UNIVERSITY of RWANDA

Research and Postgraduate Studies (RPGS) Unit

E-TOURISM IMPLEMENTATION: INVESTIGATION OF ITS OPPORTUNITIES AND CHALLENGES FROM THE TOUR OPERATORS' PERSPECTIVE IN RWANDA.

By

ROBERT HABINSHUTI

Ref: 218015744

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN INFORMATION SYSTEM.

OPTION: E-GOVERNMENT

SUPERVISOR:

PIERRE BAKUNZIBAKE, PhD

KIGALI, RWANDA,

October 20, 2024

Declaration

I, Robert HABINSHUTI (Ref No: 218015744) declare that this thesis research "e-tourism implementation: investigation of its opportunities and challenges from the tour operators' perspective in Rwanda." is my original work and that it has not been submitted to any other College, Institution or University other than university of Rwanda /College of science and technology for academic purposes.

UNIVERSITY *of*
RWANDA

COLLEGE OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY

FINAL MASTERS THESIS SUBMISSION FORM

Names of Student	HABINSHUTI Robert	Reference Number	218015744
Research Title	E-tourism Implementation: Investigation of its Opportunities and Challenges from the Tour operators' perspective in Rwanda.		
Programme	Master of Information Systems (option: e-Government)		
Degree (Master)	Master		

APPROVAL:

MAIN SUPERVISOR NAME: Dr. Pierre Bakunzibake

SIGNATURE: 

DATE: 21/05/2024

ANY COMMENT:

Acknowledgements

My master's journey had not been easy, particularly during the period of the research thesis but in all, I thank the Almighty God.

I would like to express my sincere gratitude to my supervisor Dr. Pierre BAKUNZIBAKE for his acceptance, invaluable support, and diligent guidance throughout the short period of time I had left for my studies. You have taught me a lot during this period.

My sincere gratitude goes also to Dr. Frederic NZANYWAYINGOMA, the postgraduate coordinator for his encouragement, guidance, and advice in my whole master's journey at the university.

I also wish to express my gratitude and appreciation to my family, my relatives especially, my colleagues and friends for their unparalleled encouragement, support, and assistance they provided.

Abstract

The evolution of information and communication technologies (ICT) is transforming the tourism industry, then the concept of e-tourism. Despite its potential benefits, the implementation of e-tourism in Rwanda remains limited, particularly tour operators in Rwanda. This study aims to investigate the opportunities and challenges of e-tourism implementation from the tour operators' perspective in Rwanda.

The case study was used as the main methodology approach, to investigate key challenges that are faced by tour operators, survey questionnaires were administered to licensed tour operators in Kigali, multiple linear regression analysis was used to test hypotheses. Document analysis was conducted to identify potential opportunities for e-tourism implementation.

Data security and privacy found to significantly influence service quality while laws and regulations, and technological infrastructure significantly influence the market reach and presence while Potential opportunities lie in the availability of financial incentives and support, a conducive regulatory environment, and government support for ICT infrastructure development.

This study contributes to the little literature on e-tourism in Rwanda particularly on tour operators, highlighting insights for tour operators, researchers, policymakers, and investors in general. Recommendations help to tackle challenges and leverage e-tourism opportunities in Rwanda's tourism industry.

Keywords: e-tourism, opportunities, challenges, tour operators, ICT, Rwanda.

List of tables

List of figures

List of Graphs

Table of Contents

Chapter One: Introduction

1.1. Background

The tourism industry globally witnessed the evolution in the 1980s, without a doubt driven by the advancements in information and communication technologies (ICT) that have altered business practices and structural aspects of the industry (Condratov, 2013).

Beginning with the year 2000, we could observe in the ICT domain an especial emphasis regarding the development of a large series of instruments and services that facilitate the interaction between the market actors at a global level. The development of the search engines, the transport capacities, and the speed of the networks have influenced the number of tourists from all over the world who use technology for planning and documenting their journeys (Condratov, 2013).

In Rwanda, tourism has been identified as a priority sector to achieve its development goals as set in Vision 2020, and the successful implementation of the previous policies resulted in an increase of foreign visitors and revenues between 2007 and 2008 from$138 million to $ 209 million (ministry of trade and industry, 2009).

The tourism and hospitality sector are among the key drivers for Rwanda's economic growth. In 2019, the sector contributed approximately 13% to GDP which is higher than the world share (10.4%), higher than sub-Saharan African share (7.1%), and higher than that of East African countries such as Kenya (9.7%); Tanzania (9.0%); Uganda (7.3%). (Rwanda Development Board, 2021)

Previously we discussed the role of information and communication technologies on tourism, The year 2022 recorded the number of internet users globally which surpassed over 5 billion (statista,2023), concurrently the outbound travel got an impressive year-on-year rise of 90 percent, equivalent to a global volume of almost 700 million trips in 2022 according to IPK's World Travel Monitor® (IPK International, 2023), and this diverse e-tourism market includes Rwanda as well.

Despite the benefits offered by e-tourism, we observed some tour operators that are falling behind these impressive opportunities or hesitant to embrace them. It has been revealed that reluctance can pose a problem to the growth and competitiveness to the tourism industry in Rwanda.

The e-tourism implementation literature on Rwanda is very limited, particularly from the point of view of tour operators who are among key stakeholders in the tourism industry. There are some literatures about e-tourism in various global contexts but in Rwanda, still there is a lack of research focusing on the specific opportunities and challenges faced by tour operators in Rwanda.

This study explores the opportunities and challenges of e-tourism implementation from the perspective of tour operators in Rwanda, this study will use the case study approach as the main methodology approach, by using the case study method as the main research approach and combining various research methods for each specific objective, this study aims to offer a holistic and detailed examination of the opportunities, challenges, and recommendations for e-tourism implementation within the Rwandan tour operators industry.

1.2 Problem Statement

Rwanda has identified tourism as a priority to achieve its development goals (ministry of trade and industry, 2009). Globally, it also plays an important role for many countries' development.

However, despite its potential, the adoption of e-tourism practices in Rwanda remains limited. Igihe.com (2022) reveals that only 15% of 300,000 tourism-based businesses in Africa have adopted e-Tourism technologies. This level of limited digital adoption also applies to tour operators in Rwanda, where (Uwamariya et al.,2015) indicated that "tourism SMEs face barriers to e-commerce adoption, including a business culture favoring the status quo in terms of business approaches and inability to undertake the implementation and usage knowledge".

The authors also highlight that Rwanda's tourism industry lags behind other sectors in terms of ICT usage, limiting itself to the rudimental use of social media. The highlighted barriers among the tourism industry towards technology in their services, drove our attention particularly to investigate challenges faced by tour operators in implementing e-tourism and also finding potential opportunities that they may have while leveraging e-tourism in Rwanda as this lag in e-tourism adoption could pose challenges and missed opportunities for the Rwandan tourism sector's growth.

our research aims to investigate the key challenges faced by tour operators in Rwanda regarding e-tourism and identify potential opportunities that remain untapped.

1.2.1 Research Question

This research will be guided by the following research question:

"What are the opportunities and challenges faced by tour operators in Rwanda regarding the implementation of e-tourism?"

1.3 Aims/Objectives of The Research

This research aims to investigate the opportunities and challenges of e-tourism implementation from the perspective of tour operators in Rwanda.

1.4 Specific Objectives:

The following specific objectives will be addressed in order to reach our research general objective.

- To investigate the key challenges faced by tour operators in Rwanda in the use of e-tourism.
- To identify the key opportunities of e-tourism implementation for tour operators in Rwanda.

1.5 Hypotheses

In the context of this study, the purpose is to investigate the challenges associated with the e-tourism implementation in Rwandan from the tour operators' perspective, the hypotheses below will be tested to determine if there is sufficient statistical evidence showing that;

Null hypothesis Ho_1: Technology expertise, Integration and interoperability, Data security and privacy, and Implementation costs do not significantly influence service quality in e-tourism implementation within Rwandan tour operator companies.

Null hypothesis Ho_2: Technological Infrastructure, Digital marketing strategies, laws, and regulations do not significantly influence market reach and presence in e-tourism implementation in Rwanda within Rwanda tour operator companies.

1.6 Study Scope:

This study delves into the implementation of e-tourism from the perspective of tour operators in Rwanda with a particular focus on technological-related challenges faced by tour operators, in the other hand the identification of the potential opportunities goes beyond technological-related factors to include a broad range of factors. Geographically the study is restricted to tour operators that their head offices are based in Kigali. This study aims to give readers an in depth understanding of the complexities involved in e-tourism implementation by investigating challenges faced by tour operators and identifying potential opportunities that are available in Rwandan environment. This will play a significant role by contributing to the e-tourism implementation research community.

Chapter Two: Literature Review

2.1 Definition and Significance of E-tourism:

E-tourism is defined as the use of information and communication technologies in the tourism industry. It involves the buying and selling of tourism products and services via electronic channels: the Internet, and cable TV. E-Tourism includes all intranet, extranet, and internet applications as well as all the strategic management and marketing issues related to the use of technology. ICTs include the entire range of electronic tools, which facilitate the operational and strategic management of organizations by enabling them to manage their information, functions, and processes, as well as to communicate interactively with their stakeholders to achieve their mission and objectives (Hanane, 2023).

2.2. E-tourism: Global Context and Implementation

E-tourism in Rwanda, underscored attention to different stakeholders, where in two-day tourism business forum meeting in December 2022, once mentioned as solution to enhance tourisms sector recovery.

The two-day meeting previously mentioned, organized by the Rwanda chamber of Tourism which brought together tourists and other actors in the tourism sector from 15 countries discussed problems that threaten tourism at the level of the country, region, and Africa and how to solve them, and also tackling existing challenges to make Africa destination for tourists mentioned that one of the issues that continue to hamper the tourism industry was the reluctance to use technology to promote services and goods. In Africa, there are 300,000 tourism-based businesses, but 15% of them embraced the 'E-Tourism' technologies. (igihe.com, 2022)

The tourism industry in Rwanda has been negatively affected by Covid-19, with revenues falling from US$498 million in 2019 to $131 million in 2020. However, due to attempts to revive the tourism industry, the sector began to expand in 2021, and speaking on the second day of the meeting, the Lead Project Manager at the ICT Chamber in Rwanda's Private

Sector Federation, Dushime Chris said that revenues would not have dropped drastically, had businesses embraced technology before the onset of the pandemic (Igihe.com, 2022).

Jonathan et al. highlighted the importance of the Internet in Cameroon's tourism industry; they stated that even the National Tourism Council has chosen it as the key element in their marketing strategy. (Tchamy et al., 2020) They mentioned that the internet has the potential to offer different marketing channels and as well enhance the tourists' awareness or knowledge of Cameroonian culture. (Tchamy et al., 2020)

Jonathan et al., underline the difficulties tourists have faced while selecting and planning activities during their visit, frequently because of having little knowledge of the destination (Tchamy et al., 2020). They underscore the significance of providing relevant and localized information along with keeping a strong relationship with customers (Tchamy et al., 2020).

For instance, in Cameroon, the National Tourism Council has used the Internet to make information and booking services easily accessible to a variety of tourists, at a fair price. This kind of strategy improves the overall tourism experience as it facilitates communication between travelers, middlemen, and service providers (Tchamy et al., 2020).

2.3. E-tourism in Rwanda: Present Landscape and Potential for Growth

Rwanda is trying to make great progress in terms of infrastructural and technological improvements where counts 13,493,860 population (2022) with a country area of 26,338 sq km and now registered 5,981,638 Internet users in Dec/2021, 44.3% of the population, per RURA. (Internetworldstats.com, 2022)

Additionally, (Handrie, 2020) noted that advances in technology and the pervasive use of the Internet have fundamentally altered how travel is organized, scheduled, and paid for. Travelers can now easily plan and reserve their trips online, saving them both money and time, by utilizing e-tourism.

In their study, they found that the e-tourism application includes four key modules, which are booking services, recommender services, tour plan services, and information center services. The mentioned modules will make it simple for travelers to plan and organize their trips while having useful information about their destinations.

2.4. Tour Operators and E-tourism implementation

Recent research has revealed that digital technology is a key component in both the creation and consumption of online tourism experiences. As a result, the majority of remote tourist sites now exhibit a greater interest in technology-related resources, expertise, and capabilities (Abdullahi et al., 2021).

Therefore, the effectiveness of digital marketing technology plays a crucial role in maintaining the competitive advantage of the new digital industry in online tourism product promotion.

They discussed (Abdullahi et al., 2021) the use of mobile devices, websites, and augmented reality applications in the promotion of e-tourism products is fast becoming one of the most cutting-edge uses of digital marketing technologies for suppliers, tourism intermediaries, travelers, and online destination promoters.

(Okwemba & Nambiro, 2020) place a strong emphasis on the contribution that e-tourism makes to the expansion of the regional and global tourist industries through the efficient use of ICTs.
They also advocate for the development of e-tourism infrastructures and the provision of additional online services to enhance traveler experiences.
Sari emphasizes the advantages of e-tourism implementation, such as cost savings, enhanced service delivery, and increased revenue. E-tourism's use makes it easier to sell, distribute, and assess public opinion about well-liked vacation spots (Okwemba & Nambiro, 2020).

Also, e-tourism uses several features of information technology, such as tourism information databases, user databases, and electronic payments, there is also the use of computer networks as a means of delivery and service transactions as part of e-commerce (Okwemba & Nambiro, 2020).

A good consumer who is also well informed is ready to take advantage of the different special offers and discounts offered, can interact more effectively with local resources and cultures, and find goods and services that satisfy his or her needs.

Therefore, it is crucial to comprehend how travelers seek information before developing efficient marketing plans and creating the right communication campaigns.

The rapid advancement and uptake of information technology in the travel and hospitality sectors have had an impact on customer behavior, including information search, purchase decisions, and post-purchase behavior, as well as supplier marketing and management strategies (Sari, 2022).

in his paper (Afaneh, 2021) takes time by showing the numerous benefits of e-tourism implementation such as it is considered an effective means of concluding deals through direct electronic communication even saving administrative and other expenses by the rate of 80%.

On the side for the tourism companies, it enables them access to the current markets, opening to new markets and increasing the competitiveness of their products in global markets, while benefiting from the experiences of their competitors and learning from the experiences of other countries in the field of electronic tourism.

He also said that e-tourism defeated the traditional barriers, and which makes it easier to access tourism that businesses need for it can improve the service to render to tourists,
With the use of e-tourism, it can lower the costs associated with distribution, marketing and facilitate calculating the public opinion on popular tourist places in order to create a tourism offering that meets the tourist's needs. As demonstrated by GDP calculation e-tourism can help to improve revenues and earnings (Afaneh, 2021).

The author also mentioned that despite the benefits provide by e-tourism, there are obstacles that prevent them from being fully implemented, and among these obstacles: Electronically working. The absence of a legal framework that regulates electronic transactions, as is the case in Algeria, in addition to the absence of electronic payment methods with them, and this is what affects the work of tourism agencies in Algeria in particular and the tourism sector in general.

The authors of Implementation of E-Tourism In Aceh Province for Future Sustainable Development through Media Promotion (Ulfa et al., 2021) noted that Indonesia uses e-

tourism as a new strategy and great innovation in developing its tourism, which is very easy for an area to promote its tourism.

For a country with potential tourism, this is good for supporting its economy so that foreign and domestic tourists can easily find out various interesting things about the country's tourism like in Aceh Province.
In implementing e-tourism in Indonesia precisely, the Internet plays a vital role in the realm of tourism where many things are easily accessible by many people in the world. The spread of information regarding tourism development can be accessed anywhere and anytime.

A country to optimize its e-tourism strategy, it is considered to form a team of personnel that is skilled in IT mastery, plus the infrastructure should be in place. Tourism development is not only for the government (Afaneh, 2021).

2.5 Research Gaps and Opportunities in E-tourism Studies

The e-tourism in Rwanda is almost dormant despite the tremendous tourism environment opportunities and the current setup of ICT infrastructure in place. According to (igihe, 2022), the adoption of e-tourism practices in Rwanda remains limited, with only 15% of the 300,000 tourism-based businesses in Africa embracing e-tourism technologies. The article highlights that the tourism sector in Rwanda has been negatively affected by the COVID-19 pandemic, with revenues falling from US$498 million in 2019 to $131 million in 2020.

However, the sector started registering growth in 2021 due to tourism recovery efforts. Despite these efforts, the adoption of technology in the tourism sector remains low, with many businesses reluctant to integrate e-tourism practices into their operations (igihe, 2022). This research will help us to investigate the opportunities and challenges from the tour operators' perspective in Rwanda.

With such literature review, we have an insight in e-tourism implementation opportunities, challenges, and their impact on tourism. For the opportunities, we can say such Government initiatives, information technology, and the development of infrastructure are crucial factors that contribute to the successful implementation of e-tourism, and for the challenges; we can mention the provision of accurate updated information about tourist attractions, service and

experiences, infrastructures development in place, also having e-tourism is based on technological infrastructure namely the internet, mobile network, online platform.

There are also some literature gaps, the limited study on Rwandan e-tourism, looking into further the challenges and opportunities of e-tourism particularly from the tour operator's point of view, this study will help us to explore those gaps in order to have a tangible contribution of the implementation of the effective e-tourism in Rwanda.

Chapter Three: Research Methodology

3.1 Research Methodology

3.2 Research Approaches

We have opted to use the case study as the main methodology approach, because this approach combines the use of multiple research methods, it also helps to comprehensively explore a particular phenomenon within its real-life context (Priya, 2021). It's a versatile approach that allows you to gather rich and detailed data from various sources, enhancing the depth and breadth of your understanding.

A common technique that combines the various research approaches in our study is the case study. Utilizing survey questionnaires, multiple linear regression and document analysis will be our approaches.

Research Objectives and Methodological Approaches

	Specific Research Objectives	**Methodological Approaches/ Tools**
1	**Objective 1:** To investigate the key challenges faced by tour operators in Rwanda in the use of e-tourism.	Survey Questionnaires Multiple Linear Regression
2	**Objective 2:** To identify the potential opportunities of e-tourism implementation for tour operators in Rwanda.	Document Analysis

Table 1: Research objectives and corresponding methodological approaches

By using the case study method as the main research approach and by combining survey questionnaires and multiple linear regression to investigate the key challenges faced by tour operators in Rwanda in the use of e-tourism, document analysis to identify the potential opportunities of e-tourism implementation for tour operators in Rwanda as research methods

for each specific objective, this study will help us to know more about what is on the ground in terms of challenges, opportunities for e-tourism implementation within the Rwandan tour operators' industry.

3.3. Investigating Key Challenges Faced by Tour Operators

3.3.1. Description of the research population.

The population for our research is the tour operators whose head offices are based in Kigali. A tour operator is a tourism entity, which is licensed and authorized to sell tourism services in Rwanda (Law Regulating Tourism Industry in Rwanda, 2014), and we choose this case considering that they are able to maneuver operations, especially in terms of interacting with more tourists or clients.

During our research, our population will be comprised of tour operators who fulfill the following criteria:

- **Licensing**: tour operators which are licensed, those are tour operators which will constitute our study population.
- **Location**: Tour operators, whose their offices in Kigali, only will be part of our study population.
- **Years of operation**: Our study population tour operators must be registered and having at least one year of operational in this industry.

We these above-mentioned criteria, we help us to have and gather relevant data across our study population and draw meaningful conclusions.

3.3.2. Data Collection Methods

Our data collection methods comprised both quantitative and qualitative methods and this allowed us to investigate our research objectives form different perspectives, to make sure that we covered all aspects of the research objectives, we have used both primary and secondary data. In this section, we will explain how using the above-mentioned approaches led to rich findings.

During our research, the survey questionnaire was designed to include questions that help us investigate the key challenges faced by tour operators in Rwanda in the use of e-tourism. The survey questionnaire was sent to the sample for our tour operators via email, with follow-up phone calls made to ensure a high response rate.

3.3.2.1. Survey Questionnaire

A questionnaire is a research instrument that consists of a set of questions (or other types of prompts) to gather information from respondents through a survey or statistical study. A research questionnaire is typically a mix of close-ended questions and open-ended questions. Open-ended, long-term questions offer the respondent the ability to elaborate on their thoughts (Wikipedia, 2023).

In designing our survey questionnaire, we used different sources for imaginativeness, including but not limited to an extensive past literature review, our first-hand observation, and the insights from tour operators themselves.

The survey questionnaire's questions and variables were carefully chosen in line with our research objective to investigate the key challenges faced by tour operators in Rwanda in the use of e-tourism to ensure we capture the most relevant information and data. This strategy allowed us to gain a firmly grounded comprehension of actual challenges faced by tour operators in Rwanda in terms of e-tourism implementation and the intended data for this survey questionnaire are primarily quantitative.

Our survey questionnaire was primarily composed of numerical questions type due to our research nature and our research objective concerned.

3.3.3 Dependent and Independent Variables

In our research entitled "e-tourism implementation: investigation of its opportunities and challenges from the tour operators' perspective in Rwanda." We have used dependents and independents variables, and these helped us to establish cause-and-effect relationships and understand the impact of certain factors regarding particularly our specific research objective "To investigate the key challenges faced by tour operators in Rwanda in the use of e-tourism" and our research thesis in general.

From the extensible literature review, our observation we identified dependents and independent variables as shown below:

Independent variables:

1. **Technological infrastructure**: refers to hardware, software, and internet connectivity that tour operators use in implementing the e-tourism. A well-established infrastructure is essential in helping the tour operator by providing quality service to its customers.

2. **Technological expertise**: refers to the knowledge and skills needed for the tour operators in the effective implementation of e-tourism. Those with good expertise will leverage the power of e-tourism in their business.

3. **Implementation cost:** combines implementation costs and system compatibility. These factors are brought together to highlight the challenges related to necessary financial investments and system compatibility in the implementation of e-tourism solutions.

4. **Data Security and privacy**: it encompasses data security and online transactions as these two are very crucial in protecting customer data and ensuring its effective use.

5. **Digital marketing**: refers to the use of online channels and tools to promote and enhance the tour operator services.

6. **Integration and interoperability**: This variable refers to the ability of different IT systems to work together harmoniously, without conflicts or technical barriers with existing systems.

7. **Legal and regulatory**: refers to laws and regulations that guide them in their daily business activities. Every tour operator needs to be aware of all available laws and regulations in their industry.

Dependent Variables:

1. **Service quality/customer experience**: this is about the service rendered to the customers, we will measure the level of their satisfaction through tour operator's vis a vis to the independent variables.

2. **Market reach and presence**: this is about how the tour operator could expand, and show its services in different areas of the globe.

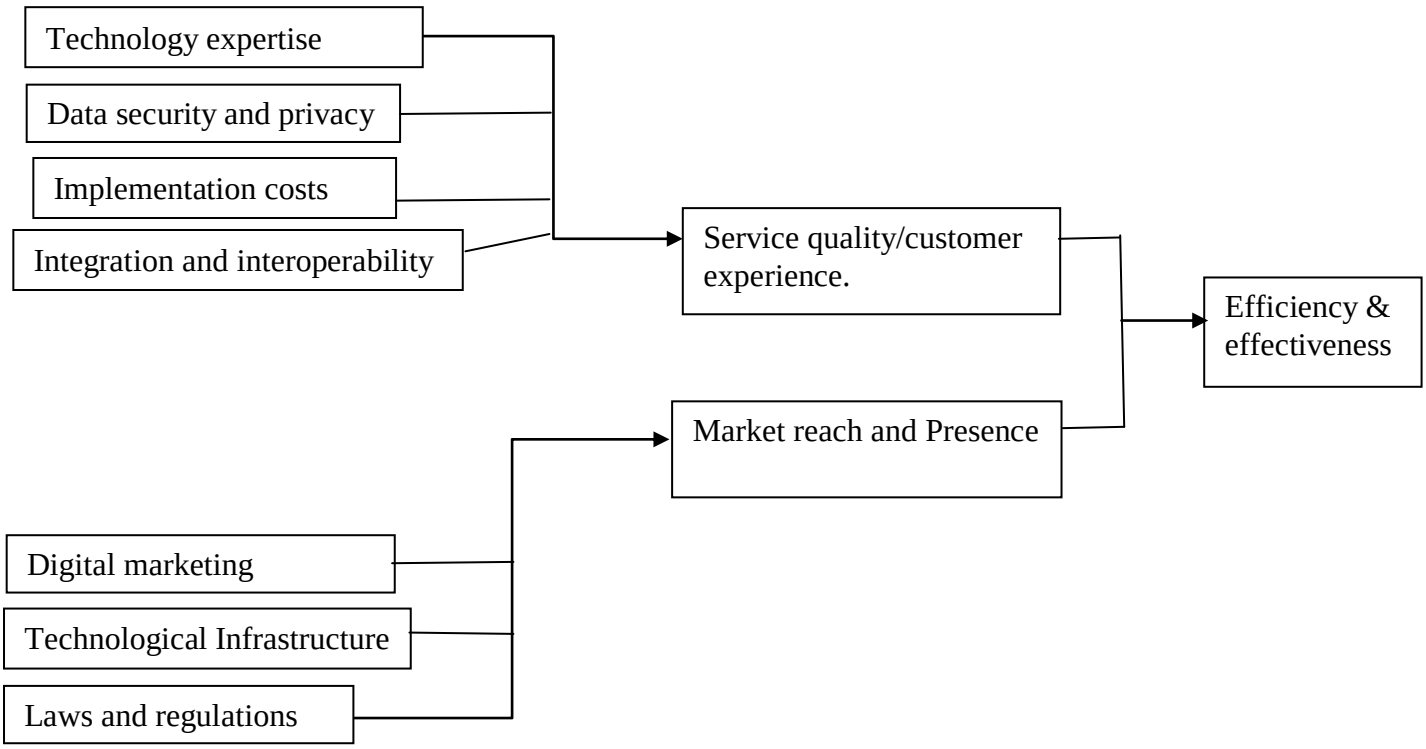


Figure 1: Research Conception Model

3.3.4. Data Quality Control.

To make sure responses from our participants are accurate vis a vis to the formulation of the questionnaire, data quality control will be ensured through the use of pretesting of the survey questionnaire. The pretest survey questionnaire will be sent to a small group of tour operators to test the clarity and understanding of the questions. This will ensure that the questions are clear, unambiguous, and easily understood by the respondents.

3.3.5. Data Analysis.

During this phase, the data analysis will involve organizing and interpreting the data generated from the survey questionnaire. The quantitative data obtained from the survey questionnaire will be analyzed using descriptive statistics such as frequency distribution, mean, and standard deviation. Additionally, multiple linear regression will be employed to analyze the key challenges faced by tour operators in the use of e-tourism, investigating the relationships between the dependent variables and the independent variables.

For the first hypothesis, the multiple regression equation is as follows:

$y_1 = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \varepsilon$

Where:
- y_1 is the dependent variable (service quality)
- x_1 is the independent variable (technology expertise)
- x_2 is the independent variable (integration and interoperability)
- x_3 is the independent variable (data security and privacy)
- x_4 is the independent variable (implementation costs)
- β_0 is the y-intercept (constant term)
- β_1, β_2, β_3, β_4 are the coefficients for each independent variable
- ε is the error term (residuals)

For the second hypothesis, the multiple linear regression equation is as follows:

$y_2 = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \varepsilon$

Where:
- y_2 is the dependent variable (market reach and presence)
- x_1 is the independent variable (technological infrastructure)
- x_2 is the independent variable (digital marketing strategies)
- x_3 is the independent variable (laws and regulations)
- β_0 is the y-intercept (constant term)
- β_1, β_2, β_3 are the coefficients for each independent variable
- ε is the error term (residuals)

By conducting multiple linear regression analyses for each hypothesis, we will be able to determine if there is sufficient statistical evidence to reject the null hypotheses and conclude that the independent variables significantly challenge service quality and market reach and presence in e-tourism implementation within Rwandan tour operator companies.

For quantitative data analysis we will use the SPSS, IBM SPSS Statistics is a powerful statistical software platform. It offers a user-friendly interface and a robust set of features that lets your organization quickly extract actionable insights from your data. Advanced statistical procedures help ensure high accuracy and quality decision-making. All facets of the analytics lifecycle are included, from data preparation and management to analysis and reporting (IBM SPSS Statistics, 2023).

SPSS is a great option for data analysis because of its many advantages. It is first renowned for being simple to use. Users may easily prepare and analyze data with SPSS without having to create complicated code.

In addition, SPSS is well known for having broad capabilities. It makes it simple for users to carry out a variety of statistical analysis. The integrated interface provided by SPSS makes it easy to do activities like running descriptive statistics to understand data patterns, running regression analyses to investigate the relationships between variables, or looking up missing data to find patterns or trends. Users of SPSS can also condense variable distributions, giving them a thorough perspective of the data at hand.

3.4. Identifying Potential Opportunities for E-tourism Implementation

3.4.1. Document Analysis

Document analysis is a systematic procedure for reviewing or evaluating documents both printed and electronic (computer-based and Internet-transmitted) material. Like other analytical methods in qualitative research, document analysis requires that data be examined and interpreted to elicit meaning, gain understanding, and develop empirical knowledge (Research Method, n.d.) and this research method will be used for our second research objective.

Document analysis has been strictly chosen for that specific research objective due to the following advantages compared to other research methods:

Availability of documents:

With the leverage of the internet, most official public documents are now being published on institutional websites, and can be obtained without the stressful bureaucratic process usually required while in other research methods. (Research Method, n.d.)

Cost effectiveness:

Document analysis is less costly than other research methods and is often the method of choice when the collection of new data is not feasible. The data (contained in documents) have already been gathered; what remains is for the content and quality of the documents to be evaluated. (Research Method, n.d.)

Efficient method:

Document analysis is less time-consuming and therefore more efficient.
than other research methods. It requires data selection, instead of data collection. (Research Method, n.d.)

Lack of obtrusiveness and reactivity:

Documents are 'unobtrusive' and 'non-reactive' that is, they are unaffected by the research process. (Previous studies found in documents are not being considered here.) Therefore, document analysis counters the concerns related to reflexivity (or the lack of it) inherent in other qualitative research methods. With regard to observation, for instance, an event may proceed differently because it is being observed. Reflexivity—which requires an awareness of the researcher's contribution to the construction of meanings attached to social interactions and acknowledgment of the possibility of the investigator's influence on the research is usually not an issue in using documents for research purposes.

Stability:

As a corollary to being non-reactive, documents are stable. The investigator's presence does not alter what is being studied (Merriam, 1988). Documents, then, are suitable for repeated reviews.

Coverage:

Documents provide broad coverage; they cover a long span of time, many events, and many settings (Yin, 1994).

Exactness:

The inclusion of exact names, references, and details of events makes documents advantageous in the research process (Yin, 1994).

During our research for our following research objective: "To identify the potential opportunities of e-tourism implementation for tour operators in Rwanda", we have used document analysis as the research method.

3.4.2. Selection of Documents

Documents that may be used for systematic evaluation as part of a study take a variety of forms. They include advertisements; agendas, attendance registers, and minutes of meetings; manuals; background papers; books and brochures; diaries and journals; event programs (i.e., printed outlines); letters and memoranda; maps and charts; newspapers (clippings/articles); press releases; program proposals, application forms, and summaries; radio and television program scripts; organizational or institutional reports; survey data; and various public records. (Research Method, n.d.).

For this study, we used Rwandan government policies, laws, strategies, and reports documents. These documents provide insights into the current and future initiatives available relating to the e-tourism particularly.

The mentioned documents were selected due to their credibility, relevance to our specific research objective, and accessibility. Most of them are available on various websites for public access and free for download. The search and analysis for these documents was conducted between 01/01/2024 and 29/04/2024.

3.4.3. Consulted Documents

#	Document name	Reference
1	Law regulating Tourism industry	Official Gazette n° 30 of 28/07/2014
2	Tourism Policy	(MINISTRY OF TRADE AND INDUSTRY,2014)
3	Ministerial Order on Licensing of Tourism Entities and Grading of Tourism Entities	(Official Gazette n° 40 of 03/10/2016)
4	National Broadband Policy	(MINICT, 2021)
5	Rwanda FinTech Policy	(MINICT, 2022)
6	Rwanda FinTech strategy	(MINICT, 2022)
7	smart Rwanda master plan	(MINICT, 2019)
8	cyber security policy	(MINICT, 2015)
9	Digital Content Promotion strategy	(MINICT, 2018)
10	Law relating to the protection of personal data and privacy	(Official Gazette n° Special of 15/10/2021)
11	National cyber security strategic plan	(MINICT, 2021)

12	Tourism sector landscaping study	(Tourism sector policy scoping project, 2023)
13	Tourism and Hospitality sector brief	(RDB)
14	RRA investment incentives for registered investors	(RRA, August 2023)
15	Driving the tourism recovery in Rwanda	(Tourism economic & Google ,2021)
16	Medium term revenue strategy 2021-2024	(MINECOFIN,2021)
17	Rwanda Tourism Market Review	(C9 Hotelworks,2022)
18	Rwanda national meetings, incentives, conferences/conventions and events/exhibitions (MICE) tourism strategy	(RDB,2014)

Table 2: consulted documents.

3.4.4. Data analysis

The qualitative data obtained from the documents will be analyzed using document analysis. For qualitative data analysis we will use the NVivo, NVivo is a software program used for qualitative and mixed-methods research. Specifically, it is used for the analysis of unstructured text, audio, video, and image data, including (but not limited to) interviews, focus groups, surveys, social media, and journal articles. (Kent State University Libraries, 2023).

3.4.5. Themes Used for Document Analysis.

The below mentioned themes and codes were defined as appropriate in relation to providing enough perspectives towards answering the specific research objective. We used template analysis design; Template analysis involves the development of a coding 'template', which summarizes themes identified by the researcher(s) as important in a data set, and organizes them in a meaningful and useful manner (University of Huddersfield, 2024), we have been inspired by observations, extensive literature review and the nature of the this study second specific objective " To identify the potential opportunities of e-tourism implementation for tour operators in Rwanda."

Name	Description
conducive regulatory environment	This theme explores the legal and regulatory aspects that influence the implementation of e-tourism in Rwanda.
advertising and promotion regulations	Favorable regulations in this area can create opportunities for tour operators to effectively market their services online.
data protection and privacy regulations	Robust data protection regulations can enhance customer trust and confidence, creating opportunities for tour operators to build strong online relationships.
digital payment and transaction regulations	Conducive regulations in this area can enable tour operators to offer secure and convenient payment options, enhancing the overall e-tourism experience.
financial incentives and support	This theme explores the financial assistance, incentives, and support mechanisms available to tour operators for e-tourism
advantageous tax incentives	Favorable tax policies can encourage tour operators to invest in e-tourism technologies and infrastructure.
comprehensive capacity building	Capacity-building programs can equip tour operators with the necessary skills and knowledge to effectively implement and leverage e-tourism.
digital literacy support	
favorable financing options	Access to suitable financing options can enable tour operators to overcome financial barriers and seize e-tourism opportunities.
financial assistance programs	Access to suitable financing options can enable tour operators to overcome financial barriers and seize e-tourism opportunities.
ICT infrastructure	This theme examines the technological infrastructure and systems that support e-tourism
e-commerce	Secure payment gateways, reliable website hosting, and user-friendly booking systems are crucial for smooth online transactions and customer trust.
internet penetration	High internet access, availability in urban and rural areas, allows tour operators to reach a wider audience and facilitates online business and inquiries
mobile broadband coverage	Reliable 3G/4G/5G availability ensures smooth connectivity and responsiveness for online communication and transactions.
promising market expansion opportunities	This theme explores the potential for tour operators to expand their market reach and tap into new customer segments through e-tourism.
enhanced online visibility and presence for wider market appeal	A strong online presence can help tour operators attract more customers, build brand awareness, and establish credibility in the market.
vast global market reach	E-tourism can help tour operators overcome geographical barriers and attract customers from around the world.

Table 3: themes description

Those themes were chosen as appropriate in relation to providing enough perspectives toward answering the research specific objective.

Chapter Four: Results and Findings

4.1. Study Population

The study wanted to know the size in terms of number of employees and years of operation in the industry. This helped to ensure that respondents had enough experience in the industry.

During the study, the number of tour operators in Kigali is 107 among them 78 tour operators were licensed, then questionnaire was administered to 78 licensed tour operators in Kigali and all participants were consented to participate in this study and respond to the questionnaires. However, out of the 78 questionnaires administered, only 67 returned the responses, and 12 of the respondents were found to have under one year of operations and have been removed from our population of study.

4.1.2. Participant's Size

Study participants were requested to indicates the size of their companies, most of the participant indicated that 45.3% have between 2-9 employees, 30.9% have between 10-49 employees, 14.5% indicated that they are sole proprietor and 9.1% indicated that they have employees between 50-249 employees.

company size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Medium business (50-249 employees)	5	9.1	9.1	9.1
	Small business (10-49 employees)	17	30.9	30.9	40.0
	Small business (2-9 employees)	25	45.5	45.5	85.5
	Sole proprietor/ independent contractor	8	14.5	14.5	100.0
	Total	55	100.0	100.0	

Table 4: company size

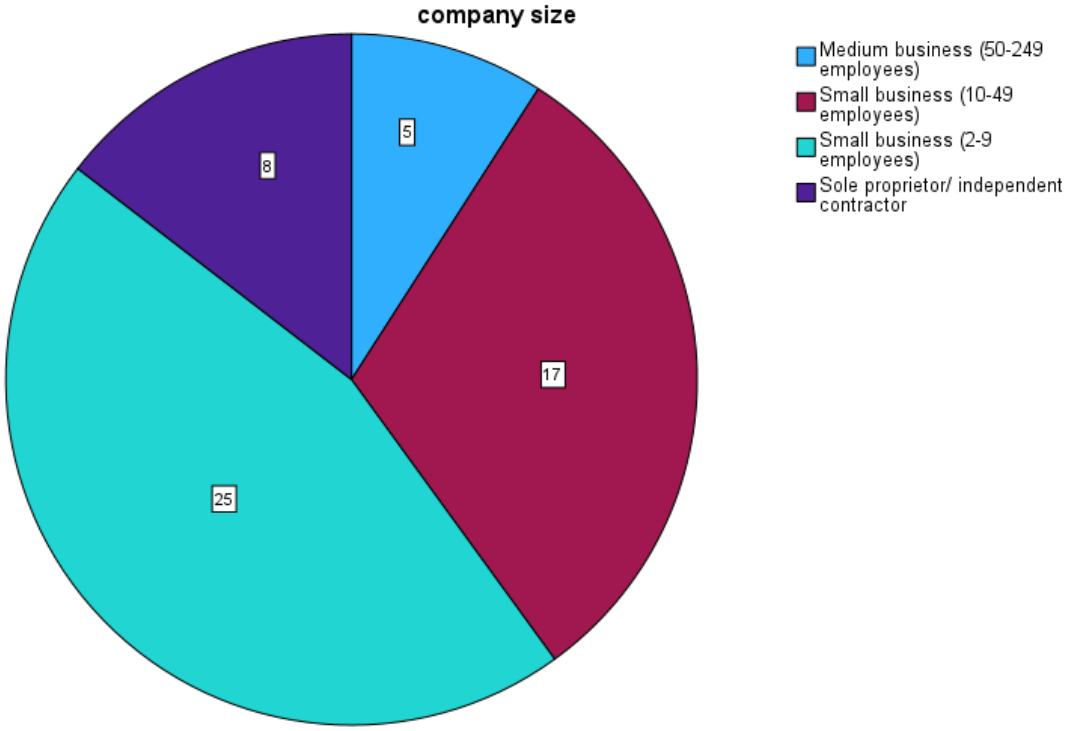


Figure 2: company size.

4.1.3. Participant's Years of Operation:

Study respondents were required to indicate their years of operations in the industry, The below table shows that the study findings revealed 49.1 % indicated between 1 -5 years of operations, 34.5% indicated 6-10 years of operations, 16.4% indicated that they have more than 10 years of operations.

Years of operation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 years	27	49.1	49.1	49.1
	6-10 years	19	34.5	34.5	83.6
	more than 10 years	9	16.4	16.4	100.0
	Total	55	100.0	100.0	

Table 5: years of operations

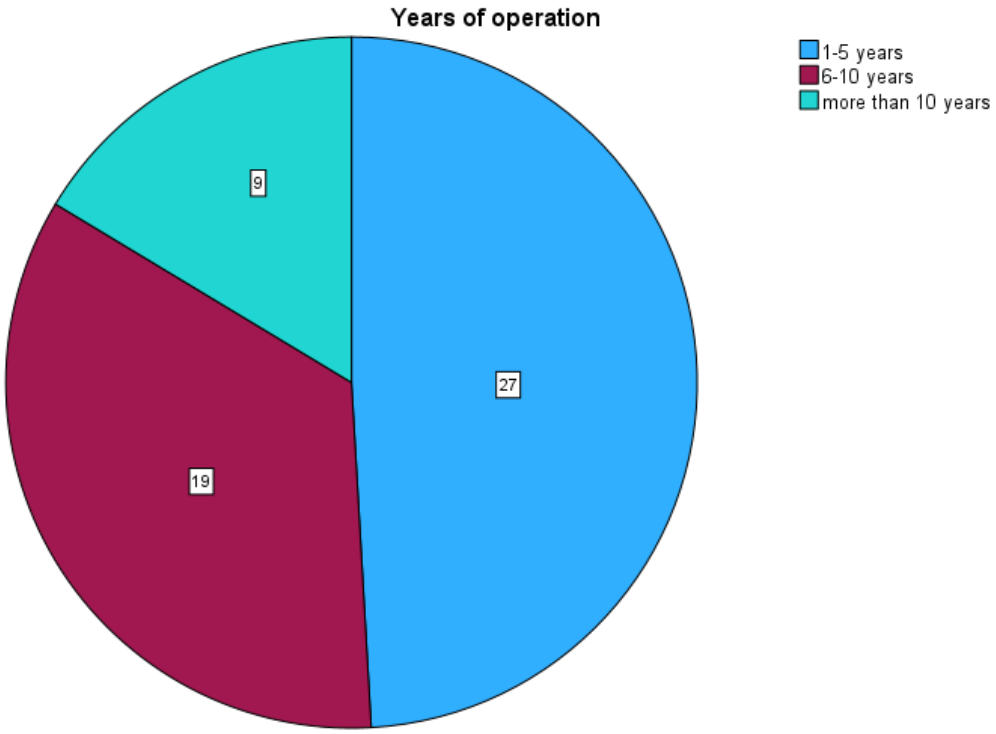


Figure 3: years of operations.

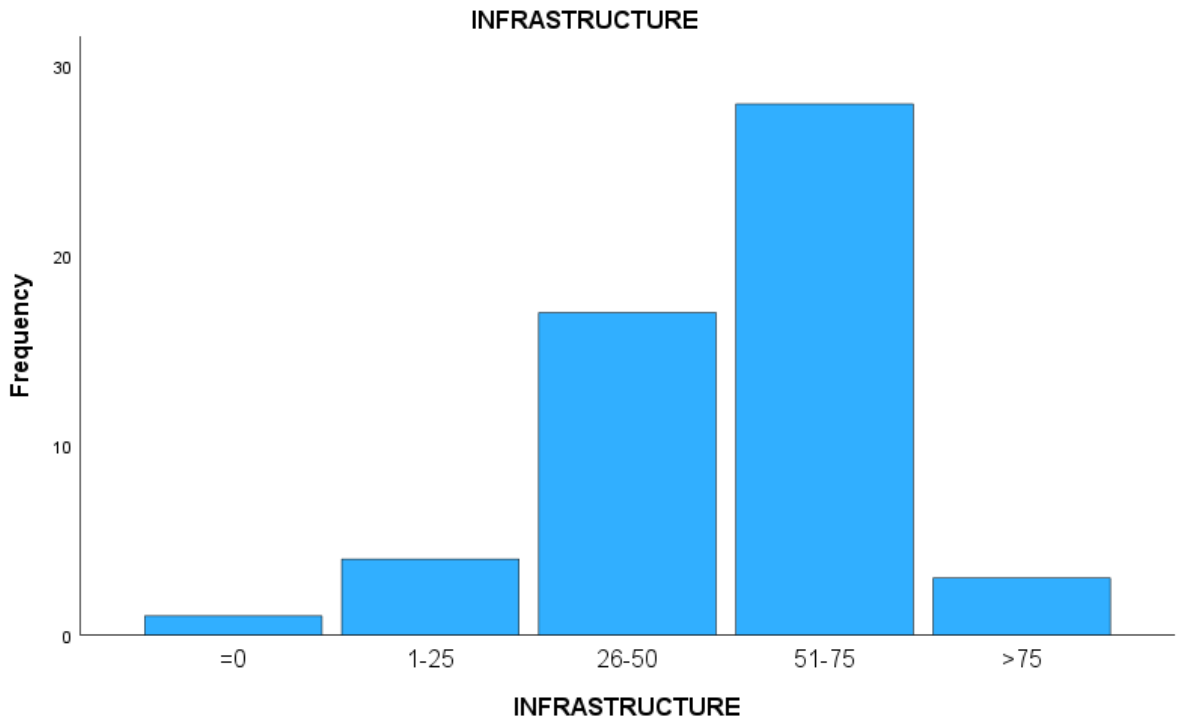
4.2. Data Exploration

4.2.1. Technological Infrastructure

For the technological infrastructure, which encompasses the study findings shows that particular groups of the participants have challenges related to technological infrastructure as 7.5% have a mean below 25 and 32.1% with mean below 50. This indicates that there is a significant challenge that needs to be addressed among tour operators, and 52.8% have a mean between 51-75, and only 5.7% that the study shows do not have significant challenges related to technological infrastructure.

INFRASTRUCTURE					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	=0	1	1.8	1.9	1.9
	1-25	4	7.3	7.5	9.4
	26-50	17	30.9	32.1	41.5
	51-75	28	50.9	52.8	94.3
	>75	3	5.5	5.7	100.0
	Total	53	96.4	100.0	
Missing	System	2	3.6		
Total		55	100.0		

Table 6: technological infrastructure



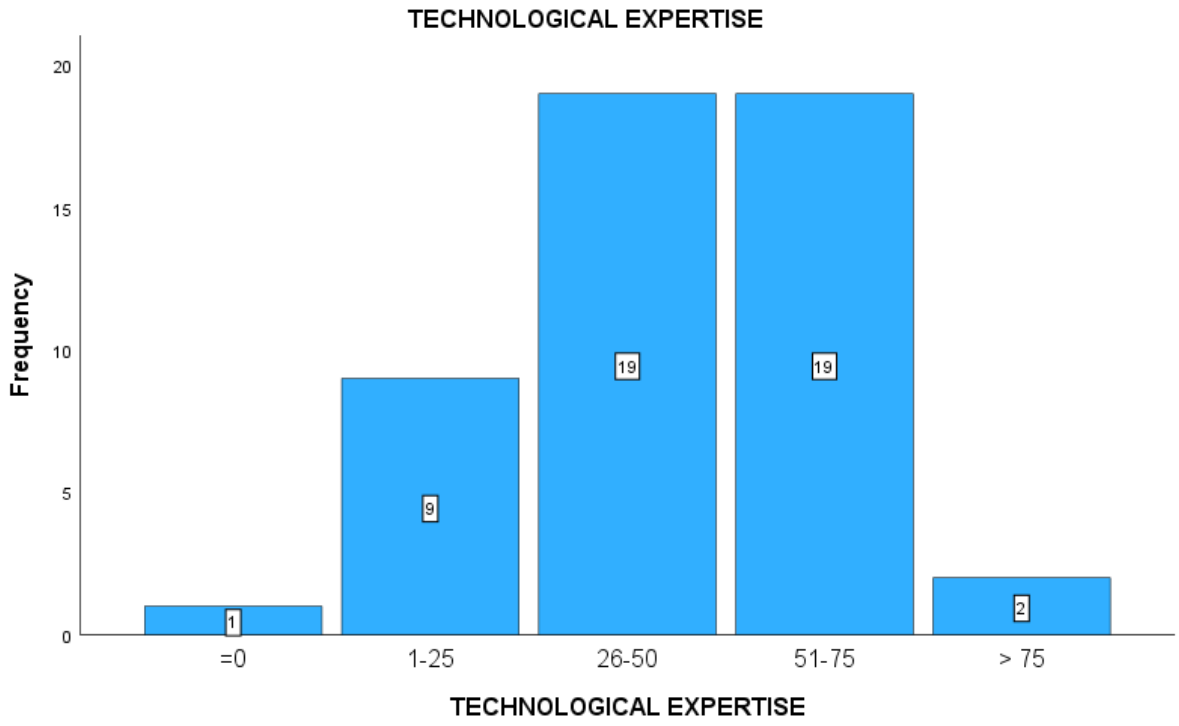
Graph 1: technological infrastructure.

4.2.2. Technological Expertise

The study findings for the technology expertise revealed that 18% of the participants' mean is in the range of 1 to 25, and 2.0 % with the zero-value revealing a low level of technological expertise. In the following 38% of the participants fall into the category of 26-50, moderate level of expertise in the industry. The category 51-75 also represents 38% of the participants which revealed that they have and advanced level of expertise. 4% of the participants revealed that have an advanced or strong level of technological expertise in the industry and this shows that there is still room for improvement to embrace the technology in this industry.

TECHNOLOGICAL EXPERTISE					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	=0	1	1.8	2.0	2.0
	1-25	9	16.4	18.0	20.0
	26-50	19	34.5	38.0	58.0
	51-75	19	34.5	38.0	96.0
	> 75	2	3.6	4.0	100.0
	Total	50	90.9	100.0	
Missing	System	5	9.1		
Total		55	100.0		

Table 7: technological expertise



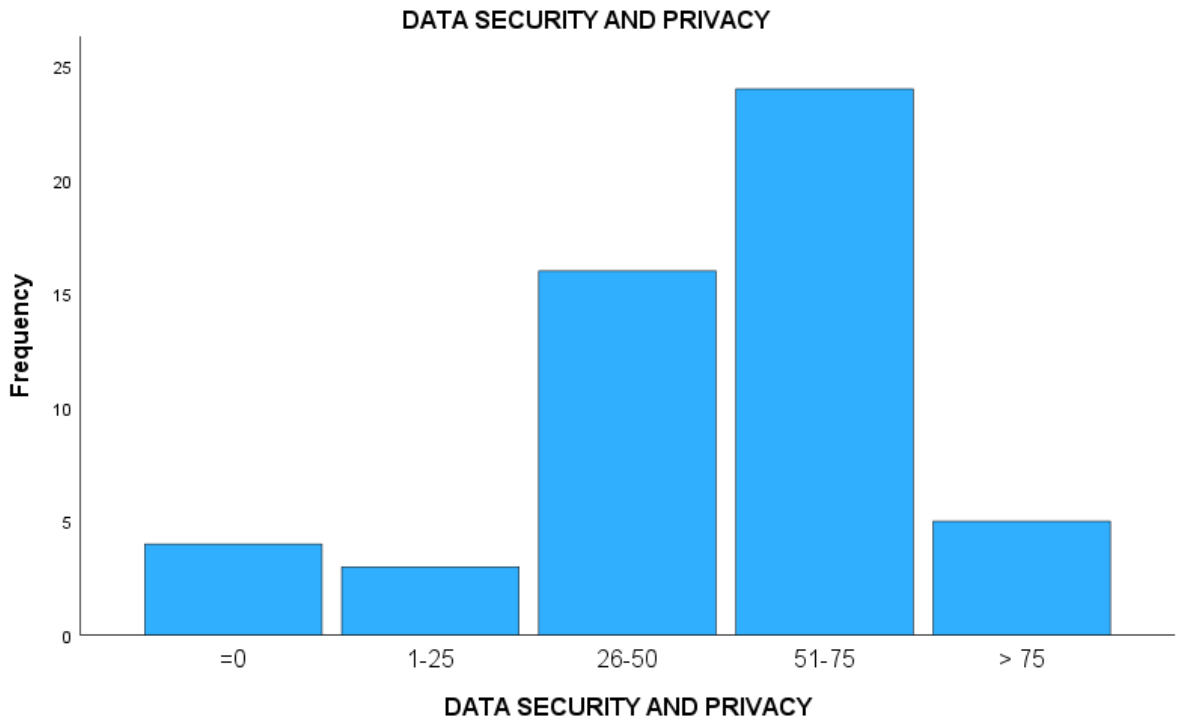
Graph 2: technological expertise

4.2.3. Data Security and Privacy Section

The study findings on data security and privacy among participants revealed that 7.7% fall into the 0 category which might indicate the serious challenges concerning this section. A similar proportion of participants of 5.8 % fall into the 1-25 category which still indicates some gaps in this area of study, still 30.8% of the participants fall into the category of 26-50 which indicates that there is still improvement needed in this category. The majority of participants 46.2 are into the 51-75 category which signify that they have information and moderate knowledge about the data security and privacy practice. Only 9.6% of participants are in a group of greater than 75, which indicates that a minority of participants don't have serious challenges related to this section of data security and privacy.

DATA SECURITY AND PRIVACY					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	=0	4	7.3	7.7	7.7
	1-25	3	5.5	5.8	13.5
	26-50	16	29.1	30.8	44.2
	51-75	24	43.6	46.2	90.4
	> 75	5	9.1	9.6	100.0
	Total	52	94.5	100.0	
Missing	System	3	5.5		
Total		55	100.0		

Table 8: data security and privacy



Graph 3: data security and privacy

These findings interpretation underscores how crucial data security and privacy are in today's business, while also showing there's a wide range of security practices and levels of sophistication across the industry. The findings demonstrate that companies need to step up their efforts to properly safeguard sensitive data. There are still major gaps that leave information vulnerable. Strengthening data protection has to be a critical priority for organizations so that personal and confidential data is secured.

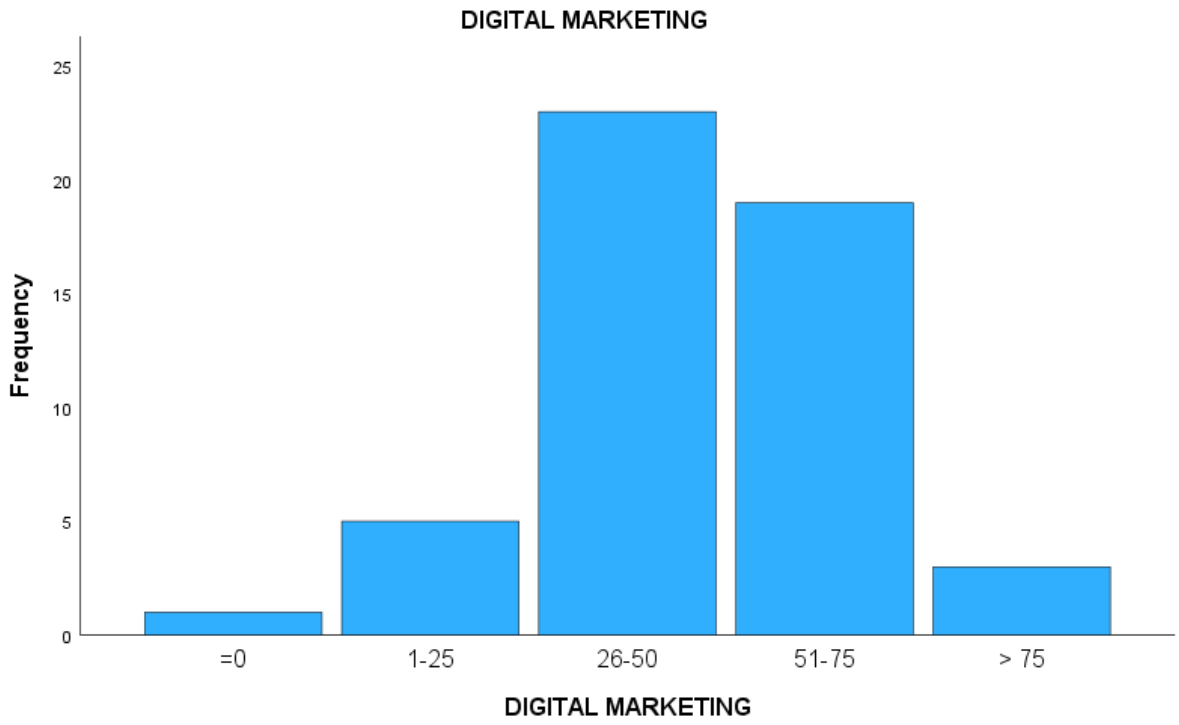
4.2.4. Digital Marketing Strategies Section

the study findings revealed that 5.9% of the participants fall into the category of > 75 which means they don't have serious challenges with the digital marketing-related strategies, while the majority of the participants fall into two categories respectively 37.3% are into 51 to 75 and 45.1% are into 26-50%, this indicated that most our participants have challenges related to digital marketing.

Another group of participants indicated that have serious digital marketing challenges respectively 9.8% are into 1-25 and 2.0% are in the 0 category.

DIGITAL MARKETING					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	=0	1	1.8	2.0	2.0
	1-25	5	9.1	9.8	11.8
	26-50	23	41.8	45.1	56.9
	51-75	19	34.5	37.3	94.1
	> 75	3	5.5	5.9	100.0
	Total	51	92.7	100.0	
Missing	System	4	7.3		
Total		55	100.0		

Table 9: digital marketing



Graph 4: Digital marketing strategies

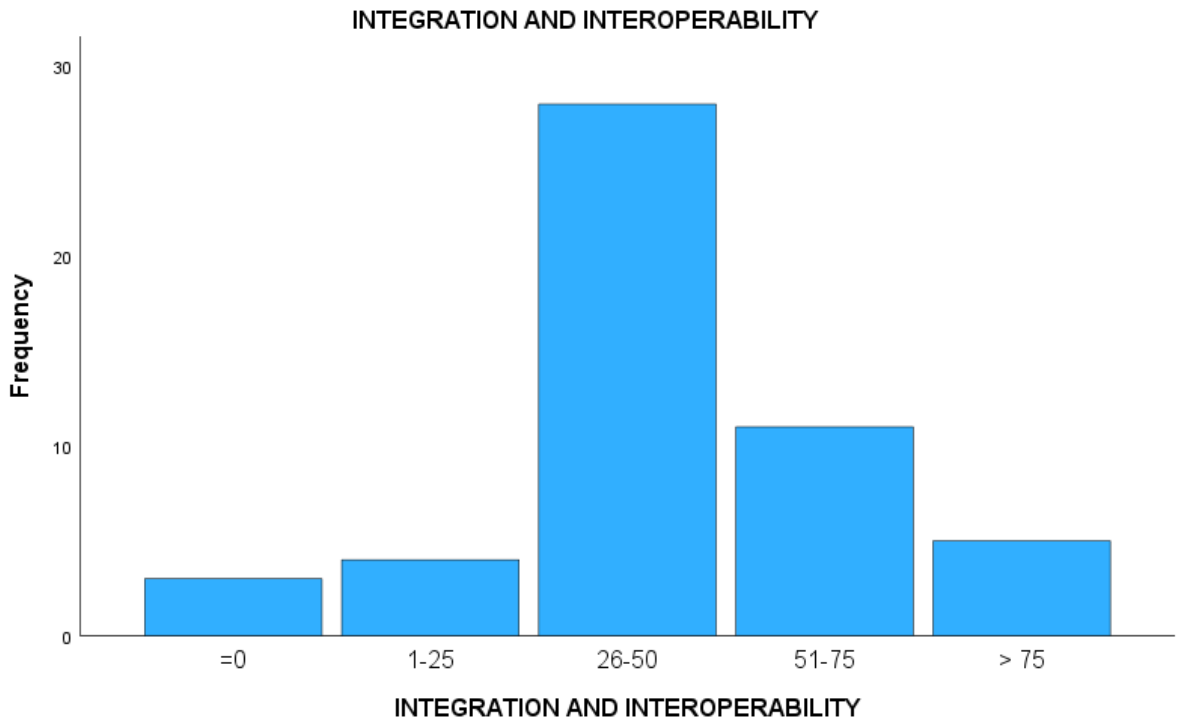
4.2.5. Integration And Interoperability Section

Responses from participants indicate that 5.9% are in category 0, 7.8% fall into the 1-25 category, the majority of participants 54.9 % are in the 26-50 category, 21.6% are in the 51-75 category and 9.8% are in the >75 category.

INTEGRATION AND INTEROPERABILITY					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	=0	3	5.5	5.9	5.9
	1-25	4	7.3	7.8	13.7
	26-50	28	50.9	54.9	68.6
	51-75	11	20.0	21.6	90.2
	> 75	5	9.1	9.8	100.0
	Total	51	92.7	100.0	
Missing	System	4	7.3		
Total		55	100.0		

Table 10: integration and interoperability

The above illustration indicates that integration and interoperability from the study participants most of them have challenges.



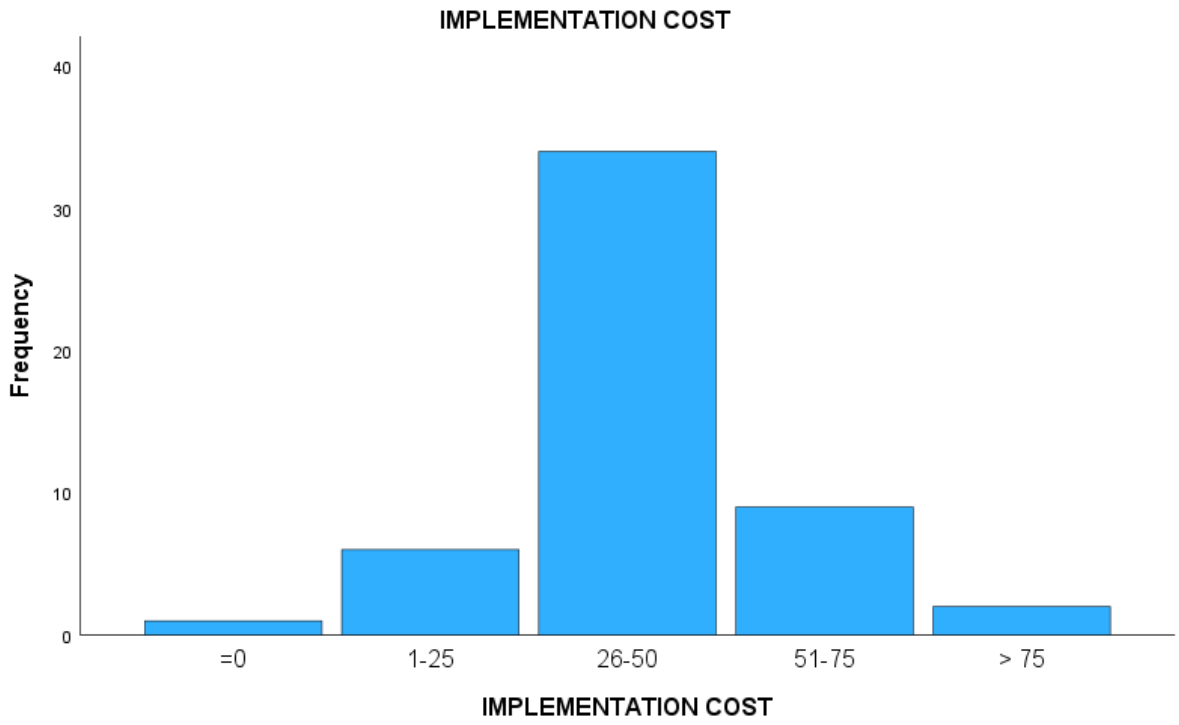
Graph 5: integration and interoperability.

4.2.6. Implementation Costs

The study findings from the table indicate that only 3.8% of the participants do not have serious challenges as they fall into the > 75 category; 17.3% of the participants fall into the category of 51-75 which means they have some challenges, most of the participants fall into the 26-50 category with 65.4%, 11.5% into 1-25 category and 1.9% are into 0 category and these last 3 categories indicates how participants are having challenges related to implementation costs.

IMPLEMENTATION COST					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	=0	1	1.8	1.9	1.9
	1-25	6	10.9	11.5	13.5
	26-50	34	61.8	65.4	78.8
	51-75	9	16.4	17.3	96.2
	> 75	2	3.6	3.8	100.0
	Total	52	94.5	100.0	
Missing	System	3	5.5		
Total		55	100.0		

Table 11: implementation cost.



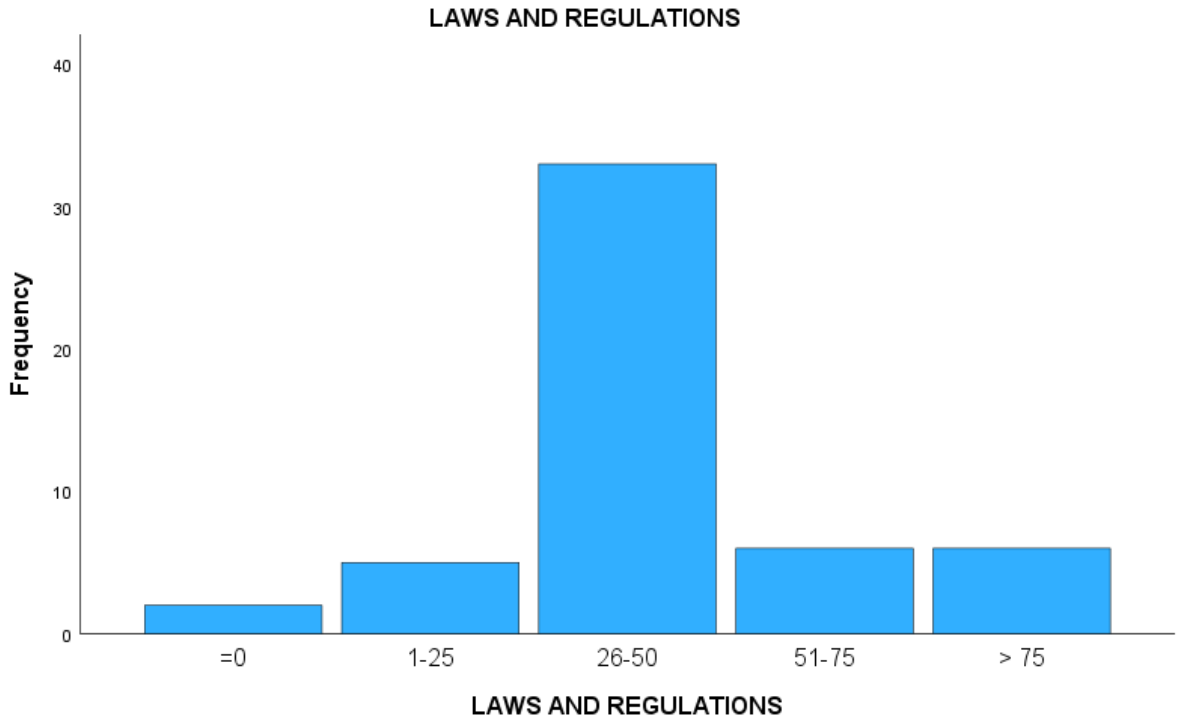
Graph 6: implementation costs.

4.2.7. Laws And Regulations

The table below indicates that most of the participants of 63.5% fall into 26-50 which revealed that our participants face challenges related to laws and regulations, it indicates also participants which are into the categories below of 25 respectively 9.6% of the population are into 1-25 and 3.8 fall into category of 0 which indicated that some participants have more challenges in this category.

LAWS AND REGULATIONS					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	=0	2	3.6	3.8	3.8
	1-25	5	9.1	9.6	13.5
	26-50	33	60.0	63.5	76.9
	51-75	6	10.9	11.5	88.5
	> 75	6	10.9	11.5	100.0
	Total	52	94.5	100.0	
Missing	System	3	5.5		
Total		55	100.0		

Table 12: laws and regulations



Graph 7: laws and regulations.

4.3. Hypothesis Testing

To analyze the hypothesis regarding the key challenges that tour operators face in the implementation of e-tourism, we employed a multiple regression analysis engaging, model summary, ANOVA and coefficient table was performed at 0.05 level of significance at varying degrees of freedom. This multiple regression was to determine whether Technological Infrastructure, Technology expertise, Integration and interoperability, Data security and privacy, Implementation costs, Digital marketing strategies, laws and regulations significantly influence the e-tourism implementation from tour operators in Rwanda.

4.3.1. Multicollinearity Tests

For this study, it is apparent to use multicollinearity tests to avoid using redundant information among variables in regression analysis. As such, checking for collinearity is an important step in regression analysis. For this study, collinearity diagnostic tests were conducted to detect any potential collinearity issues among the independent variables.

4.3.1.1. Co Linearity Tests of Among Independent Variables for Service Quality/Customer Experience

Coefficient Correlations[a]

Model			Integration and interoperability	Data security and privacy	Technology expertise	Implementation costs
1	Correlations	Integration and interoperability	1.000	.176	-.162	-.551
		Data security and privacy	.176	1.000	-.597	-.343
		Technology expertise	-.162	-.597	1.000	-.251
		Implementation costs	-.551	-.343	-.251	1.000
	Covariances	Integration and interoperability	.023	.004	-.004	-.022
		Data security and privacy	.004	.025	-.017	-.015
		Technology expertise	-.004	-.017	.033	-.012

		Implementation costs	-.022	-.015	-.012	.073
a. Dependent Variable: service quality/ customer experience						

Table 13: co linearity tests among independent variables for service quality/ customer experience

Interpretation

Since there are no coefficient greater than 0.6, that means no correlation among the independent variables for service quality/ customer experience. Independent variables for service quality /customer experience: technological expertise, data security and privacy, implementation costs, integration and interoperability.

4.3.1.2. Co Linearity Tests of Among Independent for Market Reach

Coefficient Correlations[a]					
Model			Laws and regulations	Technological Infrastructure	Digital marketing
1	Correlations	Laws and regulations	1.000	.076	-.457
		Technological Infrastructure	.076	1.000	-.754
		Digital marketing	-.457	-.754	1.000
	Covariances	Laws and regulations	.011	.001	-.008
		Technological Infrastructure	.001	.020	-.017
		Digital marketing	-.008	-.017	.027
a. Dependent Variable: Market Reach and Presence					

Table 14: co linearity tests among independent variables for service quality

Interpretation

Since there are no coefficients greater than 0.6, that means no correlation among the independent variables for Market Reach and Presence. Independent variables for Market Reach and Presence: Digital marketing, Technological Infrastructure. and laws and regulations.

4.3.2. Hypothesis Ho1 Testing

Null hypothesis Ho_1: Technology expertise, Integration and interoperability, Data security and privacy, and Implementation costs do not significantly influence service quality in e-tourism implementation within Rwandan tour operator companies.

4.3.2.1. Multiple Regression Model for Service Quality /Customer Experience

Model summary.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.823[a]	.677	.648	14.711
a. Predictors: (Constant), implementation costs, integration and interoperability, data security and privacy, technological expertise				

Table 15: model summary for service quality

Coefficient of determination

Implementation Cost, integration and interoperability, data security and privacy, technological expertise accounted for .677 (67.7%) of variation in service quality.

Or

67.7% variation in service quality can be explained due to Implementation Cost, integration and interoperability, data security and privacy, technological expertise.

4.3.2.2. Multiple regression model for service quality/ customer experience with ANOVA

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19974.758	4	4993.689	23.075	<.001[b]
	Residual	9522.127	44	216.412		
	Total	29496.884	48			
a. Dependent Variable: service quality/ customer experience						
b. Predictors: (Constant), implementation costs, integration and interoperability, data security and privacy, technological expertise						

Table 16: Multiple regression model for service quality with ANOVA

Results from the above table indicate that the p-value for the overall multiple regression model less than 0.001. Since this p-value is less than the chosen significance level of 0.05, we can conclude there is a statistically significant relationship between the independent variables and the dependent variable as a whole and the model is fit enough.

4.3.2.3. Coefficients of Multiple Regression Model for service quality/customer experience

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.098	6.993		.157	.876
	Technological expertise	.284	.183	.256	1.553	.128
	Data security and privacy	.411	.158	.411	2.609	.012
	Integration and interoperability	-.010	.151	-.009	-.068	.946
	Implementation costs	.373	.269	.229	1.383	.174
a. Dependent Variable: service quality/ customer experience						

Table 17: Coefficients of Multiple Regression Model for service quality

Based on the above results we can test our hypothesis as follows:

Technological expertise: its coefficient of 0.284 indicates that for every one unit increase in technological expertise, there is an expected increase of 0.284 in service quality/customer experience, keeping other variables constant. However, the p-value for this coefficient of 0.128 is greater than our significant level of 0.05, we fail to reject the null hypothesis. We do not have enough evidence to conclude that there is a statistically significant relationship between technological expertise and service quality/customer experience.

Data security and privacy: its coefficient of 0.411 indicates that for every one-unit increase in data security and privacy, there is an expected increase of 0.411 units in service quality/customer experience, keeping all other variables constant. However, the p-value for this coefficient of 0.012 is less than our significant level of 0.05, we reject the null

hypothesis. We have enough evidence to conclude that there is a statistically significant positive relationship between data security and privacy and service quality/customer experience.

Integration and interoperability: its coefficient of -0.010 indicates that for every one-unit increase in integration and interoperability, there is an expected decrease of 0.010 units in service quality/customer experience, keeping all other variables constant. However, the p-value for this coefficient of 0.946 is much greater than our significant level of 0.05, we fail to reject the null hypothesis. We do not have enough evidence to conclude that there is a statistically significant relationship between Integration and interoperability and service quality/customer experience.

Implementation costs: its coefficient of 0.373 indicates that for every one-unit increase in implementation costs, there is an expected increase of 0.373 units in service quality/customer experience, maintaining all other variables constant. However, the p-value for this coefficient of 0.174 is greater than the significant level of 0.05, so we fail to reject the null hypothesis. We do not have enough evidence to conclude that there is a statistically significant relationship between implementation costs and service quality/customer experience.

Based on our results for this hypothesis testing we can conclude by saying that only data security and privacy has statistically a significant positive influence on service quality/customer experience at the 95% confidence level and significance level of 5%.

4.3.3. Hypothesis Ho2 Testing.

Null hypothesis Ho_2: Technological Infrastructure, Digital marketing strategies, laws, and regulations do not significantly influence market reach and presence in e-tourism implementation in Rwanda within Rwanda tour operator companies.

4.3.3.1 Multiple Regression Model for Market Reach and Presence

Model summary for Market Reach and presence.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.655[a]	.429	.392	11.218
a. Predictors: (Constant), Laws and regulations, Technological Infrastructure, digital marketing				

Table 18: Model summary for Market Reach and presence

Coefficient of determination

Laws and regulations, technological infrastructure, and digital marketing accounted for .429 (42.9%) of variation in service quality.

Or

42.9% variation in service quality can be explained due to Laws and regulations, technological infrastructure, and digital marketing.

4.3.3.2. Multiple Regression Model for Market Reach and Presence with Anova

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4352.320	3	1450.773	11.528	<.001[b]
	Residual	5788.769	46	125.843		
	Total	10141.089	49			
a. Dependent Variable: market reach and presence						
b. Predictors: (Constant), Laws and regulations, Technological Infrastructure, digital marketing						

Table 19: multiple regression model for market reach and presence with Anova

Results from the above table indicate that the p-value for the overall multiple regression model is 0.001. Since this p-value is less than the chosen significance level of 0.05, we can conclude there is a statistically significant relationship between the independent variables and the dependent variable as a whole and the model is fit enough.

4.3.3.3. Coefficients of Multiple Regression Model for market reach and presence

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	31.769	5.291		6.005	<.001
	Technological Infrastructure	.437	.140	.594	3.115	.003
	Digital marketing	-.147	.164	-.191	-.894	.376
	Laws and regulations	.250	.103	.342	2.424	.019
a. Dependent Variable: market reach and presence						

Table 20: Coefficients of Multiple Regression Model for market reach and presence

- **Technological infrastructure**: with its coefficient of 0.437, indicates that for every unit increase in technological infrastructure, the market reach and presence by 0.437 units, maintaining all other variables constants. However, the p-value for this coefficient 0.03 is less than our significant level of 0.05, we reject the null hypothesis. We have enough evidence to conclude that there is a statistically significant positive relationship between technological infrastructure and market reach and presence.

- **Digital marketing**: its coefficient of -0.147 indicates that for every one-unit increase in digital marketing, there is an expected decrease of 0.147 units in digital marketing, maintaining all other variables constant. However, the p-value for this coefficient 0.376 is greater than our significant level of 0.05, we fail to reject the null hypothesis. We do not have enough evidence to conclude that there is a statistically significant relationship between digital marketing and market reach and presence.

- **Laws and regulations**: with its coefficient of 0.250, indicates that for every unit increase in laws and regulations, the market reach and presence by 0.250 units,

maintaining all other variables constants. However, the p-value for this coefficient 0.019 is less than our significant level of 0.05, we reject the null hypothesis. We have enough evidence to conclude that there is a statistically significant positive relationship between laws and regulations and market reach and presence.

Based on our results for this hypothesis testing we can conclude by saying that laws and regulations, technological infrastructure have statistically a significant positive influence on market reach and presence in e-tourism implementation in Rwanda within Rwanda tour operator companies at the 95% confidence level and significance level of 5%.

Results from hypothesis testing Ho1 and Ho2 shows that not all dependent variables significantly influence the service quality/customer experience and the market reach and presence therefore our conceptual model changes as follow:

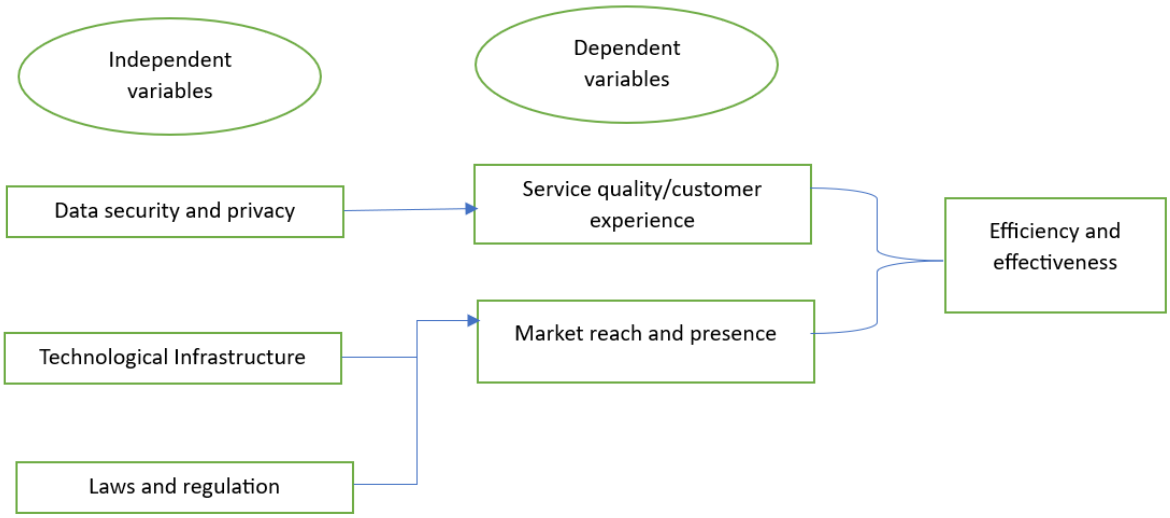


Figure 4: Conceptual Model

As depicted in the figure 4 our earlier research conceptual model has changed throughout the study research, and this is the final one according to the study findings.

4.4. Potential Opportunities for E-tourism Implementation

4.4.1. Identification of Potential Opportunities

The goal of this study section is to present the identified potential opportunities that tour operators can benefit from in implementing e-tourism in Rwanda.

4.4.1.1. Financial incentives

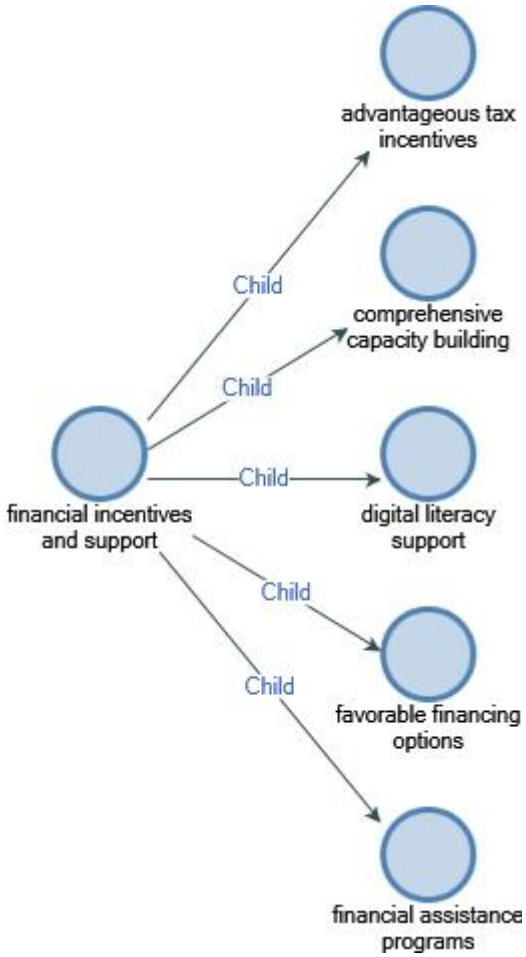


Figure 5: financial incentives and support theme.

One of the key opportunities is the digital literacy support for tour operators seeking to implement e-tourism solutions. The Rwanda economy Programme document emphasizes the importance of comprehensive capacity building in digital payments and financial services", (Ministry of ICT and Innovation, 2021). The government of Rwanda is facilitating their ability to adopt e-tourism practices effectively. On this point, the google Rwanda document reinforced this stating that allocating time to educate local businesses and providing opportunities to digitally upskill local tourism sector employees will enhance the digital ecosystem and increase the competitive edge of Rwanda's tourism economy" (Tourism Economics & Google, 2021).

Regarding the favorable financing options as opportunities for tour operators to implement e-tourism. Rwanda tourism policy outlines the government's commitment to "improving access to finance for SMMEs, in relation to viable business plans" and "launching a Tourism Guarantee Fund, aimed at reducing loan interest rates and investment risk in Rwanda's tourism industry" (Republic of Rwanda Ministry of Trade and Industry, 2009). These initiatives can provide tour operators with the necessary financial resources to invest in e-tourism technologies and infrastructure, enabling them to enhance their digital presence and improve their service offerings.

The analysis also revealed another key opportunity, the advantageous tax incentives. the Rwanda Tourism Policy document highlights that the government will "implement tourism-specific tax incentives and beneficiary concessions for capacity building, local sourcing, product development and development of low visitation regions, with particular emphasis on local investment, and development of natural and cultural resources with local communities in a sustainable manner" (Republic of Rwanda Ministry of Trade and Industry, 2009). Furthermore, the medium-term revenue strategy 2021-2024 document states that "the government will exempt import and excise duties and zero-rated Value Added Tax for electric vehicles and equipment" (Republic of Rwanda Ministry of Finance and Economic Planning, 2021). This measure can incentivize tour operators to adopt electric vehicles in their business, which aligns with e-tourism implementation goals. And this kind of tax incentive can provide significant benefits and opportunities to tour operators and encourage them e-tourism implementation.

To sum up, these range of financial incentives and support that are available to tour operators in Rwanda can be leveraged to successfully implement the e-tourism.

4.4.1.2. Market expansion opportunities

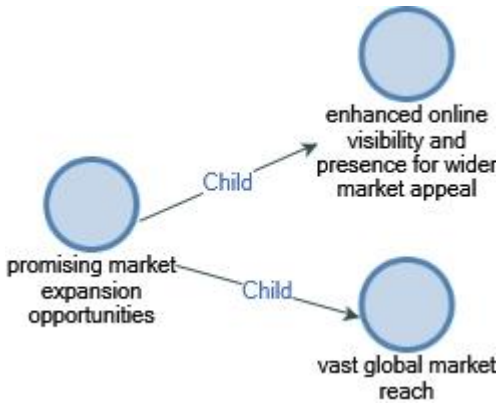


Figure 6: Promising market expansion opportunities theme.

Digital content and platforms are crucial in driving travel activity. The report explains that "increasing the presence of Rwanda travel operators and other tourism players online, especially into global platforms, can facilitate access and visibility to foreign tourists" (google and tourism economics, 2021). The Rwanda Economy Digitalisation Programme validated the importance of digital payments in ensuring seamless transactions among tourists.

It also highlights the importance of digital payments in ensuring seamless transactions among tourists. The document argues that "Most tourists book digitally, so the payment ecosystem needs to be seamless and cater for various payment methods across tourists" (google and tourism economics, 2021). Therefore, investing in e-tourism solutions that offer a variety of digital payment methods is critical to appealing to different tourist preferences and growing globally and from this, it indicates that tour operators have the potential to reach different market segments through e-tourism.

The Rwanda Tourism Market Review by C9 Hotelworks conferred that outside Africa, the United States is the largest source market, which translates to thousands of luxury travelers visiting Rwanda. E-tourism solutions can help tour operators develop promotional campaigns that reach this vital market segment.

Furthermore, the Rwanda National MICE Tourism Strategy highlights the role of promotional tools and e-marketing material in developing awareness and information for the MICE community. It notes that "E-marketing materials (websites, e-newsletter, and e-

magazines) are usually not as expensive to produce, distribution is easy, and they are easier to update on a regular basis". Ultimately, the e-tourism approach helps engage a wider audience. SMART Rwanda 2020 Master Plan by the Ministry of Youth and ICT also indicates that the government is motivated to promote innovation in different sectors, including tourism. It noted that they were to "Build an innovation data enabled industry to harness rapid social economic development.".

The overall analysis underscores a promising market expansion opportunity available to tour operators in Rwanda while implementing e-tourism. They can enhance their online visibility and presence; tour operators can appeal to a wider market and gain a competitive edge.

4.4.1.3. ICT Infrastructure

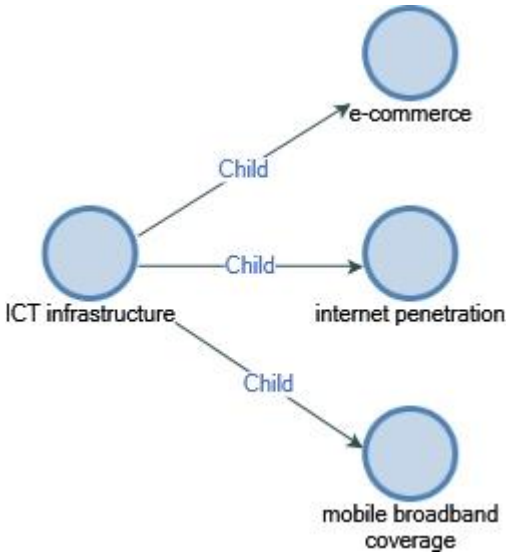


Figure 7: ICT infrastructure theme.

Findings from analyzed documents, presented several potential opportunities, plans for the government to restructure the broadband market, and extend the coverage to businesses, it is a significant opportunity to tour operators, they can also leverage the increased mobile broadband coverage to enhance their visibility.

The rise in internet penetration levels, is one of Rwanda's most notable indicators of readiness for e-tourism, According to ICT Sector Profile, 2019, internet availability was at only 5% in 2010, and by 2019, the figure had risen to 60.4%. Meanwhile, the National Broadband Policy for Rwanda, 2013, states that broadband coverage will be universal.

Again, with the extensive coverage of mobile broadband, this offers a lucrative opportunity for tour operators to take advantage of mobile-based e-solutions. Another factor is mobile financial services, as per Rwanda ICT sector profile. For instance, 96.6% of the Rwandan population was covered by 4G LTE services by December 2018. Findings from analyzed documents, presented several potential opportunities, plans for the government to restructure the broadband market, and extend the coverage to businesses, it is a significant opportunity to tour operators, they can also leverage the increased mobile broadband coverage to enhance their visibility.

The rise in internet penetration levels, is one of Rwanda's most notable indicators of readiness for e-tourism, According to ICT Sector Profile, 2019, internet availability was at only 5% in 2010, and by 2019, the figure had risen to 60.4%. Meanwhile, the National Broadband Policy for Rwanda, 2013, states that broadband coverage will be universal.

Again, with the extensive coverage of mobile broadband, this offers a lucrative opportunity for tour operators to take advantage of mobile-based e-solutions. Another factor is mobile financial services, as per Rwanda ICT sector profile. For instance, 96.6% of the Rwandan population was covered by 4G LTE services by December 2018 as mentioned on the ministry of ICT website.

We can say that that Rwanda possesses the necessary ICT infrastructure and enabling environment to support the successful implementation of e-tourism for tour operators in Rwanda.

4.4.1.4. CONDUCIVE REGULATORY ENVIRONMENT

A supportive regulatory environment is crucial for the growth and development of e-tourism in Rwanda. The analysis of consulted documents highlights the opportunities for tour operators to leverage the regulatory framework in their e-tourism implementation.

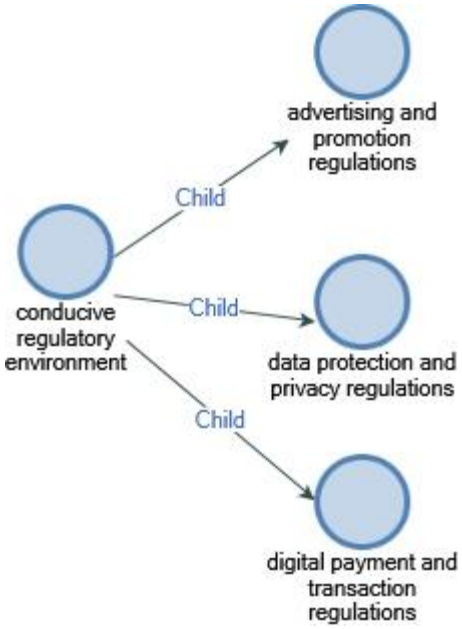


Figure 8: Regulatory environment theme.

The analysis of different documents reveals a conducive environment with different opportunities that tour operators can leverage in implementing e-tourism in their business.

Rwanda in its "Law relating to the protection of personal data and privacy" established a robust legal framework for protecting personal data and privacy. The law mandates that personal data must be processed in a manner that does not infringe on the privacy of the data subject and requires data controllers and processors to adopt appropriate technical measures to ensure the security of personal data. This shows the opportunity for tour operators in their e-tourism implementation where this tightens trust with customers by assuring them that their information will be handled responsibly and securely.

Findings from "fintech policy" emphasize the government's efforts to establish a secure environment for the e-commerce sector (Ministry of ICT,2022). This potential of fintech sector growth encouraging electronic payments could enable tour operators to offer convenient digital payment options to customers, thereby expanding their market reach. Furthermore, the national cyber security strategic plan comes to reinforce the legal and regulatory framework related to personal data and privacy and therefore establish a secure a reliable environment for e-commerce with public key infrastructure, again these initiatives in place could enhance consumer trust, and confidence in online services and create a secure digital ecosystem.

the availability of a local digital content promotion strategy & implementation plan summits the government's commitment to digitalisation and the promotion of local digital content. The strategy aims to digitize Rwanda's history and cultural heritage content (MITEC, 2018), which could be leveraged by tour operators to showcase the country's attractions and create engaging digital experiences for potential worldwide visitors, this opportunity could help tour operators their online presence and attract a wider audience.

Finally, findings for Rwanda’s government approach to protect personal data and privacy, promoting local digital content, enabling secure digital transactions creates a convenient e-tourism implementation ecosystem, which tour operators can leverage in their daily business.

4.5. Discussion

4.5.1. Investigate challenges faced by tour Operators.

The findings highlight various key challenges facing tour operators in Rwanda in digitalizing their operations. The identified challenges were like those reviewed from existing literature, accentuating the need for ease in the implementation of e-tourism.

The study revealed data security and privacy as a key challenge, by having positive statistical significance in influencing the service quality/ customer experience. This finding, found to be consistent with mentions made by sari's (2022), observation that the rapid advancement and uptake of information technology in the travel and hospitality sectors have significantly impacted customer behavior, including information search and purchase decisions. This underscores the importance of robust data security measures in building customer trust and enhancing the overall e-tourism experience.

.

Another key challenge is technological infrastructure. The study shows that technological infrastructure had also a positive influence on market reach and presence. This agrees with the literature for Okwemba & Nambiro's (2020) advocacy for the development of e-tourism infrastructures and the provision of additional online services to enhance traveler experiences. The presence of reliable infrastructure is indeed a precondition for tour operators to effectively deliver their services in the digital realm.

The third challenge is laws and regulations which positively influenced market reach and presence in this study. The result supported other findings emphasizing the importance of the legal environment in developing e-tourism (Afaneh, 2021).

There were other challenges presented, but they are not statistically significant which include technological expertise, integration and interoperability, implementation cost, and digital-marketing strategies. The past literature indicates that developing capacities of a relatively new sector requires relatively cheap financing and efficient digital marketing.

4.5.2. Identification of potential opportunities

Document analysis revealed several potential opportunities that tour operators in Rwanda may utilize to strengthen the implementation of e-tourism. Such opportunities are directly correlated with the information gathered from the sources discussed in the literature review.

One of them is financial incentives and support. The analysis showed that the government of Rwanda has taken some initiatives, including enabling comprehensive capacity building for digital payments and financial services, (Ministry of ICT and Innovation, 2021) establishing the Tourism Guarantee Fund to reduce interest rates and investment risk of loans (Ministry of Trade and Industry, 2009), as well as providing tax incentives for tourism-specific businesses. These findings correspond to the literature on how access to and affordability of finances can foster tour operators' investment in e-tourism technologies and infrastructure (Okwemba & Nambiro, 2020).

Similarly, the document analysis demonstrated that the regulatory environment around a conducive one is another potential opportunity in Rwanda. The government laws to protect personal data and privacy ((Law relating to the protection of personal data and privacy) and advance the realization of a safe environment for e-commerce (Ministry of ICT, 2022), and supports the promotion of local digital content (MITEC, 2018) are already in effect, and this is as essential aspect for the growth and development of e-tourism as also mentioned by (Afaneh, 2021).

Moreover, market expansion is noticeably possible for Rwandan tour operators. Our analysis cited information showing travel activity being driven by digital content and platforms (Google and Tourism Economics, 2021), and the cost-effectiveness of online marketing strategies in reaching larger populations. This finding aligns with the literature that finds e-tourism as a means of overcoming geographical boundaries and reaching numerous clients throughout the world. (Sari, 2022).

Lastly, the analysis covered the information pointing out that Rwanda's ICT infrastructure is ready to support the effective implementation of e-tourism. The sources included statistics on the increased percentages of internet usage (ICT Sector Profile, 2019), an ICT infrastructure

that includes widespread mobile broadband, and increasingly advanced electronic financial services (Rwanda ICT Master Plan, 2015). This information is aligned to the literature that emphasizes the importance of infrastructure for tour operators to provide quality and satisfactory service to their clients (Abdullahi et al., 2021).

Chapter Five: Conclusion and Recommendations

5.1. Conclusion

The aims of this study were to investigate challenges faced by tour operators and the potential opportunities available in Rwanda vis a vis with e-tourism implementation.
Throughout this research, we used the case study methodology, and mixed-methodological approaches were followed notably, survey questionnaires, multiple linear regression, and document analysis. The results shed light on the key challenges impacting quality of service/ customer experience and market reach among tour operators and offers potential opportunities for them in Rwanda.

The results demonstrate that data security/privacy, technological infrastructure, and laws/ regulations are the three most influential challenges affecting the service quality/ customer experience and market reach among tour operators in Rwanda. The results also showed that there are several opportunities that tour operators can benefit from, including the financial incentives and support, the enabling regulatory environment, expansive market opportunities, and readiness of Rwanda's ICT infrastructure.

The study has enriched the research literature on e-tourism in Rwanda, through identification of challenges and opportunities. Furthermore, this study will help inform the government, academicians, and research to further identify study gaps. We will share our findings using different methods to different stakeholders through publishing our thesis paper, give out copy to study participants and tourism regulations department at RDB.

5.2 Recommendations

Regarding the findings of this study, this study recommends the following:

1. A lot of attention should be paid to the most identified significant challenges, which are data security and privacy, technological infrastructure, laws and regulations.

2. Tour operators should capitalize on the available financial support, and both adopt and invest in robust e-tourism solutions

5.3. Areas For Further Research

This study recommends the following for further research:

- To expand the scope to include tour operators outside Kigali and other stakeholders: future research should extend the scope to include tour operators from other regions of Rwanda and other stakeholders to gain more comprehensive understanding of the implications of the e-tourism implementation for the entire industry.

References

Abdullahi, M., Kilili, R., & Günay, T. (2021). E-Tourism and Digital Marketing in Africa: Opportunities and Challenges.

Afaneh, S. M. (2021). E-TOURISM, ITS PROSPECTS 'SCOPES' AND IMPACT ON THE DEVELOPMENT OF TOURISM INDUSTRY (THE JORDANIAN EXPERIENCE).

Condratov, I. (2013). E-TOURISM: CONCEPT AND EVOLUTION.

C9 Hotelworks. (2022, October). After the gorillas, what's next for Rwanda's tourism and hotel industry? Rwanda tourism market review.

Google. (2021). Driving the tourism recovery in Rwanda.

Hanane, S. (2023). The Role Of E-Tourism in Activating the Tourism Sector in Algeria Via Websites.

IBM SPSS Statistics. (2023). \[Online\]. Available: \[https://www.ibm.com/products/spss-statistics\]. Accessed: September 21, 2023.

Igihe (2022). E-Tourism, one of solutions to enhance recovery of tourism sector. \[Online\]. Available: \[https://en.igihe.com/news/article/e-tourism-one-of-solutions-to-enhance-recovery-of-tourism-sector\]. Accessed: September 21, 2023.

Internetworldstats.com. (2022). Africa Internet User Stats and 2022 Population by Country. \[Online\] Available at: <https://www.internetworldstats.com/africa.htm#rw> \[Accessed 8 February 2023\].

ITB Berlin and IPK International: International tourism in 2022 made a significant recovery – Outbound travel almost doubled in 2022. (n.d.). Www.itb.com. Retrieved July 31, 2023, from https://www.itb.com/en/press/press-releases/news_8768.html

Law Regulating Tourism Industry in Rwanda, Official Gazette nº 30 of 28/07/2014.

Madoui, A., & Hakim, B. (2021). Reality of E-Tourism in Algeria and its Role in Promoting Tourism Products.

Ministry of Finance and Economic Planning. (2021, August). Medium term revenue strategy 2021-2024. Kigali, Rwanda.

Ministry of Information Technology & Communications. (2018, September). Local digital content promotion strategy & implementation plan (2018-2022). Kigali, Rwanda.

Ministry of Information Communication Technology and Innovation. (2022). Rwanda fintech policy 2022–2027: Enabling a thriving fintech ecosystem, positioning Rwanda as a fintech hub, propelling the growth of the fintech industry.

Ministry of Information Communication Technology and Innovation. (2022, April). Rwanda fintech strategy 2022–2027: Roadmap to strategy implementation, enabling a thriving fintech ecosystem, positioning Rwanda as a fintech hub, propelling the growth of the fintech industry [Draft].

MINISTRY OF TRADE AND INDUSTRY. (2009). Rwanda Tourism Policy.

Noprisson, H. (2020). Exploring e-Tourism: Technology and Human Factors.

"NVivo," Kent State University Libraries: Statistical Consulting, Accessed: March 3, 2024. \[Online\]. Available: https://libguides.library.kent.edu/statconsulting/NVivo.

Okwemba, R. K., & Nambiro, A. (2020). Emerging Trends in E-Tourism and Its Impact on the Tourism Sector.

Priya, A. (2021). Case Study Methodology of Qualitative Research: Key Attributes and Navigating the Conundrums in Its Application. Sociological Bulletin, 70(1), 94-110. https://doi.org/10.1177/0038022920970318

Republic of Rwanda. (2013). National Broadband Policy for Rwanda. Kigali: Republic of Rwanda.

Republic of Rwanda. (2015, March). National cyber security strategic plan. Kigali, Rwanda

Research Method. (n.d.). Documentary Analysis. \[Online\]. Available: https://researchmethod.net/documentary-analysis/. \[Accessed: Nov. 4, 2023\].

Rwanda Development Board. (2014, April). Rwanda national meetings, incentives, conferences/conventions and events/exhibitions (MICE) tourism strategy. Kigali, Rwanda.

Rwanda Development Board. (2021). TOURISM AND HOSPITALITY SKILLS BRIEF.

Rwanda Revenue Authority. (2023, August). Investment incentives for registered investors.

Sari, A. E. (2022). Competitive Advantage Tourism Based on E-Tourism to Improve Tourist Destinations.

Tchamy, J., Ateba, J., Koubikat, B. C. M., & Tchamy, I. T. (2020). E-tourism in developing and underdeveloped countries: Case of Cameroon.

Ulfa, K., Pribadi, U., Herizal, H., & Suswanta, S. (2021). Implementation of E-Tourism In Aceh Province for Future Sustainable Development through Media Promotion.

Uwamariya, M., Cremer, S., & Loebbecke, C. (2015, December). ICT for economic development in Rwanda: Fostering e-commerce adoption in tourism SMEs. In Proceedings of SIG GlobDev Eighth Annual Workshop. Fort Worth, Texas, USA

"What is Template Analysis?," University of Huddersfield. https://research.hud.ac.uk/research-subjects/human-health/template-analysis/what-is-emplate-analysis/#:~:text=Basic%20description%20of%20approach&text=Template%20analysis%20involves%20the%20development (accessed May 08, 2024).

Wikipedia. (2023). Questionnaire. Wikipedia. \[Online\]. Available: https://en.wikipedia.org/wiki/Questionnaire. \[Accessed: Nov. 1, 2023\].

Worldwide internet users by region 2022. (n.d.). Statista. Retrieved July 30, 2023, from https://www.statista.com/statistics/265147/number-of-worldwide-internet-users-by-region/#:~:text=Number%20of%20worldwide%20internet%20users%202009%2D2022%2C%20by%20region&text=As%20of%20June%202022%2C%20Asia