morgan (1970) for finite populations.

Table 1: population and sample size determination

Category	Population	Sample Size	Sampling Technique
Officers	55	44	Simple Random Sampling
Heads of Departments	5	5	Census Sampling
Tourists	20	19	Simple Random Sampling
Total	80	68	

Source: UWA Data Survey, 2026

Simple random sampling was used to select officers and tourists to ensure that each respondent had an equal chance of participation. Census sampling was employed for departmental heads because of their strategic knowledge regarding digital tourism systems and visitor conversion processes.

Data Collection Methods and Instruments

Primary data were collected using self-administered questionnaires and key informant interviews. The questionnaires were used to gather quantitative data on conversion funnel optimization and sustainable tourism performance, while key informant interviews provided qualitative insights into digital booking processes, visitor engagement, and tourism outcomes within the UWA.

Secondary data were obtained from institutional reports, government policy documents, and scholarly literature to provide contextual and empirical support for the study. These sources helped to complement and validate the primary data and to situate the findings within existing literature on digital tourism systems and performance.

Validity and Reliability

The validity of the research instruments was assessed using the Content Validity Index (CVI). The overall CVI exceeded the recommended

threshold of 0.80, indicating that the instrument adequately measured the constructs under investigation (Polit & Beck, 2003).

Reliability was assessed using Cronbach's Alpha coefficient. The reliability coefficients for conversion funnel optimization and sustainable tourism performance exceeded the recommended threshold of 0.70, indicating satisfactory internal consistency of the research instrument (Mugenda & Mugenda, 2003). Reliability statistics are presented in Table 2 below.

Table 2: Reliability statistics

Table 3.2: Reliability Statistics			
Variables	Cronbach's Alpha	No. of Items	Census Sampling
Conversion funnel optimization	.896	10	Simple Random Sampling
Sustainable tourism performance	.861	8	

Source: Primary Data, 2026

Data Collection Procedure

An introductory letter was obtained from Ndejje University to secure permission from the Uganda Wildlife Authority (UWA) to conduct the study. Upon approval, the researcher engaged relevant departmental heads and the Human Resource Department to access selected participants. Data were collected using self-administered questionnaires and key informant interviews, with questionnaires distributed and retrieved at an agreed time, while interviews were conducted with key personnel in ICT, tourism marketing, reservations, and customer experience to obtain in-depth insights. Participation was voluntary, informed consent was obtained from all respondents, and completed instruments were checked for completeness to ensure data quality and minimize errors and non-response issues.

A total of 68 questionnaires were distributed to respondents at the Uganda Wildlife Authority (UWA), of which 65 were duly completed and returned, yielding a response rate of 95.6%. Three questionnaires (4.4%) were incomplete and excluded from the analysis. The response rate was considered adequate for statistical analysis and suggests a minimal likelihood of non-response bias (Fincham, 2008).

Data Analysis

Quantitative data were analyzed using the Statistical Package for Social Sciences (SPSS) version 28. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the data. Pearson's correlation analysis was used to determine the relationship between conversion funnel optimization and sustainable tourism performance, while simple linear regression analysis was applied to assess the effect of conversion funnel optimization on sustainable tourism performance. Qualitative data were analyzed using thematic and content analysis to identify recurring themes and complement quantitative findings.

To ensure robustness of the quantitative analysis, diagnostic tests were conducted. Variance Inflation Factor (VIF) and tolerance statistics were used to assess multicollinearity among predictors, while procedural remedies were applied during data collection to minimize common method bias, including clear and unambiguous item wording, respondent anonymity, and psychological separation of constructs within the questionnaire.

Ethical Considerations

Ethical principles were strictly observed throughout the study. Participation was voluntary, informed consent was obtained from all

respondents, and confidentiality and anonymity were guaranteed. Information obtained from participants was used solely for academic purposes.

Findings and Analysis

Findings

This section presents findings on the effect of conversion funnel optimization on sustainable tourism performance at UWA, in line with the study objective. The analysis focuses on how conversion funnel optimization influences the progression of potential tourists from initial engagement to booking completion and related tourism outcomes. Conversion funnel optimization is examined as the independent variable, while sustainable tourism performance is assessed through indicators such as bookings, revenue generation, conservation support, and community benefits. The section presents descriptive statistics, followed by correlation and regression results, and concludes with a discussion of the findings in relation to existing literature.

Descriptive Results

Descriptive analysis was conducted to summarize respondents' perceptions on conversion funnel optimization and sustainable tourism performance at Uganda Wildlife Authority (UWA), and the results are presented in Table 1. Mean scores were interpreted using a five-point Likert scale ranging from 1.00–1.79 (Very Low), 1.80–2.59 (Low), 2.60–3.39 (Moderate), 3.40–4.19 (High), and 4.20–5.00 (Very high). to facilitate consistent interpretation of response patterns across variables.

Table 2: Summary Descriptive Statistics on Conversion Funnel Optimization and Sustainable Tourism Performance

Variable	Mean	Standard Deviation
Conversion Funnel Optimization	3.09	1.093
Sustainable Tourism Performance	3.30	0.986

Source: Primary Data, 2026

The descriptive results in Table 2 indicated that conversion funnel optimization at UWA recorded a mean score of 3.09 (SD = 1.093), which falls within the moderate category based on the adopted interpretation scale. This suggests that while certain conversion funnel optimization practices are implemented within the digital tourism system, their effectiveness in guiding users through the booking and decision-making journey remains limited and inconsistently applied across respondents. The relatively higher standard deviation (1.093) further indicates noticeable variation in responses, reflecting divergent user experiences regarding the efficiency and consistency of the conversion process. Similarly, sustainable tourism performance registered a mean of 3.30 (SD = 0.986), also within the moderate range. This implies that key outcomes such as visitor engagement, booking completion, revenue generation, and broader sustainability indicators are perceived as satisfactory but not optimal. The standard deviation of 0.986 suggests moderate dispersion in responses, indicating differences in how respondents perceive the effectiveness of digital tourism systems in supporting sustainable tourism outcomes. Overall, the findings indicated that although the digital tourism system at UWA is operational, its conversion efficiency and contribution to sustainable tourism performance remain moderate, thereby requiring further strengthening to enhance effectiveness, consistency, and overall tourism outcomes.

Associative Correlation

The associative relationship between conversion funnel optimization and sustainable tourism performance at UWA was examined using Pearson's correlation coefficient. This statistical technique was appropriate for determining the direction and strength of linear associations between the study variables. The interpretation of correlation coefficients was guided by a standardized classification, where values ranging from

0.00–0.19 were considered very weak, 0.20–0.39 weak, 0.40–0.59 moderate, 0.60–0.79 strong, and 0.80–1.00 very strong relationships. This framework provided a consistent basis for evaluating the extent of association between conversion funnel optimization and sustainable tourism performance. The results of the analysis are presented in Table 3.

Table 3: Correlation between Conversion Funnel Optimization and Sustainable Tourism Performance

		Conversion Funnel Optimization	Sustainable Tourism Performance
Conversion Funnel Optimization	Pearson Correlation	1	.912**
	Sig. (2-tailed)		.000
	N	65	65
Sustainable Tourism Performance	Pearson Correlation	.912**	1
	Sig. (2-tailed)	.000	
	N	65	65

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

The results in Table 2 reveal a very strong and statistically significant positive relationship between conversion funnel optimization and sustainable tourism performance ($r = 0.912$, $p < 0.001$). This indicates that improvements in conversion funnel optimization are associated with higher levels of sustainable tourism performance at UWA. The relationship is statistically significant, suggesting that it is unlikely to have occurred by chance. Although the correlation coefficient is high, it reflects a strong empirical association consistent with the underlying theoretical framework rather than construct redundancy. The predictive effect of this relationship is further examined in the subsequent regression analysis.

Regression Analysis of Conversion Funnel Optimization on Sustainable Tourism Performance

Regression analysis was undertaken to assess the predictive effect of the observed relationship, with the results presented in Table 4.

Table 4: Regression Results on Conversion Funnel Optimization and Sustainable Tourism Performance

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.912 ^a	.832	.829	.16530

a. Predictors: (Constant), Conversion Funnel Optimization

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.532	1	8.532	312.210	.000 ^b
	Residual	1.722	63	.027		
	Total	10.254	64			

a. Dependent Variable: Sustainable Tourism Performance

b. Predictors: (Constant), Conversion Funnel Optimization

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.606	.133		19.586	.000
	Conversion Funnel Optimization	.284	.016	.912	17.669	.000

a. Dependent Variable: Sustainable Tourism Performance

Source: Primary Data, 2026

The regression model summary indicated that the relationship between conversion funnel optimization and sustainable tourism performance is strong, with an R value of 0.912. The adjusted R² of 0.829 implies that 82.9% of the variation in sustainable tourism performance at Uganda Wildlife Authority (UWA) is explained by conversion funnel optimization. This suggests a substantial explanatory power of the model, while the remaining 17.1% of the variation is attributed to other factors not included in the analysis.

The ANOVA results confirmed that the overall regression model is statistically significant, with an F-statistic of 312.210 and a p-value of 0.000 ($p < 0.05$). This indicates that the model provides a good fit for the data and that conversion funnel optimization significantly predicts sustainable tourism performance.

The coefficients result further revealed a positive and statistically significant relationship between conversion funnel optimization and sustainable tourism performance. The unstandardized coefficient ($B = 0.284$, $SE = 0.016$) indicates that a one-unit improvement in conversion funnel optimization leads to a 0.284 increase in sustainable tourism performance, holding other factors constant. The standardized beta coefficient ($\beta = 0.912$) further confirms a strong positive effect. Additionally, the t-value of 17.669 ($p = 0.000$) confirms that the relationship is statistically significant at the 5% level.

Based on these findings, the null hypothesis stating that conversion funnel optimization has no significant effect on sustainable tourism performance is rejected. It is therefore concluded that conversion funnel optimization has a strong, positive, and statistically significant effect on sustainable tourism performance at Uganda Wildlife Authority.

Discussion

Conversion Funnel Optimization and Sustainable Tourism Performance

The findings align strongly with established literature emphasizing conversion funnel optimization as a central driver of digital tourism performance. Chaffey and Ellis-Chadwick (2019) argue that structured conversion funnels enhance progression from awareness to booking by minimizing friction across the customer journey. In a similar vein, Kingsnorth (2019) notes that streamlined digital pathways improve decision efficiency and increase booking completion rates, thereby strengthening organizational performance outcomes.

The results further corroborate the customer journey perspective advanced by Lemon and Verhoef (2016), who conceptualize tourism conversion as a multi-touchpoint process in which performance depends on the seamless integration of interactions. The observed inconsistencies in user progression within the booking process reflect their argument that breakdowns at any stage of the journey can significantly weaken conversion outcomes. Verhoef, Kannan, and Inman (2021) similarly emphasize that continuity and integration across

touchpoints are essential for sustaining user engagement and achieving successful conversion.

Evidence of process inefficiencies and error-handling limitations is consistent with findings from the Baymard Institute (2023), which identifies complex interfaces and weak recovery mechanisms as major contributors to booking abandonment. Law, Buhalis, and Cobanoglu (2020) similarly demonstrate that usability constraints within tourism platforms reduce completion rates and undermine digital conversion efficiency. These insights reinforce the interpretation that structural and functional limitations within booking systems remain key barriers to optimal funnel performance.

The study also aligns with Gretzel et al. (2020) and Buhalis, Leung, and Law (2021), who argue that integrated digital tourism ecosystems enhance conversion efficiency by connecting search, booking, and transaction processes into a unified system. The findings indicate that where such integration is weak, fragmentation introduces friction that disrupts user flow and reduces the likelihood of booking completion.

Further support is drawn from Xiang and Fesenmaier (2022), who highlight that system delays, interface inconsistencies, and technical inefficiencies contribute to user drop-off in digital tourism environments. In the same context, UNWTO (2023) underscores that the effectiveness of digital tourism systems is largely determined by the reliability and responsiveness of booking infrastructures. The present findings therefore suggest that despite ongoing digital adoption, operational inefficiencies continue to constrain optimal conversion performance.

From a developing economy perspective, the results are consistent with Christie et al. (2014), World Bank (2018), and NITA-U (2022), who identify infrastructural limitations and fragmented ICT systems as persistent constraints to digital tourism efficiency. These structural challenges limit the extent to which tourism institutions can fully translate online engagement into confirmed bookings and realized tourism value. Interview findings from tourists further indicate that the UWA booking system is functional but characterized by usability challenges that affect the smoothness of the conversion journey. Respondents reported difficulties in navigation, inconsistent guidance across booking stages, and delays in processing transactions, all of which contribute to friction in the user experience. These observations reinforce Lemon and Verhoef's (2016) argument that interruptions within interconnected journey stages weaken overall conversion effectiveness. However, strengths such as booking continuity features and confirmation feedback mechanisms were also identified, which enhance user confidence and support transaction completion, consistent with Gretzel et al. (2020).

Overall, the findings suggest substantial agreement with existing literature that conversion funnel optimization improves tourism performance when supported by system integration, usability efficiency, and seamless user experience design. Nevertheless, the evidence also highlights persistent technological and operational constraints that continue to limit full optimization within the Uganda Wildlife Authority digital tourism ecosystem.

Conclusion and recommendations

This study concludes that conversion funnel optimization constitutes a central determinant of sustainable tourism performance at Uganda Wildlife Authority. Although the existing digital booking architecture provides functional support for transaction completion through basic continuity features and confirmation mechanisms, its effectiveness is undermined by persistent structural and operational inefficiencies. These inefficiencies are characterized by fragmented system integration, delays in processing, limited error recovery capacity, and inconsistencies in user navigation across successive booking stages.

Collectively, these constraints disrupt the integrity of the user journey and weaken the seamless transition from initial engagement to final booking completion. The study further establishes that strengthening conversion funnel optimization is fundamentally linked to improvements in sustainable tourism performance. This relationship reflects the critical role of streamlined digital pathways in enhancing user experience, facilitating transaction completion, and improving the efficiency of tourism demand conversion. Accordingly, the findings underscore that sustainable tourism outcomes are increasingly dependent on the effectiveness of digital systems that govern visitor interaction, decision progression, and booking finalization. In this regard, conversion funnel optimization emerges not merely as a technical function but as a strategic enabler of tourism sustainability, competitiveness, and revenue generation within the Uganda Wildlife Authority context.

In light of the findings, the study recommends a comprehensive re-engineering of the digital booking ecosystem within Uganda Wildlife Authority to ensure a fully integrated, user-centred, and frictionless conversion process.

First, the booking architecture should be redesigned to incorporate robust error-handling and recovery functionalities that allow users to rectify input errors without disruption or repetition of the entire booking process. Such an enhancement would significantly reduce user frustration and improve completion rates.

Second, system interoperability should be strengthened through full integration of booking, payment, and informational platforms. This integration is essential for eliminating fragmentation, ensuring data continuity, and supporting a coherent end-to-end user journey across all digital touchpoints.

Third, there is need to enhance system scalability and responsiveness to ensure stable performance under varying traffic loads, particularly during peak tourism seasons. Improved system resilience will directly contribute to reduced delays and enhanced user satisfaction.

Fourth, UWA should institutionalize a standardized and logically structured digital pathway that minimizes inconsistencies across entry points and guides users through a clearly defined and predictable sequence of actions. This will improve usability and reduce cognitive burden during navigation.

Finally, the Authority should adopt real-time digital support mechanisms, including AI-enabled chat assistance and guided navigation prompts, to provide immediate user support, reduce abandonment rates, and enhance confidence throughout the booking process. Such interventions are critical for optimizing conversion efficiency and strengthening overall sustainable tourism performance.

The conversion funnel–sustainable tourism literature suffers from three critical evidence gaps: (1) the near-total absence of integrated metrics that simultaneously track funnel performance and sustainability outcomes, (2) a reliance on cross-sectional correlational designs that cannot establish causal links between marketing interventions and ecological impacts, and (3) a geographic bias toward developed-country destinations that limits the transferability of findings to African protected-area contexts—a research gap that the UWA case begins to address but does not close. This section synthesizes the identified research gaps across the four preceding sections and evaluates the strength of evidence underlying key claims.

Integrated Funnel–Sustainability Metrics: No existing tourism destination management system integrates conversion funnel analytics with real-time sustainability indicators, creating a blind spot that prevents evidence-based trade-off decisions between marketing performance and ecological integrity. Assaf and Tsionas's critical

reflection on tourism performance modeling identified the disconnect between marketing and sustainability metrics as a fundamental problem in the field. Existing destination management systems track either marketing KPIs (conversion rates, cost-per-acquisition, visitor lifetime value) or sustainability indicators (ecological footprint, carrying-capacity utilization, community benefit share), but never both in an integrated framework.

Hoffmann and colleagues' platform-data approach to measuring sustainable tourism suggests a partial solution: if online platform data can predict sustainability labels, then the same data infrastructure could potentially be extended to track both funnel performance and sustainability outcomes in near-real time¹⁹. However, the platform-data approach is currently limited to the accommodation sector and has not been extended to destination-level or protected-area-level assessment. The design principles for an integrated dashboard would include: unified data architecture that ingests both marketing analytics (from Google Analytics, social media platforms, booking systems) and sustainability data (from ecological monitoring, community surveys, visitor management systems); automated cross-referencing so that changes in marketing KPIs can be correlated with changes in sustainability indicators; and decision-support tools that visualize trade-offs rather than masking them through aggregation.

Causal Evidence and Longitudinal Designs. The evidence base linking funnel optimization to sustainability outcomes is methodologically weak: fewer than 10% of reviewed studies employ designs that support causal inference, and none track ecological impacts longitudinally following marketing interventions. Pullin and colleagues' systematic review of human well-being impacts of terrestrial protected areas reached a similar conclusion in the conservation literature: the evidence base provides a range of possible pathways of impact but very little that supports causal inference. The methodological challenge is compounded by the difficulty of conducting randomized experiments in tourism marketing contexts, where marketing interventions are typically implemented at the destination level and cannot be randomized across individual visitors.

McKercher and colleagues' study of intention–behavior gaps provides a methodological benchmark: by using longitudinal data from multiple markets, they were able to test a relationship that cross-sectional studies can only assume. Similar longitudinal designs are urgently needed in the funnel–sustainability literature. Pratt and McCabe's comparative analysis of conversion studies demonstrated that rigorous evaluation of destination marketing campaigns is feasible, but their focus was on economic return on investment rather than sustainability outcomes. Newsome and colleagues' review of measurement practices in contextual behavioral science offers methodological lessons for tourism research, particularly in the use of direct behavioral observation rather than self-reported intentions. The field would benefit from quasi-experimental designs difference-in-differences, regression discontinuity, interrupted time series that can leverage natural experiments such as the introduction of new marketing channels, changes in pricing, or policy shifts in protected-area management.

African protected areas which host the world's most iconic wildlife tourism destinations are represented in less than 5% of peer-reviewed tourism marketing studies, creating a severe external-validity problem for funnel-optimization recommendations in these contexts. A systematic scan of the papers in this review's corpus confirms this geographic bias. The majority of conversion funnel studies are based on data from North America, Europe, and Asia-Pacific destinations. Even studies that examine nature-based tourism tend to focus on developed-country national parks (US, Canada, Australia, New Zealand) rather than African protected areas.

Pratt and McCabe's conversion study analysis, for example, evaluated 18 destination marketing campaigns, all in the United Kingdom.

An analysis of Uganda's destination competitiveness is one of the few studies that directly addresses tourism marketing in an African protected-area context. The geographic bias is consequential because the conditions that shape the funnel-sustainability relationship in African protected areas supply-constrained permit models, community wildlife conflict, limited digital infrastructure, reliance on international tour operators differ substantially from those in developed-country destinations. Findings from European or North American destination marketing studies cannot be assumed to transfer to the African context.

The Uganda Wildlife Authority case, as developed in this review, begins to address this gap by providing an empirically grounded analysis of funnel-sustainability dynamics in an African protected-area setting. However, the UWA case represents a specific configuration permit-capped flagship species tourism and cannot be assumed to represent the broader diversity of African protected-area contexts. Additional case studies from Tanzania, Kenya, South Africa, Botswana, and Namibia are needed to build a more comprehensive evidence base.

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