

-RESEARCH ARTICLE-

LOCAL PEOPLE ACCEPTANCE AND USE OF THE E-SERVICE PROVIDED BY NATIONAL CENTER FOR WILDLIFE TO VISIT A NATURE RESERVE: THE IBEXES RESERVE AREA AS A CASE STUDY

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—Abstract—

This study investigates the utilisation and acceptance of the electronic service provided by the National Wildlife Centre for visiting the Ibx Reserve, a natural reserve renowned for its diverse wildlife. The research aims to identify and define residents' perceptions and attitudes towards the electronic service, examining its usage frequency and patterns, levels of satisfaction, and the challenges currently faced by the Fetri platform. The goal is to develop recommendations to enhance the service and increase its adoption in promoting sustainable ecotourism in the Ibx Reserve. In total, 50 potential or actual users who were living close to the Ibx Reserve were surveyed. Results indicated that while there is huge interest in the service, especially regarding booking permits to the reserve, 54% do not make use of the booking feature. This indicates a gap in user engagement wherein better promotional strategies are for increasing user experience. Besides, one considered digital security concerns, the reliability of data, and the volume of interactive and current content. Key findings include the need for strengthened security measures, regular updates to the platform, and improved user support. These findings underscore the importance of implementing recommendations to address these challenges, thereby improving user satisfaction, increasing service engagement, and fostering sustainable tourism in the Ibx Reserve.

Keywords: Electronic Service, Ibx Reserve, Ecotourism, User Engagement, Digital Security.

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INTRODUCTION

Wildlife forms part of the ecosystem that should be managed in such a way that it will be considered heritage shared in generations in terms of sustainability and irresponsible exploitation. Science has also proved that due to habitat loss and heavy changes in climate, biodiversity is increasingly threatened worldwide, putting millions of species under great danger of extinction (Muluneh, 2021). This pressing reality underlines the need for increased international efforts in wildlife protection and effective management of the protected areas. Vaughan Branch et al. (2022) present critical threats that face the wildlife populations, something that is in line with the alarm findings of the 2019 Global Assessment Report on Biodiversity and Ecosystem Services. The report provides overwhelming evidence that the health of ecosystems, upon which humans and all other species depend, is deteriorating at an unprecedented rate. Compiled by hundreds of global experts, the report warns that one million plant and animal species are currently at risk of extinction. It further predicts an accelerated rate of species extinction, already "tens to hundreds of times higher than the average over the last ten million years." In this context, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services expresses grave concern over widespread habitat loss and the associated declines in genetic diversity and species abundance, which are exacerbated by the impacts of climate change. Wildlife is an integral component of every functioning ecosystem, and its unsustainable depletion triggers a cascading effect on plant communities, thereby impacting ecosystem functions and services (Dhyani, 2023). For instance, the absence of wildlife could reduce carbon storage capacity in tropical forests by up to 12%, and by as much as 26-37% in the Amazon rainforest. Given that forest conservation contributes up to 37% of the solutions for mitigating climate change, maintaining stable wildlife populations is essential for maximising carbon storage. Nevertheless, the health of wildlife populations is frequently neglected in environmental conservation programmes (Sharma et al., 2022).

Nature reserves are part of the international system that secures biodiversity as well as the protection of the environment. These are protected areas that, for their management either by legislation or in fact, also aim to secure the long-term conservation of nature, ecosystem services, and cultural values (Y. Zhang et al., 2023). This calls for proper research into them, besides the laying down of sustainable management strategies for their effective utilization. Besides this, ecotourism around the reserves can give an economic boost to the locals, provided the biodiversity is conserved with ecological balance. A well-functioning global system of protected areas represents the most promising approach to conserving significant and representative components of natural ecosystems, including their associated habitats and species (Teague & Kreuter, 2020). The purpose of nature reserves touches on ecological balance, natural and historical heritage, scientific research, and tourism. Therefore, protection and restoration of faunal and floral species that are diverse in ecological reserves, preservation, and promotion

of regional features and landscapes should be the primary focus (Cardoso et al., 2021). Numerous studies have examined the relationship between the establishment of nature reserves and local economic development (Jie et al., 2024; Topcu et al., 2020). Contrary to the belief that nature reserves hinder local industrial development, they promote tourism growth.

From an environmental economics perspective, the ecological benefits provided by nature reserves surpass the purely economic gains (Groom & Turk, 2021). Moreover, tourism initiatives within ecological nature reserves can stimulate economic development in neighbouring communities, yielding significant financial advantages for the region (Hajar, 2022). Sustainable tourism plays a critical role in promoting equitable regional development by minimising negative impacts on the natural environment and enriching local culture and traditions. The importance of sustainable tourism is particularly evident in cities within protected areas, such as national parks and nature reserves (Hassan et al., 2022; Pongsakornrungsilp & Pongsakornrungsilp, 2023). Countries worldwide are actively establishing and maintaining nature reserves. In Sri Lanka, 22 national parks attract tourists and diversify tourism, enhancing wildlife tourism services in nearby areas (Sumanapala & Wolf, 2022). China has created 2,750 nature reserves, covering 15% of its land area. Research on these reserves includes conservation goals, management policies, and biodiversity (X. Zhang et al., 2023). Among them, 474 are national-level reserves, covering 10% of China's land area, with human activities recorded in 446 of these reserves as of 2015, a number expected to grow (Huang et al., 2021).

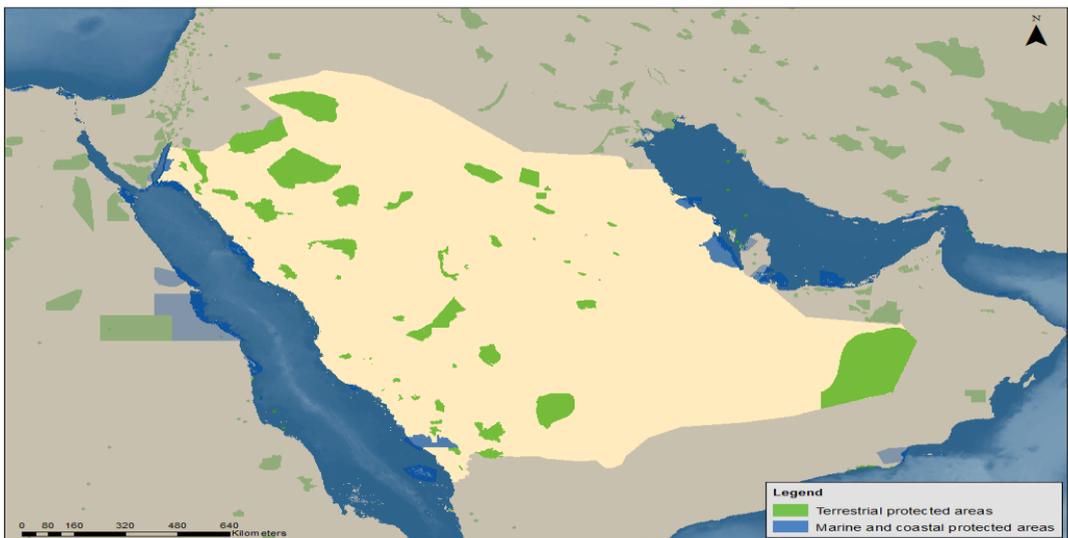


Figure 1: 2018 United Nations List of Protected Areas of Saudi Arabia

Source: Archive.org

Global attention toward biodiversity conservation has significantly increased (Tagg et al., 2020). In Saudi Arabia, environmental conservation has become a priority, with numerous initiatives implemented. Despite these efforts, many wildlife species in the country still require special attention to ensure their survival. Various challenges could negatively impact the conservation status of local wildlife if not properly managed (Kumar et al., 2022). The National Centre for Wildlife Development highlighted the critical role of protected areas in preserving Saudi biodiversity, aiming to expand these areas to cover 30% of the Kingdom's land. As of 2023, Saudi Arabia had 36 protected areas, with a target of over 100 by 2030. The percentage of terrestrial protected areas rose from 4.56% in 2017 to 18.1% in 2023, while marine protected areas increased from 3.76% to 6.48% over the same period (see Figure 1).

It is designed to protect the natural habitat and biodiversity with a view to attaining the commitments in the CBD and especially the SDGs. Among the main protected areas now being developed is the Al-Wa'houl Reserve-IBX, which is situated in the center of the kingdom, approximately 180 km away from Riyadh. The area is 1,840.9 km²; therefore, the reserve area includes a dissected plateau of the Tuwaiq Escarpment trending southeast to northwest, comprising many valleys and streams, the highest of which is 1,097 meters above sea level.



Figure 2: A Natural Image of Al-Wa'houl Reserve

Source: National Center for Wildlife

The main reason for the protection of this area was the existence of a small, residual group of Arabian Ibex in their natural habitat which very quickly multiplied once the application of protection measures was made. It also shelters a varied fauna: rock hyraxes, foxes, different rodents and numerous bird species-the most representative

being the sand partridge, and various reptilian species. For example, in the year 1990 Arabian oryx were successfully released to this reserve and adapted so well to the environment that their population increased. The reserve is characterized by rich flora, including Acacia trees, *Salvadora persica*, and various shrubs and grasses, particularly flourishing in the valleys after rainfall, which enhances the ecological diversity of the area.

What is most needed in the management of natural reserves is an approach that will be more sustainable and focused on optimizing available natural resources for educational and environmental sustainability (Kamil et al., 2020). Achieving sustainable management involves revising current policies to ensure that natural resources benefit a broader population, beyond specific stakeholders (Teel et al., 2022). In this regard, the role of digital technology has increasingly assumed an important role that not only has enhanced public participation but also ecotourism through e-services. These e-services provided over electronic networks do, however, require service quality in safeguarding user satisfaction as well as ensuring sustainability (Lee, 2024; Mamakou et al., 2024; Parasuraman et al., 2005).

In this context, the National Centre for Wildlife Development seeks to enhance e-service quality through the launch of the "Fetri" platform. The Saudi government has created this e-platform with the view to license, in an organized way, the activities and products related to wildlife, in line with environmental regulations and all relevant international agreements, such as CITES and CMS. This platform is committed to improving the level of services and allowing electronic coordination and coordination with the concerned parties, including the Ministry of Interior and the Ministry of Environment, Water, and Agriculture, in furtherance of upgrading regulation and application. Additionally, the platform offers a range of services, including the issuance of licenses for import and export, management of wildlife activities, and hunting license procurement, targeting individuals, businesses, and government sectors to simplify and document procedures electronically.

The paper will evaluate the local desirability and applicability of the electronic service as a strategy developed by the National Centre for Wildlife Development to enhance the visitor experience within the Ibex Protected Area. This natural reserve is noted for its diverse wildlife and rich biodiversity. Consequently, the case study presented will effectively demonstrate how technology can enhance ecotourism and facilitate wildlife conservation efforts. The study will focus on identifying the enabling factors that promote and facilitate the effective implementation of the e-service, based on an analysis of the attitudes, perceptions, and behaviours of residents.

The study will, therefore, investigate the reception and use of the electronic service provided by the National Centre for Wildlife Development in gaining access to Ibex

Protected Area. Essentially, it shall look at how such services have enhanced the understanding of the public in terms of environmental stewardship. Of relevance also are the findings of this study, as they carry important implications for similar systems; they provide a strategic framework for the more holistic approach to integrating e-services into wildlife conservation and ecotourism management. Considering the considerable challenges facing the natural world, a promising pathway toward sustainable coexistence between humans and the environment lies in technological advancement combined with active community engagement. Consequently, this study is crucial for understanding the interactions between technology, conservation needs, and community involvement, positioning itself to contribute meaningfully to the ongoing discourse on the preservation of our natural heritage.

Problem Statement

It will predominantly dwell on an in-depth study of the adopting and usage of e-services by national parks' wildlife centers in improving experiences within the protected areas. Precisely, it will analyze in detail exactly how residents perceive and use these services. The study addresses a multifaceted problem, encompassing several critical dimensions that warrant thorough exploration. Firstly, there is a notable gap in the existing literature; few comprehensive studies have focused on the acceptance and utilisation of these electronic services, leading to a significant lack of understanding regarding their essential roles in fulfilling the needs of ecotourism and safeguarding natural environments.

It is also acknowledged that local communities are the most important determinant of these programs' success. The fact that the residents are both the active users and beneficiaries of electronic services presents a strong business case for examining adoption dynamics from the viewpoint of the community. Electronic services can, in turn, greatly contribute to the sustainable development of ecotourism by providing information necessary for fostering responsible tourism behaviors, thereby enhancing the quality of the visitant experience. However, this would require a proper understanding of the patterns of local acceptance and use. The study also investigates the complex drivers and barriers to adoption among residents, including technological obstacles, awareness gaps, perceived benefits, demographic changes, and socio-economic factors. These issues must be thoroughly understood to inform effective promotional strategies.

Eventually, the study may investigate all other challenges and concerns which create a hindrance towards the acceptance of electronic services, underlining the fact that these issues do need to be resolved for wider diffusion within local communities. Expected from the research findings are the filling of significant gaps in knowledge, reduction in ambiguous drivers of electronic services' adoption, and giving practical recommendations on ways necessary for the improvement of such services. This will

be an important contribution to the establishment of sustainable ecotourism within the Ibex Nature Reserve, as well as similar representative natural environments. The primary objective of this research is to examine how individuals utilise and accept the electronic services provided by the National Wildlife Centre to access the Ibex Reserve, which is renowned for its diverse wildlife. To achieve this goal, specific research objectives have been established.

RO1: In this connection, the perceptions of residents regarding the electronic service provided by the National Centre for Wildlife to access the Ibex Reserve will be examined.

RO2: Assess the usage pattern and rate of the e-service in the Ibex nature reserve by local tourists.

RO3: According to the assessment of satisfaction about the electronic service and his characteristics for a visit to Ibex Reserve by residents.

RO4: Stated, a precise identification and analysis of the challenges linked to the electronic services provided through the Fetri platform.

RO5: The development of recommendations necessary for the improvement in the enhancement of e-service improvement-leading to its wider adoption by residents and development of sustainable ecotourism within the Ibex Reserve.

LITERATURE REVIEW

[Seddon and Khoja \(2003\)](#) argued that ecotourism development in Saudi Arabia should be guided and based on the attitude of residents as relates to wildlife and outdoor recreation rather than reliance on foreign markets. The work of examined the attitude of Saudi youth to determine their perceptions which were biased. For example, carnivorous species are perceived to be dangerous, traditional game animals as aesthetically pleasing, or at least palatable. They say this is an alienation from natural habitat that has been enhanced through rapid urbanization. The research recommends doing ecotourism in Saudi Arabia and developing it by doing organized and guided one-day tours for viewing wildlife. Such actions would serve to increase awareness and public support for the conservation of natural resources by allowing visits to protected areas.

[AlAli et al. \(2024\)](#) carried out research entitled: "Tourist values and well-being in rural tourism: insights for biodiversity protection and rational automobile use in the AlAh-sa Oasis, Saudi Arabia." The authors show how biodiversity protection and rational automobile use can affect ecologically minded behavior and personally held values such as altruism, biosphere values, and egoism, extending to the well-being of rural tourists.

The results, based on an online survey and partial least squares structural equation modelling from 309 tourists, indicate that biodiversity protection leads to positive impacts in the field of altruistic values and well-being, while rational automobile usage enhances both values: altruistic and biosphere. The study highlights the intricate dynamics influencing tourist attitudes and experiences, emphasising the need for interventions to promote environmental values and enhance tourist well-being.

[Alshehri \(2024\)](#) has researched the impact of social media on tourism development in Saudi Arabia. The current study has concentrated its effort on representing, through Twitter (X), the tourist site of Al-Ula with regards to the Saudi Arabian government's Vision 2030. Through an examination of the content using the hashtag #AlUla on the social network analysis tool NodeXL, this research has identified the structural role of the hashtag in the social networks, key groups, and influencers. The findings presented in this study provide practical inputs on strategy development for tourism promotion, together with a base for the further academic study of issues in network development and its influencing factors. [Al-Sulbi \(2010\)](#) aimed to promote sustainable ecotourism in Saudi Arabia by analysing its natural potentials and opportunities. The study provided guidelines for planning and management to ensure environmentally sustainable resource use. Covering over 2.24 million square kilometres, Saudi Arabia has diverse ecosystems, with approximately 4.5% of its land designated as protected areas. Despite significant investments in tourism since 2002, these often prioritise short-term financial gains over environmental and social concerns. The paper advocates for integrating biological and human dimensions in ecotourism planning to preserve natural resources and promote local culture.

[Al-Tokhais and Thapa \(2019\)](#) identified four themes: tourism development issues, management issues, development challenges, and policy concerns. They selected semi-structured interviews with 11 representatives from organizations working in the field of tourism and environmental conservation. Conclusions from the study emphasized the need for supporting policies that foster the kind of sustainable tourism which would result in the conservation of biodiversity, contributing to both economic gain and livelihood improvement at the local level in Saudi communities. The study also underlined wide implications for national parks and protected area development in Saudi Arabia. [Alshammari et al. \(2023\)](#) emphasised that eco-tourism embodies sustainability by supporting resource preservation and enhancing environmental awareness. Saudi Arabia is embracing sustainability in eco-tourism to diversify its economy beyond oil and to enhance the economic, social, and environmental value of tourism. An example is the "Leave No Trace" program, which encourages responsible tourism by promoting positive behaviours that minimise negative impacts on nature([Kooshesh et al., 2022](#)).

[Sudirjo et al. \(2023\)](#) conducted research on the effect of consumer confidence in service

quality and in product differentiation on the success of online service platforms in Sukabumi Municipality. The authors applied Partial Least Squares Structural Equation Modelling to analyze data from 245 respondents that were selected for the research. According to these analyses, constructs were proved to be reliable and valid. In the result, it could be seen that the drivers of platform success are consumer confidence and product differentiation. This study gives insight for improving the performance of online service platforms in Sukabumi City. Santos (2003) highlights that e-service quality and electronic word-of-mouth (e-WOM) significantly influence repurchase intentions in Indonesian e-commerce. An online survey conducted in April 2019 revealed that high service quality enhances e-WOM and repurchase intent. The study emphasized monitoring mobile app service quality and online reviews, focusing on foundational aspects (ease of use, appearance, layout) and active elements (reliability, efficiency, security) for improving customer retention. Lesmana and Balqiah (2023) examined the role of both electronic and traditional service quality in fostering electronic customer loyalty (e-loyalty) and its subsequent impact on e-WOM, specifically in the PLN Mobile application. Data from 452 users indicated that e-loyalty is influenced both directly and indirectly by service quality, with customer satisfaction acting as a mediator. To sustain e-loyalty, the study recommends enhancing service quality from both the app and field staff. Ultimately, it found that higher customer e-loyalty positively affects e-WOM, indicating that satisfied customers can effectively promote the service.

Analysis of Prior Research

Previous research on environmental tourism in Saudi Arabia has illuminated various dimensions of this sector. (Seddon & Khoja, 2003) emphasize that the development of environmental tourism should right the local attitude towards wild-life and inculcate environmental awareness among Saudi youths. In their study, they found that rapid urbanization has brought about distorted impressions regarding wildlife. In contrast, AlAli et al. (2024) investigate the value and well-being of tourists in the region of Al-Ahsa, based on the biodiversity conservation and responsible vehicle use hypothesis that these measures enhance the experience of being a tourist and foster an evolving environmental ethic. Similarly, Alshehri (2024) discusses how social media in general, and Twitter in particular, may be of prime importance for tourism development in Al-Ula, focusing on the importance of social network analysis within promotional strategies. Al-Sulbi (2010) focuses on the approaches to enhancing sustainable tourism of the environment through natural resource analysis. Recommendations on how best to plan and manage are also given, which points out integration of environmental and human dimensions based on real sustainability in tourism practices (Akhtar et al., 2022; Xi et al., 2023).

Research into the quality of electronic service platforms provides useful lessons that

can be improved in performance in that aspect. [Altassan \(2023\)](#) tourism learning platforms predispose and raise potential for the improvement of tourism service quality in Saudi Arabia. [Sudirjo et al. \(2023\)](#) identify key success factors for online service platforms in Sukabumi City, and it is observed that the contribution rate of consumer confidence and product differentiation has a great influence on the success of online service platforms. [Santos \(2003\)](#) examines e-service quality dimensions and their impact on repurchase intentions, stressing the importance of monitoring service quality for e-commerce success. Collectively, these studies inform the current investigation into optimizing electronic service use to increase visits to natural reserves and promote sustainable environmental tourism.

METHODOLOGY

This paper discusses the utilization of electronic services provided by the National Centre for Wildlife to access the Ibexes Reserve Area considering its international importance for conservation, reflected through the diversity of its wildlife demographics. It considers mainly the residents as major beneficiaries and their interaction with this electronic service. Appreciation of local acceptance and use is a prelude to proper dissemination and utilization of this e-service for both the community and nature reserve. For the purpose, the current study design is a mixed-method one with qualitatively intensive data collection techniques, including interviews and focus group discussions. The design will help in capturing deep insights into perspectives and experiences coming from community members. In addition, different tools will be implemented to measure the level of utilization of e-service, user satisfaction, and characteristics of respondents.

This design is a mixed-method approach wherein both quantitative and qualitative instruments will be employed in capturing data and analyses necessary in the comprehensive investigation of acceptance and use of the proposed e-service for locals. Cross-sectional study design has been adopted in the present research, which involves data collection at a very specific point in time focusing on Ibexes Reserve Area and the surrounding local communities. The collection of quantitative data was done by using a structured questionnaire consisting of the closed-ended questions related to the antecedents of e-service acceptance and usage, user satisfaction, and demographic variables. The collection of qualitative data that would enable an in-depth exploration into attitude and experiences was attained through semi-structured interviews with participants that were preselected. To ensure representation across diverse demographic categories within the local community, a stratified random sampling method was employed. This approach considered factors such as age, gender, education level, proximity to the reserve, and geographic location in selecting participants. The sample size will be determined based on a 95% confidence level with a margin of error set at 5%, with the exact size contingent upon the total population of the local community.

Informed consent forms stating the purpose of the study, procedure, and data management were distributed to be signed by the participants. The participants free-willed their choice of consenting to or refusing this study. Data anonymization was ensured to maintain confidentiality, while access was granted only to authorized researchers. Accordingly, the research protocol was sent to respective ethics committees for approval before actual data collection. Pilot testing of the survey questions and interview guides were used in the current study to establish the clarity and appropriateness of the measures prior to main data collection. This present study adapted those things which related to the use and acceptability of online service usage by the National Centre for Wildlife in Ibexes Reserve Area. This will therefore scan into perceptions, attitude, and feelings of the residents, besides studying factors possibly affecting the acceptance and use of e-service such as perceived usefulness, perceived ease of use, and demographic. Utilizing both qualitative and quantitative data collection methods—including interviews, focus groups, and surveys—this study offers insights into the acceptance of e-services within nature reserves. The findings indicate that local communities are appropriating and utilizing these e-services, thereby contributing to the sustainable development of ecotourism in the Ibexes Reserve Area.

Questionnaire Construction

The questionnaire consisted of five major sections: the first section was on biodata, articulating six items of general information about the respondents; the second section was used to assess the behavioural practices in relation to the electronic services available on Fetri and was made up of three items; the third section, made up of thirteen items, measured satisfaction among local residents relative to the quality of the electronic services. The fourth part concerned problems related to the electronic services provided through the Fetri platform-with a total of thirteen questions. The final section provided recommendations for improving the quality of electronic services, including fifteen questions. Responses for each construct were measured using a five-point Likert scale, with the following categories: Strongly Agree (5 points), Agree (4 points), Somewhat Agree (3 points), Disagree (2 points), and Strongly Disagree (1 point). [Table 1](#) presents a weighted scale based on the five-point Likert scale.

Table 1. Weighted Scale Based on the Five-Point Likert Scale

Response	Weighted Average
Strongly Disagree	1.00 -1.80
Disagree	1.81-2.60
Somewhat Agree	2.61 - 3.40
Agree	3.41 - 4.20
Strongly Agree	Above 4.20

RESULTS AND DISCUSSION

The socio-demographic variables of the respondents provide essential background information that may influence their responses. Accordingly, [Table 2](#) offers a detailed examination of several of these variables, including age, gender, educational attainment, occupation, current residence, frequency of visits, and sources of information regarding the 'Fetri' platform. This comprehensive dataset serves as a framework for identifying the sample structure and adds contextual relevance to the overall interpretation of the study's findings. The findings presented in [Table 2](#) indicate that the most represented age group among respondents is between 46 and 55 years old, comprising 38% of the total sample, followed closely by those aged 36 to 45 years, accounting for 34%. This suggests that a significant portion of respondents is middle-aged, which may influence their interactions with the services offered through the Fetri platform. From a gender perspective, the data reveals that 94% of users are male, while only 6% are female.

This ratio indicates that the platform's services are more appealing to men, highlighting the need for future promotional campaigns to more actively engage female users. Regarding educational attainment, 56% of respondents possess a bachelor's degree or higher, suggesting that the platform attracts relatively educated age groups. In terms of employment status, 74% of respondents are employed in the public and private sectors, aligning with the sampled age demographics. Additionally, most users (68%) are from Al-Helwa City, indicating a significant geographical concentration in the usage of the platform. Finally, the study found that 72% of users learned about the Fetri platform through friends, underscoring the substantial impact of word-of-mouth in promoting its services. These findings provide valuable insights into user characteristics and can inform the development of services on the Fetri platform, potentially facilitating more targeted outreach to underrepresented segments in the future([Son & Ahn, 2023](#); [Tang et al., 2023](#)).

Frequency and Patterns of Electronic Service Usage by Local Residents Visiting the Ibex Protected Area

Analysing the frequency and patterns of electronic service usage among residents visiting the Ibex Protected Area offers valuable insights into their engagement with digital platforms and their preferences for various services. The information presented in [Table 3](#) elucidates the extent of utilization of the "Fetri" platform for making reservations, the nature of interactions with "Fetri" services, and the types of services used or expressed interest in. This data highlights patterns of digital interaction and serves as a foundation for enhancing service provision and improving the user experience.

Table 2. Demographic and Social Variables of the Respondents

Category	Subcategory	F	Percentage (%)
Age	Less than 18	1	2
	18 to 25	9	18
	36 to 45	17	34
	46 to 55	19	38
	More than 56	4	8
	Total	50	100
Gender	Male	47	94
	Female	3	6
	Total	50	100
Educational Level	(Pre-Secondary - Diploma - Secondary)	13	26
	(Bachelor's - Higher Diploma)	28	56
	Master's	6	12
	PhD	2	4
	Other	1	2
	Total	50	100
Occupation	Employee (Government - Private)	37	74
	Businessman	4	8
	Retired	5	10
	Not Working	4	8
	Total	50	100
Current Residence	Al-Halwa City	34	68
	Other	16	32
	Total	50	100
Number of Visits	1 to 3 times a year	26	52
	Once a Month	6	12
	Twice a Month	8	16
	Three Times a Month	2	4
	More than Three Times a Month	8	16
	Total	50	100
How Did You Learn About 'Fetri' Platform?	Through the Centre's Website	4	8
	Through Social Media Platforms	7	14
	Through Internet Search	2	4
	Through a Friend	36	72
	Other	1	2
	Total	50	100

Source: Field Study

The detailed observations regarding the access to electronic services through the Fetri platform by local respondents visiting the Ibex Protected Area are summarized in [Table 3](#). It is noted that 34% of respondents identify as actual users of the platform's services, while only 18% express an interest in the services. The largest group, comprising 48%, consists of individuals who wish to utilize the services, indicating considerable potential for the platform to expand its user base by targeting these interested individuals. The data further reveals that 54% of participants have not engaged in any booking

transactions through the online portal, highlighting a significant disparity between potential interest and actual service usage. This suggests challenges the platform may encounter in attracting and facilitating the use of its services. Conversely, 32% of users have completed 1 to 4 transactions, while 14% have made more than five bookings. These figures indicate that effective usage of the platform remains limited, underscoring the need for strategies to promote more sustained user engagement.

Table 3: Frequency and Patterns of Electronic Service Usage by Local Residents Visiting the Ibez Protected Area

Category	Subcategory	F	Percentage (%)
Classification of Interaction with 'Fetri' Services	Service Beneficiary	17	34
	Interested in the Service	9	18
	Willing to Benefit from the Service	24	48
	Total	50	100
How Many Booking Transactions Have You Made Through the "Fetri" Platform's Electronic Portal?	I Have Not (visited/booked) at all	27	54.0
	Less than 5 times	7	14.0
	To 4 Times 1	9	18.0
	To 10 Times 5	5	10.0
	More than 10Times	2	4.0
	Total	50	100
Classification of Interaction with 'Fetri' Services	Service Beneficiary	17	34
	Interested in the Service	9	18
	Total	50	100
What Services Have You Used or Would You Like to use Through the "Fetri" Platform?	Issuing a Reserve Visit License	39	78
	Issuing a Camping License in the Reserve	4	8
	Obtaining a HuntingL incense	4	8
	Obtaining a License for a Wild Animal Possession - Transport - Display)		
	SubmittingS support andA assistance Requests	2	4
	Reporting Cases of Wild Animal Deaths	1	2
	Total	50	100

Source: Field Study

Local Residents' Levels of Satisfaction

Numerous studies highlight the significant potential for developing ecotourism through the collection of local attitudes and the enhancement of electronic services. [Seddon and Khoja \(2003\)](#) stress the need for increased ecological awareness among Saudi youth, while [AlAli et al., 2024](#)) emphasize that biodiversity conservation and responsible vehicle use enhance tourist experiences and foster environmental values. Additionally, [Li et al. \(2023\)](#) underscores the role of electronic educational platforms in improving the quality of tourism services.

[Table 4](#) presents the residents' satisfaction with the electronic services provided by the

National Centre for Wildlife Development regarding visits to Al-Wa'houl Reserve. The findings suggest that clarity and accuracy in the information delivered through these services require enhancement to improve user satisfaction and support environmental sustainability. [Table 4](#) presents the evaluation of residents' satisfaction with the electronic services provided by the National Wildlife Centre for visits to the Ibx Protected Area. It includes various indicators of service quality, such as clarity, accuracy, wait time, and overall alignment with user needs. Notably, 40% of respondents either strongly agree or agree that the information provided is clear and accurate, indicating a relatively positive perception. However, 28% express dissatisfaction, highlighting a significant gap that must be addressed to enhance the user experience.

Regarding Service Providers' Understanding of User Needs: Approximately 34% of respondents expressed satisfaction with the service providers' understanding of their needs, while 36% reported dissatisfaction. This discrepancy highlights a deficiency in service providers' comprehension of user requirements, indicating the need for interventions to enhance communication and better align with user expectations.

Regarding Wait Time: 36% of respondents regard the wait time as reasonable and appropriate, while 32% perceive it as unacceptable. This evaluation underscores the necessity to reassess service delivery procedures to minimize wait times and improve user satisfaction.

Regarding Quality of Electronic Services: While 32% of respondents express satisfaction with the quality of services, 40% indicate dissatisfaction. These findings highlight an urgent need to enhance electronic services to better align with user expectations. Concerning necessary platform updates, the highest mean score of 4.18 demonstrates significant consensus among respondents regarding the need for substantial improvements, with 80% in agreement. This assessment indicates that the current platform is inadequate and requires significant enhancements. Notably, 38% of respondents reported difficulties with login and password retrieval, underscoring the necessity to address these issues to facilitate easier access to services.

Regarding Content Quality on the Platform: The results show significant dissatisfaction with the quality of available content, reflected in the lowest mean score of 2.86. This indicates a need for improvement and regular updates to better meet users' needs and expectations.

Regarding Trust in Transaction Efficiency on the Platform: The item received a mean score of 3.16, reflecting a moderate level of user trust. However, 32% of users lack full confidence in the effectiveness and efficiency of transactions on the platform.

Overall, [Table 4](#) illustrates variability in user satisfaction levels, highlighting strengths such as the clarity of certain information while also identifying significant challenges, particularly regarding necessary platform updates and content quality.

Table 4: Assessment of Local Residents' Satisfaction Levels with the Electronic Service Provided by the National Centre for Wildlife for Visiting the Ibex Protected Area

Question		Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree	Mean	SD	Rank
The information provided through these services is clear and accurate.	F	11	9	16	4	10	3.14	1.4	3
	%	22	18	32	8	20			
Service providers fully understand my needs.	F	10	7	15	10	8	3.02	1.34	6
	%	20	14	30	20	16			
The wait time to receive the service is reasonable and within expected limits.	F	9	9	16	8	8	3.60	1.31	4
	%	18	18	32	16	16			
I am satisfied with the quality of the electronic services provided directly by the centre.	F	9	7	14	9	11	2.88	1.39	9
	%	18	14	28	18	22			
The platform, in its current state, requires further substantial updates.	F	27	13	5	2	3	4.18	1.15	1
	%	54	26	10	4	6			
I find it difficult to log in and retrieve the password from the electronic service.	F	10	9	12	14	5	3.1	1.2	4
	%	20	18	24	28	10			
The electronic services provided by the centre are complete and contribute to preserving the natural environment.	F	8	9	17	11	5	3.08	1.2	5
	%	16	18	34	22	10			
The content available on the platform regarding the protected area is of high quality and clarity.	F	8	5	15	16	6	2.86	1.24	11
	%	16	10	30	32	12			
The digital interface of the Fetri platform is clear and well-organized, making it easy to search and navigate.	F	8	9	13	13	7	2.96	1.29	7
	%	16	18	26	26	14			
The information provided through the platform is current and reflects the actual reality of available services.	F	8	8	11	16	7	2.88	1.20	9
	%	16	16	22	32	14			
The Fetri platform provides accurate and reliable information about the electronic services.	F	9	8	19	9	5	3.14	1.21	3
	%	18	16	38	18	10			
I trust that the transactions I conduct through the platform are done efficiently and effectively.	F	11	8	15	10	6	3.16	1.31	2
	%	22	16	30	20	12			
The Fetri platform demonstrates a genuine understanding of my needs as a user and strives to meet them.	F	8	5	18	14	5	2.94	1.20	8
	%	16	10	36	28	10			

Source: Field Study

Further research is recommended to explore the underlying reasons for these assessments and to comprehensively enhance electronic services, thereby improving user experience and increasing overall satisfaction levels.

Key Challenges Facing Electronic Services Provided via the Fetri Platform

The challenges outlined in [Table 5](#) delineate the primary issues affecting the effectiveness and user satisfaction of the electronic services offered through the "Fetri" platform. Addressing these challenges is essential for identifying areas requiring immediate attention and improvement, thereby enhancing the platform's overall performance and user experience.

[Table 5](#) analyses challenges faced by the "Fetri" platform, emphasizing issues affecting user experience. A major concern is the platform's inflexibility to adapt to modern developments, as noted by ([AlAli et al., 2024](#)), underscoring the need for updates in electronic services. The most rated was the lack of convenient hours to visit, with a rating of 3.80, where callers cited more promotive timing for service provision. Furthermore, there is still a gap in terms of diversity and interactivity of content on this platform's content, aligning with findings by ([Alkhaibari et al., 2023](#)) that outline how such an educational electronic platform needs improvement. An average rating of 3.56 is recorded for this challenge, which signifies that the content on the platform does not meet the needs and interests of the local populace effectively, and hence, there is a need to provide more customized and interactive content. A lack of two-way communication between users and platform administrators was also documented at an average of 3.50.

This finding corresponds with the arguments presented by [Seddon and Khoja \(2003\)](#) that for the users to develop trust and satisfaction with the system, there is a need to ensure effective communication is engaged. Since these channels are on the front line of contact with the users, their enhancements will assist in trying to respond to user queries and issues effectively. In this respect, human resource shortages, processing skill deficiencies concerning certain procedural transactions, and the partial distrust in personal data security or privacy were related to relatively low scores. These results reflect that the support mechanisms for resolving users' issues need to be enhanced for quicker and more efficient resolution, while security and privacy concerns must be augmented to better protect user information.

This type of assessment places emphasis on the resolution of core issues, which directly relates to user satisfaction, whereas aspects needing further attention are also being taken into consideration to improve experience on the whole platform. Overall, the results indicate variability in user satisfaction across different dimensions of the electronic services offered by the "Fetri" platform, suggesting a need for actionable steps to improve these services and increase user satisfaction.

Table 5: Key Challenges Facing Electronic Services Provided via the Fetri Platform

Question		Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree	Mean	SD	Rank
I do not fully trust the security and privacy of my personal data through the electronic service.	F	4	5	17	16	8	2.62	1.1	12
	%	8	10	34	32	16			
There is difficulty in providing fast access to the Fetri platform.	F	11	9	13	11	6	3.16	1.3	9
	%	22	18	26	22	12			
There is no guarantee of privacy in handling personal data through the National Centre for Wildlife Development's electronic portal.	F	5	11	13	14	7	2.86	1.2	11
	%	10	22	26	28	14			
There is a lack of effective communication between users and those responsible for the Fetri platform.	F	13	13	14	6	4	3.50	1.2	3
	%	26	26	28	12	8			
The electronic system and application lack diverse and interactive content that meets the needs and interests of residents.	F	17	9	14	5	5	3.56	1.3	2
	%	34	18	28	10	10			
There is a delay in updating information and services through the platform's electronic portal.	F	10	12	16	7	5	3.30	1.2	7
	%	20	24	32	14	10			
The support mechanisms lack the efficiency needed to resolve users' issues.	F	12	9	18	7	4	3.36	1.2	5
	%	24	18	36	14	8			
The platform has difficulty meeting the needs of all user segments for electronic services.	F	15	8	17	5	5	3.46	1.2	4
	%	30	16	34	10	10			
The electronic services lack sufficient flexibility to keep up with modern developments.	F	11	13	15	6	5	3.80	1.2	1
	%	22	26	30	12	10			
There are deficiencies in processing some procedural transactions carried out through the platform.	F	12	10	13	10	5	2.88	1.2	10
	%	24	20	26	20	10			
There is a lack of qualified human resources necessary to facilitate the platform's operations.	F	8	16	16	5	5	3.28	1.3	8
	%	16	32	32	10	10			
There is a lack of trust in the platform's staff.	F	10	8	10	16	6	3.34	1.7	6
	%	20	16	20	32	12			
The electronic service on the Fetri platform does not provide suitable visiting times.	F	26	4	8	8	4	3.80	1.4	1
	%	52	8	16	16	8			

Source: Field Study

Recommendations from Respondents for Improving the Electronic Service Provided through the "Fetri" Platform and Enhancing Its Use by Local Residents

The suggestions summarized in [Table 6](#) include the main recommendations given by respondents for the "Fetri" platform electronic services to get better. These recommendations emphasize that the platform should be more usable, accessible, and efficient for its residents' needs and expectations. By implementing these suggestions, the platform can enhance its service delivery and promote greater user satisfaction and engagement.

[Table 6](#): Suggestions for improving the electronic services of "Fetri" to increase its usage by the locals. By implication, the average scores for all suggestions are close to each other, implying that there is a very strong consensus among respondents regarding their suggestion in improving electronic services. Additionally, [Table 9](#) also provides another set of recommendations which would be useful in ensuring that more usage of this platform is engaged in by the residents of this locale. Reviewing the findings, great support for certain recommendations is great; most of all, providing a "specialized technical support team" enjoys high endorsements, steering in the same direction as ([Demir et al., 2021](#)) observed that there was indeed a need to raise the quality of service with better support. The recommendation of integrating modern technologies also agrees with ([Gautam, 2023](#)), in that the including of advanced tools is a vital approach toward ensuring the sustainability of eco-tourism.

The highest rating represents "Regularly surveying user opinions and needs"; this shows the converged consensus on issues related to knowing user requirements, as also asserted by Ahmad and Zhang in 2020 regarding user feedback as a basis for improving the quality of online services. The use of latest technologies such as incorporation of virtual reality and artificial intelligence were among the top recommended services showing participants wanted to enhance the interactive and technological experience of electronic service provisions. The call to introduce improvement technologies, such as virtual reality and AI, represents recent trends from ([Lesmana & Balqiah, 2023](#); [Santos, 2003](#)), showing the important role that modern technologies play in increasing e-service quality.

Recommendations with lower mean scores, such as the addition of more languages, while still deemed necessary, suggest a lesser immediate priority. This observation aligns with the findings of [Gajdošík et al. \(2024\)](#), which identify gaps in smart tourism applications. Overall, the recommendations emphasize enhancing the user experience, leveraging modern technology, and ensuring continuous platform development. Specific priorities must be identified to improve the user experience and increase the effectiveness of these services.

Table 6: Recommendations for Improving the Electronic Service Provided through the "Fetri" Platform and Enhancing Its Usage by Local Residents

Question		Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree	Mean	SD	Rank
Add an auxiliary application to raise awareness about natural reserves to increase knowledge dissemination among all beneficiaries of the services provided by the centre.	F	25	15	6	3	1	4.20	1.01	9
	%	50	30	12	6	2			
Add more languages to the platform to meet the needs of foreign visitors and tourists.	F	21	15	9	3	2	4.00	1.10	11
	%	42	30	18	6	4			
Integrate modern technologies such as virtual reality and artificial intelligence to enhance services.	F	25	16	5	3	1	4.22	0.99	8
	%	50	32	10	6	2			
Provide a specialized technical support team to respond to user inquiries more quickly.	F	32	12	4	1	1	4.46	0.29	1
	%	64	24	8	2	2			
Add more interactive content that serves the goals of environmental awareness for the local community.	F	34	8	5	3	---	4.28	1.03	6
	%	68	16	10	6	---			
Offer a lighter version of the platform that is compatible with devices of lower specifications.	F	28	13	6	1	2	4.38	1.09	5
	%	56	26	12	2	4			
Launch awareness campaigns to inform the target audience about the electronic services provided by the centre.	F	34	7	5	2	2	4.28	1.05	6
	%	68	14	10	4	4			
Consult experts in user experience design to improve the platform's interface.	F	28	14	4	2	2	4.40	1.01	4
	%	56	28	8	4	4			
Enhance the use of the electronic service provided by the platform to support sustainable eco-tourism in the Wadi Al-Ghoul Protected Area.	F	32	11	4	1	2	4.42	1.01	3
	%	64	22	8	2	4			
Continuously develop and expand services and activities on the platform to increase the number of services and activities offered by the centre.	F	31	12	5	1	1	4.38	0.98	5
	%	62	24	10	2	2			
	F	32	9	6	2	1	4.12	1.12	10

Activate electronic volunteering for reserve maintenance activities and environmental awareness among residents.	%	64	18	12	4	2			
Direct more financial and technological investments to ensure the sustainability of the platform's development and services.	F	24	15	7	1	3	4.22	1.06	8
	%	48	30	14	2	6			
Seek strategic partnerships with specialized entities to enhance the platform's technical capabilities in the future.	F	27	12	8	1	2	4.25	1.03	7
	%	54	24	16	2	4			
Provide a dedicated team of technicians and experts to support the platform.	F	25	15	7	1	2	4.20	1.30	9
	%	50	30	14	2	4			
Regularly survey user opinions and needs to develop these electronic services in the future.	F	32	11	4	3	---	4.44	0.88	2
	%								

Source: Field Study

CONCLUSION

Analysis of user data and patterns of usage on the 'Fetri' digital platform demonstrates popular interest on the part of residents in taking up the online services available on the platform, particularly about permit issuance to visit protected areas. However, there were some gaps that were quite noticeable in the level of engagement-54% of respondents showed that they did not complete booking transactions using the online portal. These results have shown that interest in the visitation services of protected areas enables further development of the portfolio of offers, extension of the circle of users, effective marketing strategies, and ongoing process development of the platform. Interest in protected area visitation services provides an opportunity to develop the portfolio of offers with the need to adopt better methods of promotion, coupled by developing an easy-to-use platform, its update, and simplification of procedures allowing users to access all services available. It was also evident from the problems of the 'Fetri' platform that this is a huge need for urgent addressing: the users expressed a lack of confidence in digital security and reliability regarding the protection of private information. The results also indicate delays in information updates and a lack of diverse and interactive content that meets residents' needs. A comprehensive approach to system updates and effective communication between users and support teams is essential to improve platform performance and user satisfaction. Enhancing digital security, service flexibility, and providing up-to-date content that reflects actual conditions will contribute to a better user experience and increased trust in the platform. These conclusions can inform future improvement strategies and offer valuable insights for enhancing the effectiveness and efficiency of the digital platform's services.

RECOMMENDATIONS

Based on the analyzed data of users on the 'Fetri' platform, the following are some of the key recommendations that can be used to make the services more effective and efficient. First, the need to increase promotional strategies since not many people are aware of the platform, especially the services that have been put in place for issuance of permits to visit protected areas. It could be performed through specific promotional activities, as well as through the extension of the communication channels with the target group of beneficiaries. Second, simplification of the user procedures and a general improvement in the level of use, through updates and facilitating access to all available services using the platform, is very important. These improvements will facilitate user interaction and promote greater engagement with transactions on the online portal. Third, it is essential to address issues related to digital security to enhance protective measures and ensure data reliability, thereby creating a secure environment that boosts user confidence in the platform. Fourth, regular updates of information and the provision of diverse, interactive content are necessary to meet the needs of local users. Finally, developing an effective support system with direct and responsive

communication channels is recommended to facilitate the efficient handling of inquiries and issues. Implementing these recommendations will improve the platform's performance and user satisfaction, ultimately contributing to the achievement of its goals and increasing usage among residents.

IMPLICATIONS

This study has significant implications and novelty concerning the acceptance and use of e-services in ecotourism, underlining a potential enhancement in sustainable management of nature reserves. Understanding the local community in using such services is a must for responsible and environmentally friendly tourism strategy development. Moreover, the focuses on the local perceptions and actions underline the role of community involvement in the success of ecotourism initiatives, as their experiences with e-services may foster more integrated approaches. The findings explain how effective electronic services can enhance conservation efforts by disseminating information about nature reserves and their importance. Moreover, these insights can inform educational outreach tailored to the specific needs of local communities. Policymakers and reserve managers can leverage this research to formulate effective policies and management strategies, particularly by identifying determinants of e-service adoption that guide user-centred digital resource design for nature reserve visitors. This research contributes to the literature by addressing a critical gap regarding electronic service adoption in wildlife conservation and ecotourism, laying a foundation for future studies. The recommendations provided can have practical implications for organizations such as the National Centre for Wildlife, guiding improvements in e-service design, accessibility, and promotion. Ultimately, the findings enhance the broader tourism industry's understanding of how digital services can improve visitor experiences and promote sustainable practices. They are also significant for developing ecotourism methodologies that prioritize local community engagement, conservation efforts, and visitor satisfaction.

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