

**An ICT based framework for the
enhancement of information sharing
and collaboration in Zimbabwe's
tourism sector**



Susan Mahakata

R0434545

An ICT framework to enhance information sharing and collaboration in Zimbabwe's tourism sector



by Susan Mahakata

R0434545

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Supervisor: Dr. T. Tsokota

Co-Supervisor: Mr. P. Mupfiga

ABSTRACT

Innovations in ICT continue to transform business processes in ways never imagined before. When organisations take full utility of available technologies, business processes become more efficient while service delivery improves. Ultimately this bridges gaps between inter organisational relationships by making information sharing easier and more secure. This is crucial in the tourism sector where information is the lifeblood of the sector. The study sought to develop an ICT based framework for enhancing information sharing in tourism in Zimbabwe. The design science research paradigm for Information technology was employed to conduct a qualitative research. The data for the study was collected through semi-structured interviews and was analysed using structural coding to find emerging themes. The findings of the study revealed that collaborative information sharing in Zimbabwe is very minimal mainly occurring mandatorily between government institutions and tourism providers. Issues of trust, diversified information needs, poor infrastructure and rivalry between regulators and tourism providers hamper information sharing. The study developed a framework which when adopted can help mitigate against the issues hampering information sharing. The framework was evaluated by an expert reviewer whose comments helped in the refinement of the framework.

Key Words: Framework, Information Sharing, Collaboration, Tourism

DECLARATION

I, Susan Mahakata, do hereby declare that the work in this research titled, “**An ICT framework to enhance information sharing and collaboration in Zimbabwe’s tourism sector**”, is my original work and I have fully acknowledged all the sources used in this study by means of complete references.

.....

Student’s Signature (Susan Mahakata)

.....

Date

APPROVAL

This dissertation entitled “**An ICT based framework for the enhancement of information sharing and collaboration in Zimbabwe’s tourism sector**” by **Susan Mahakata** meets the regulation governing the award of the degree of **MSc. Information Systems Management** of the Midlands State University, and is approved for its contribution to knowledge base and theory for future research.

.....

Supervisor’s Signature (Dr Tsokota)

.....

Date

.....

Co-Supervisor’s Signature (Mr Mupfiga)

.....

Date

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PUBLICATIONS BY THE AUTHOR

The author wrote a peer reviewed journal paper which was a result of this report.

Reference

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ACRONYMS AND ABBREVIATIONS

CISCP - Cyber Information Sharing and Collaboration Program

DHS - Department of Homeland Security

DMO - Destination Management Organisation

DMS - Destination Management System

DSRF - Design Science Research Framework

ES-ISAC - Electricity Sector Information Sharing and Analysis Centre

FS-ISAC - Financial Services Information Sharing and Analysis Centre

FBI - Federal Bureau of Investigation

IACA - International Association of Crime Analysts

ICT - Information and Communication Technology

IDE - Integrated Document Exchange

IOM - Institute of Medicine

OISP - Online Information Sharing Platform

NBIS - National Bio Surveillance Integration System

SSL - Secure Socket Layer

VIC - Visitor Information Centre

VPN - Virtual Private Network

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

This chapter starts with an overview of tourism and collaboration to provide background information and prepare the reader on the field under study. The problem statement is then formulated after the background. Afterwards, the chapter will present the research objectives, questions, significance of the study, research gap and delimitation of the study

1.2 BACKGROUND OF THE STUDY

All over the world, tourism has been noted to have "emerged as a major driver of economic and social development through, generating foreign earnings, creating incomes, stimulating domestic consumption and creating employment for both low-skilled and semi-skilled workers with a bias towards women and the youth in both urban and rural areas" (Nathan Associates Inc., 2013). The industry is able to accomplish this due to its diffuse and fragmented nature as one organisation rarely controls all the components, or all the stages and decision-making processes in the creation and delivery of the tourism product (Bramwell and Lane, 2000). Regardless of the fragmentation, there is extensive dependence on each other among tourism businesses as well as on other businesses, government and residents of the local community (Karambakuwa et al, 2011). These businesses need each other to optimise benefits of the tourism activity thus are interested in the development of the industry. The government on the other hand is interested to push tourism development as it in turn drives economic development. Bramwell and Lane (2000) advocate for collaboration among a number of tourism stakeholders, in relation to a common issue or 'problem domain' in order to achieve significant tourism development.

Collaboration has been recognised as an important determinant of the success and competitiveness of a tourism destination (Rodolfo, 2010). As Tazim and Donald (1995) noted, collaboration can also lead to the exchange of information, goals and resources. Outside tourism, collaboration and information sharing have been turned to for the purposes of solving a problem domain. ICCF was found to facilitate collaboration and information-sharing between cooperative parliamentary leaders with the aim of generating coordinated action against poaching.

The tourism industry has been acknowledged to be very information intensive. The information has been labeled as the life blood of travel industry where today's consumers are very demanding, requiring flexible, specialised, accessible, interactive products and communication with principals (Buhalis, 1998). This has facilitated ICT to become almost an

integral part of tourism. This is because ICT “encompasses all technologies that enable the handling of information and facilitate different forms of communication among human actors, between human beings and electronic systems, and among electronic systems” (Hamelink, 1997 as cited in Tsokota and von Solms, 2013). In the tourism supply chain, not only is the exchange of information very crucial, but the information must be able to flow quickly and accurately between the client, intermediaries and each of the tourism suppliers involved in servicing the client’s needs (Nwakanma et al, 2014). Thus by harnessing the power of ICT, information in tourism can be managed more effectively and transported globally almost instantly.

Achievements in ICT have given scope for the development of a wide range of new tools and services that facilitate global interaction between players around the world (Buhalis, 2008). These new tools include the internet, mobile devices and social media and have facilitated smart tourism. An example is the existence of virtual communities for sharing information through smart tourism. As Buhalis (2008) predicted, ICT is providing the “info-structure” for the entire industry and is overtaking all mechanistic aspects of tourism transactions. On the other hand, achieving collaboration among the key tourism stakeholders (such as local government plus other public organizations having a direct bearing on resource allocation; tourism industry associations and sectors, regional tourist authority, resident organizations (community groups); social agencies (e.g., school boards, hospitals), and special interest groups) is a well-known problem that has proved a challenging task requiring the development of new mechanisms and processes for incorporating the diverse elements of the tourism system (Tazim and Donald, 1995). This is despite the fact that destination organizations generally see it as part of their role to enhance collaborative partnerships (Tremblay, nd). A study by Tremblay showed that organisations are interested and desire to collaborate and saw the benefits collaboration will bring to their businesses and the tourism sector as a whole.

This study is based on such a theoretical underpinning. It seeks to provide a way of enhancing collaboration and information sharing among the key stakeholders in tourism in Zimbabwe through ICT.

1.3PROBLEM STATEMENT

Globally, markets have increased their levels of focus on domestic tourism in order to develop their tourism industry and Zimbabwe has recently joined the trend (Mtomba, 2015). This has been facilitated further by the constrained growth in the tourism industry where for

instance in 2013 Zimbabwe had 2% growth in tourist arrivals below the global one in which tourist arrivals had grown by 5% (Zimbabwe Tourism Authority, 2014). The World Travel and Tourism Council (2014) showed that Zimbabwe's domestic tourism was contributing 36.5% of direct Travel & Tourism but could improve should the challenges faced by the industry be overcome. Nathan Associates Inc. (2013) listed a number of growth constraining challenges the Zimbabwe tourism industry is facing and among them was limited ICT usage and lack of inter-governmental policy formulation ultimately negatively impacting the tourism sector. Mutsena and Kabote, (2015) echoed the need for a synchronised policy development approach that ensures a safe environment to do business and participate in domestic tourism. Moreover, the local tourist, who is crucial for tourism development, lacks information on the products and services available (Ministry of Tourism and Hospitality, 2012) yet as shown earlier, information is the lifeblood of travel industry. Without information, a tourist may not travel even if they can afford it and this is a huge challenge (Nyambura, 2014).

This study therefore seeks to address the problem of constrained growth and development in the tourism industry in Zimbabwe as caused by the lack of collaboration among stakeholders and information availability and ease of access.

Thus the problem statement is defined as follows: Lack of collaboration among tourism providers which is affecting information availability and ease of access to information within the tourism industry in Zimbabwe thus disadvantaging the local tourism players.

1.4 OBJECTIVES OF THE STUDY

The study is aimed at accomplishing the following:

- Develop an ICT based framework that enhances information sharing and collaboration within the tourism industry.
- Show the current information sharing methods employed by tourism providers and consumers
- Illustrate the role ICTs can play in information sharing and collaboration of domestic tourism.

1.5 RESEARCH QUESTIONS

The study will accomplish the above mentioned objectives by answering the following questions:

- How can the ICTs be used to enhance information sharing and collaboration in domestic tourism in Zimbabwe.
- How are tourism providers and consumers currently sharing information?

- What is the role that ICTs can play in information sharing and collaboration within domestic tourism?

1.6 RESEARCH METHODOLOGY

This research was guided by the Design Science Research Framework (DSRF). The DSRF takes the design science paradigm approach to research in Information Systems which aims to develop ways of achieving human goals (Hervner et al 2004). Through this framework, this research was able to accomplish its main objective of furthering knowledge that aids in the productive application of ICT to human organizations and their management and to develop and communicate the knowledge in the tourism industry.

Primary and secondary data was collected in order to answer the research questions above. For the research to determine the role of ICT in information sharing and collaboration, secondary data was collected through literature review. The literature was drawn from ICT journals as well as tourism journals, scholarly publications, books and newspaper articles of related material. The literature review was appropriate as it provided both theoretical and practical applications of ICT which is critical for an ICT research as recommended by the DSRF. A qualitative research was conducted to gain insight into the current information sharing methods within Zimbabwe's tourism industry (primary data) through interviews. Interviews were appropriate as they helped in sensitive issues of data sharing and information systems security and also as they offered increased insight into people's thought, feelings and behaviour. The interviews were carried in person where possible and telephone for follow up on more issues that needed clarity. Purposive sampling was done to select the interviewees from tourism providers. This non-probability sampling technique was very appropriate for the qualitative data needed and also for the limited time to accomplish the research. The interviewees were from representatives of tourism industry based in Harare who are well versed with the tourism business environment. Structural coding was used to analyse the collected data.

Once the framework was drafted, it was evaluated by expert reviewers from both academic field and industry. Their critique helped in the refinement of the framework.

1.7 JUSTIFICATION OF THE STUDY

To the knowledge of the researcher, the majority of research in Zimbabwe in the field of ICT in the tourism industry (as shown in the literature review in Chapter 2) laments the low ICT adoption by tourism providers and a poor ICT infrastructure. The researches demonstrate that

ICT is underrated yet it is another increasingly important driver for tourism development. This study probed ways in which ICT can be integrated into Zimbabwe tourism for overall tourism development by enabling more accessibility and visibility of information through collaborative effort in the domain of sharing information.

1.8 LIMITATIONS OF THE STUDY

This research has its own limitations just as in any research. First of all, the target population for the study was drawn from Harare which is the researcher's home area. This has a possible implication of constraining the depth of primary data collected. Efforts were made to minimise this effect by including samples from tourism providers' associations who have a national view of the sector. Another possible limitation is the use of purely qualitative methodology in the research. There is need for quantitative analysis of scientifically measurable variables that can be significant in information sharing in tourism.

1.9 CONCLUSION

This chapter gave the background of the study by highlighting the importance of ICT in tourism industry in general. It has also shown that ICT is not fully utilised in tourism in Zimbabwe. The chapter gave the problem statement, objectives of the study, research questions and previewed the research methodology. It also justified the need for the study. In the next chapter shall be an extensive coverage of review from literature.

1.10 STRUCTURE OF THE DISSERTATION

The dissertation is composed of six chapters as follows:

Chapter 1: Introduction to the study highlighting the importance of ICT in tourism industry in general. The chapter also shows that ICT is not fully utilised in tourism in Zimbabwe. The chapter gives the problem statement, objectives of the study, research questions and previewed the research methodology. It also justifies the need for the study

Chapter 2: Gives knowledge about usage of ICT as defined by other researchers, tourism providers, commentators and ICT practitioners. It shows ICT's role in information sharing and collaboration and how it has been implemented in other fields to achieve this. The chapter highlights the current tourism status as defined by other researchers. It concludes by providing a conceptual framework which then guided the primary data collection.

Chapter 3: This is the description of the study as it was conducted. The chapter illuminated on the full details of the DSRF and how this study adheres to it. Sampling, data collection and data analysis methods employed are also fully explained.

Chapter 4: In this chapter is a discussion of the results from the data collection. It is in this chapter that the factors for the development of the proposed framework are formulated and presented.

Chapter 5: The chapter concludes the whole research by summarising the problem and answering the major research question through the proposed framework. It is in this chapter that the final framework is presented. The chapter then provides limitations of the study, and recommendations for future study are suggested to mitigate the limitations of the study.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This section reviews literature on information sharing and collaboration and its application in tourism as well as use of ICT in these domains. The literature review addresses the research question of the role of ICT in information sharing and collaboration. The literature surveyed was not limited to tourism industry only. It was expanded to other domains such as public safety and retail. This was intended to provide more thorough information. The literature was obtained from working papers, government plans, consulting companies, masters thesis, journals, books, newspapers, conference proceedings and other publications. Google and Google scholar are the main search engines on the world wide web which were used for online documents and articles. The search keywords were "information sharing theory", "information sharing in tourism", "collaboration theory", "collaboration in tourism", "ICT and information sharing", "inter organisational information sharing", "inter organisational collaboration", "tourism information needs" and "ICT in tourism".

2.2 INFORMATION SHARING AND COLLABORATION

Information sharing theory in tourism has not received much attention. In tourism literature information sharing has been discussed in passing but not entirely as a domain. However, tourism informational needs differ greatly due to the multiplicity of stakeholders in tourism (EC, 2001). The tourism stakeholders are made up of tourism organisations, governments, local residents/communities, tourists and environment (Buhalis and Amaranggana 2015). The stakeholders have an enormous and growing request for information. This is caused by 1) information not being available, outdated or insufficient; 2) it is difficult to find the right information or to have knowledge of its availability because of existing gaps within communication systems; 3) information retrieval costs are frequently too high making it inaccessible; 4) the information is inadequate to the role and needs of the . The tourist today is increasingly longing for information pertaining to his environment (Mupfiga, 2015, Carvalho, Cunha, and Morais, 2010). A tourist's information needs include unified information of destination (Peace Rowe and Cooper, 2005); real time support during tourism consumption (Carvalho, Cunha, and Morais, 2010); and sharing experiences with other tourists easily (Mupfiga, 2015, Amadeus, 2012). Tourists need assurance of the information's availability post visit for peer review. In this study, identification of tourism information needs is crucial to determine the information to be shared and produced.

A 2012 study by Amadeus IT Group foresaw an era of 'collaborative travel' consisting of information sharing in order to transform travel and tourism and the tourism experience (Amadeus, 2012). The study suggested a world of collaboration where service users become

partners rather than customers. According to Amadeus (2012), this could be accomplished through 1) working more with data 2) working more with others and 3) helping people learn from others. Collaboration among tourism stakeholders however is not a new phenomena in tourism literature. It is acknowledged that not much can be accomplished in tourism without multiple firms working collaboratively with one another to serve the consumer (Crotts, Buhalis and March, 2000). Collaborative effort is centred on different problem domains; policy making (Bramwell and Sharman, 1999; Hall 1999); destination marketing; tourism planning (Bramwell and Lane, 2000; Ladkin and Bertramini, 2002); and information sharing. Organisations engage information sharing strategies to gain direct access to all relevant information for their business operations (Li, 2010) and to formulate total tourism product for the consumer (Buhalis, 1998). When information is shared in inter-organizational networks, it can result in a more efficient flow of goods and services.

While organisations may be willing to collaborate, literature shows that it is not always easy and organisations are not always willing to share information. Factors such as relationship investment, shared vision and communication influence inter-organizational information sharing (Egberink, 2015). These factors help create trust and stimulate partnering organisations to collaborate to share information. However, Tengberg (2013) stated that companies are more willing to share information when these four concerns are addressed: legal and privacy concerns; technical concerns; knowledge gains and strategic concerns. An organisation needs to be assured that the inter organisational information sharing strategy will give it the much needed competitive advantage and that it is technically viable. Cresswell et al (2013) identified trust and candor; high levels of individual and organizational commitment; and the right mix of participants as crucial.

While there may not be a universal list of key success factors for inter organisational networks, scholars and practitioners recognize the need to breach boundaries between agencies, professions, sectors, governments, and even nations (Cresswell et al, 2013; Fan, 2013; Amadeus, 2012). A redesign of the various business processes is needed to eliminate organizational boundaries and data exchange among (Fan 2013, Buhalis, 1998). Once the boundaries have been ignored, organisations in a collaborative network need to exert rigorous communication and commitment (Ramayah , Lee , Chyaw, 2011; Khuong 2013) to keep the network functional.

Organisations in collaborative networks tend to form different kinds of inter organisational relationships (Crotts, Buhalis, March, 2000). Of the firms involved in sharing information, Tengberg (2013) identified five different structures of relationships between them. These structures are:

- **No collaboration:** An organisation uses its own data and does not share with anyone

- **Direct sharing:** Organisations form direct alliances with others and share data between themselves.

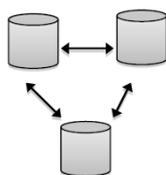


Figure 2.1: Direct Information Sharing.

Source Tengberg (2013): p30

- **Joint collaboration:** Organisations form a separate unit for sharing information with its own repository. One of these organisations will be responsible for managing the information sharing

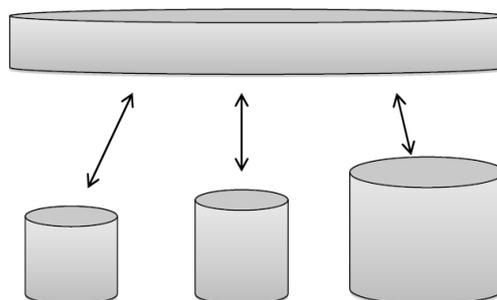


Figure 2.2: Joint Collaboration.

Source Tengberg (2013): p32

- **Third party aggregator:** Unlike joint collaboration the information sharing unit is managed by an independent party.
- **Personal data wallets:** An organisation collects data individually from various units then controls the degree of sharing and with whom to share the data.

2.3 ICT AND INFORMATION SHARING AND COLLABORATION

ICT is an enabler of development in every sector of society and the economy (Microsoft, 2004) and a major contributor to competitiveness and competitive advantage (Buhalis, 1998). However it can only be part of the solutions in solving the challenges facing the international development community (Microsoft, 2004; Pease, Rowe, and Cooper, 2005) as it is unable to accomplish this single handed (Buhalis, 1998). This research takes into cognisance this fact and the framework proposed here comes in as one of the pieces to addressing Zimbabwe's tourism situation. ICT qualifies in this quest because of its key attributes, namely: knowledge management; efficiency; networks; and multipurpose (Microsoft, 2004). This means that ICT is appropriate for sharing information through inter organisation networks and is versatile enough to be applied according to specific needs. However the form and nature of ICT

infrastructure is crucial for successful implementation (William, 2009) especially when the organisations have different ICT configurations. The size and complexity of the network can pose serious technological challenges as they grow (Creswell et al, 2013). At the same time, the technical infrastructure must encourage free exchange and enforce risk mitigation controls (McKinsey Quarterly, 2013).

Businesses in a collaborative network as facilitated by innovations in ICT have been called virtual organisations (Fan, 2013; IOM, 2012). Pease Rowe and Cooper (2005) defined a virtual organisation as "a network of independent tourism sector competitors linked by ICT to share skills, costs, assets and broaden access to markets". Virtual organisations are strategically engaged in co-opetition (simultaneous cooperation and competition between businesses). Other researchers however have identified a different kind of networks, enabled by innovations in ICT, which have given rise to a new economic era known as the sharing economy (Juul, 2015, Botsman and Rogers, 2010). The sharing economy is an economies model endorsed by network technologies enabling the sharing and exchange of products in more flexible ways and quantities (Botsman and Rogers, 2010). In such an economy, individuals get to share temporarily with tourists what they own. Ultimately anyone can share anything including information (Juul, 2015). This kind of sharing however has very little inter organisation collaboration as relationships are temporal and relationships mainly involve direct sharing.

Virtual organisations are built upon the developments of the internet. Online platforms that match demand and supply are acting as intermediaries between peers who are involved in sharing (Juul, 2015). One such platform is a collaborative information sharing platform. IACA (2014) defined an information sharing platform as " a centralized computer system that allows authenticated users to collect, manage and share structured and unstructured data sets from a variety of sources..." When well designed, information sharing platforms serve as "one stop shops" for users (IACA 2014; Pease Rowe and Cooper, 2005) who are the members of the collaborative network. IACA listed four benefits that can be derived from deploying an information sharing platform

- **Content:** A wide variety of content can be shared and discovered over an information-sharing platform. This is because such platforms can 1) accommodate varying multimedia data including: pictures, videos, illustrations, geospatial content and links to internal and external websites. 2) be integrated with existing systems allowing access to any necessary and relevant data in near real time eg booking system. 3) serve as a portal to external data sources through exceptional connectivity which is often established over a secured socket layer (SSL) or through a virtual private network (VPN) and requires a carefully planned

security and maintenance protocol 4) be designed to host dynamic user-generated content, such as a wikistyle website or a collection of living documents. This includes technology such as socially interactive blogs and user forums. which allow participants to create threads of information for specific topics or events. 5) integrate open-source content, such as traditional news feeds and commercial social media content. Through the use of keywords, information sharing platforms can allow users to search across all resources for content. All these characteristics make information-sharing platforms to operate as “one stop shop” for users (IACA 2014; Pease Rowe and Cooper, 2005).

- **Communication:** Information-sharing platforms are good channels for official and unofficial communication as they can facilitate top-down, bottom-up, and lateral communication when properly designed. This is good for inter-organisational information sharing as it leverages communication facilities across board.
- **Collaboration:** Using an information sharing platform, members can work together towards a common goal. Different collaborative activities can be focused on for different purposes and different members can participate. These activities can be conversation-centric around a project, problem. Setting a goal for content, communication, collaboration, and activity on all pages of an information-sharing platform helps to maximize its effectiveness.
- **Discovery:** Automated discovery features can be included in an information-sharing platform during design to reduce information overload and to ensure information is communicated to the right person, at the right place, at the right time. Basing on a user's context these advanced information discovery (search and surfacing) features prioritize only relevant content. A user's context may be referring to the user's current location, time of date, assigned locations (zone, district, division etc.), and content of interest among others.

It is crucial for the purposes of this study to note that while the internet conveniently enables information sharing, it poses its own risks. Recently governments and businesses have fallen victim to sophisticated, targeted cyber-attacks (Microsoft, 2015). The design of an information sharing platform should incorporate features to safeguard against such attacks. Microsoft (2015) then advocated for an understanding of six elements of information sharing in order to build an effective and sustainable information sharing program. These are: actors involved; types of information exchanged; models of exchange; methods of exchange; mechanisms of exchange; and scope and operational purpose.

2.4 ICT IN COLLABORATION AND INFORMATION SHARING CASES

The appropriateness of ICT as tools for collaboration and information sharing is evidenced by its vast application in different industries. In law, an example is that of an unnamed global

law firm which appointed Accenture, an ICT consulting firm, to integrate business and technology and also introduce digital capabilities (Accenture, 2016). The major aim of the exercise was to “support greater collaboration and interaction between the Australian business and professionals and clients across its expanded international network” with the ultimate results of enhancing the experience of the firm's clients, and improving engagement among the firm’s professionals and support staff. The firm has offices in Asia, Australia, Europe, the Middle East and North America. Accenture then recommended that the firm refine its current technology systems to provide a solid base for future growth and also introduce new mobile communications, data analytics, social media and video capabilities to further enhance the experiences of clients and staff

In America the idea of information sharing and collaboration gained popularity after the September 09/11 attacks (IOM, 2012; Zheng and Lewis 2015). The private sector in America formed Information Sharing and Analysis Centers through their own information sharing partnerships such as the Financial Services Information Sharing and Analysis Center (FS-ISAC) and the Electricity Sector Information Sharing and Analysis Center (ES-ISAC) for the purposes of fighting cyber threats (Zheng and Lewis, 2015).

The American Government made it an Administration priority to improve information sharing. The aim was to give those responsible for combating terrorism access to timely and accurate information regarding the attackers, their plans and activities, and their intended victims (unknown, 2007; IOM , 2012). This has resulted in programs such as Cyber Information Sharing and Collaboration Program (CISCP) by the Department of Homeland Security. According to DHS (2013), the CISCP "was established for information sharing and collaboration with our critical infrastructure partners". Another program is the Infraguard from the Federal Bureau of Investigations (FBI) and the National Biosurveillance Integration System (NBIS) by DHS (IOM, 2012). Of the programs that have been running successfully, credit has been given to existing relationships of trust within these sectors, shared business models, and common goals (Zheng and Lewis, 2015). To complement this, Microsoft (2015) designed a framework for sharing cyber security information and risk reduction.

The United Kingdom and other governments have engaged smart tourism by devising online Visitor Information Centres containing all necessary information about a town as a tourist destination. The VICs are kept up to date with tourism activities, amenities and are available 24/7. The website, such as Visit Bath Information Centre and Visit Llandudno Information Centre, is also linked to social media such as facebook and twitter.

2.5 ICT AND TOURISM

The use of ICT has been accepted in tourism and recent studies are now more centered on the use of the internet, social media and mobile technologies (Buhalis 2008; Carvalho et al 2010). Buhalis (1998) proposed a multi-dimensional framework for strategic adoption of ICT in tourism that would mutually benefit all stakeholders. In this framework are three main axis where ICT revolutionise tourism. These axis are intra-organisational functions; inter organisational functions and consumer functions. Buhalis (1998) mentioned different applications that support inter-organisational functions for horizontal, vertical and diagonal integration. He identified Global Distributed Systems, Computer Reservation Systems and Destination Management Systems. However, as innovations in ICT continue to improve, systems integration technologies have also changed. New business concepts such as smart tourism are being adopted. Smart tourism is a concept that has emerged from the developments in social media technologies (Koo et al, nd). Smart tourism has provided tourism organisations with marketing platforms through persuasive power of word of mouth. Moreover, using social media analytics tools, organizations can transform massive volumes of social media data into useful business insights (IBM, 2013).

Carvalho, Cunha and Morais (2010) proposed a framework that is aimed at meeting the tourist's information needs (Figure 2.3). This framework targets mobile devices by integrating multiple mechanisms so as to continuously serve the tourist regardless his circumstances, Carvalho, Cunha and Morais (2010). Fundamental technologies such as data, devices, screens and sensors are implemented to enable applications at different stages of the travel experience (Amadeus, 2012).

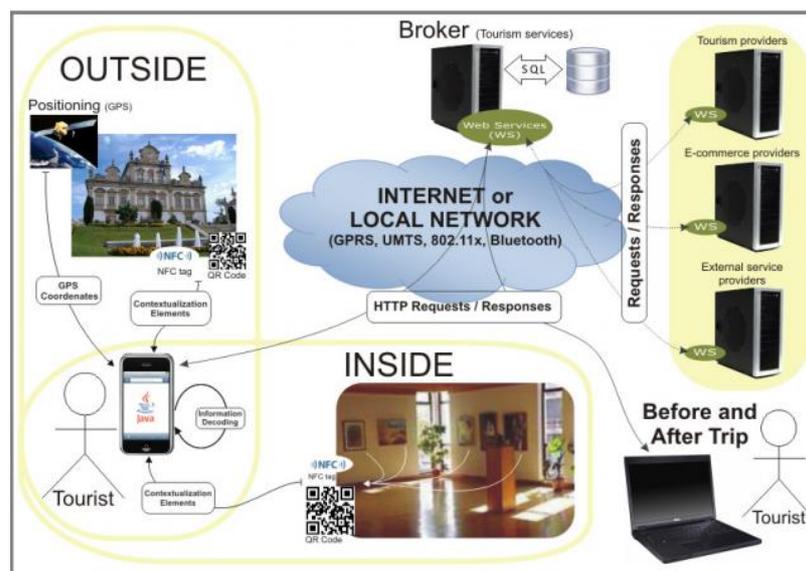


Figure 2.3: Framework for Meeting Tourist's Information Needs.

Source: Carvalho Cunha and Morais (2010), pg 8

Nevertheless, collaboration around ICT is becoming the rule in tourism. Collaborative networks among businesses have become one of the workarounds towards destination promotion and enhancement of regional economic development (Pease, Rowe and Cooper, 2005). By forming inter organisational ICT enabled networks, tourists can be granted a concerted and unified tourism experience. Peace, Rowe and Cooper (2005) argue that multiple websites are failing to provide a unified view of the destination to the tourist since each website individually represent the numerous autonomous suppliers making up a tourism destination. As such, destination managers need new ways to serve the tourists' demands (Buhalis, 1998). Thus by collaborating and information sharing the information's value is optimised in service provision and responding to problems (IOM, 2012) with more efficient flow of goods and services.

Destination management organisations (DMO) have adopted ICT systems for the purposes of improving the functioning and performance of their organizations (Buhalis, 2008). The DMOs play the role of third party orchestrator in information sharing in Egberink (2015) five relationship structures. Literature shows that DMOs have implemented destination management systems for handling destination information. Buhalis (1998) defined a DMS as 'the IT infrastructure used by a destination organisation for the collection, storage, manipulation and distribution of information in all its forms, and for the transaction of reservations and other commercial activities'. According to Rowe (1992), a DMS' intention is to provide complete and up to date information on a particular destination making it competitive. This agrees with (Peace, Rowe and Cooper, 2005) on the need to provide a unified view of the destination and promotion of small tourism enterprises.

However a significant number of DMSs have been known to be unsuccessful as they failed to gain the support and commitment of stakeholders. Buhalis (2000) suggested for the full utilisation of the entire range of ICTs available. Martini et al., (2000) on the other hand, believe that closer partnership and cooperation (collaboration) throughout the tourism industry is essential for the success of such a system. The factors elaborated on earlier on ((Egberink, 2015; Tengberg, 2013; Ramayah, 2011) need to be considered for a collaborative system to be successful.

The above discussion focuses on destination marketing as one form of sharing information within tourism sector. The other inter organisational information sharing form is in tourism supply chains management. Tourism providers form direct relations among themselves in the tourism product supply chain and share customer data. The major aim is increasing added

value to grant efficiency of cooperation and competitiveness potential through the realisation of inter organisational obligations.

2.6 THE CURRENT TOURISM STATUS IN ZIMBABWE

The decline of the Zimbabwe economic base in the post 2000 period, (Chiutsi and Mudzengi, 2012) has roused a lot of academic interest in the tourism field. Prior this period, it is acknowledged that tourism was vibrant. Tourism created many business and employment opportunities and contributed significantly to the Zimbabwe GDP (Mupfiga, 2015; Taru and Gukurume, 2013). Since 2000, the majority of literature agrees that tourism development is continuously fluctuating as a result of political and socio-economic challenges that continue to plague the nation (Chingarande, 2014; Zhou, 2013; Ndlovu and Heath, 2013). Others even attest that tourism development is declining (Mupfiga, 2015; Murimi et al, 2014). At the micro level, the locals are failing to enjoy initiatives such as community based tourism (Manwa, 2003). Even though the research by Taru and Gukurume (2013) in Masvingo, showed that local communities and individuals have benefited through "economic synergies" between the industries and local communities, these "synergies" have not been effected countrywide due to uneven tourism developments (Zhou, 2013). The majority of local communities are marginalised and play a peripheral role in the tourism sector matrix (Chiutsi and Mudzengi, 2012; Manwa, 2003; Zhou, 2013). The bottom line however, is that Zimbabwe is failing to achieve sustainable and successful tourism development.

However, lamenting the suppressed tourism development is not enough. There is need to devise solutions to steer tourism development in Zimbabwe. Academic researchers have recommended diversified solutions. Ndlovu and Heath (2013) have called for rebranding Zimbabwe while Nyahunzvi (2015) recommended a mix of endogenous and exogenous factors to revamp the industry. Chiutsi and Mudzengi (2012) have suggested building capacity for communities as by themselves they "lack tourism business acumen that can quickly parachute them into competitive tourism entrepreneurs". Complementary to this, Muzvidziwa (2013) advocates for "greater co-ordination of activities and commitment on the part of governments, communities and tourists". In support of this view, Mirimi et al (2014) argue that it is crucial for the different players in the tourism sector to collaborate through incorporating stakeholder perspectives so they can competitively contribute to tourism development.

Marunda, Marunda and Munyanyiwa (2014) call for electronically empowering tourism communities by availing computers and connectivity to them. It was their ascertain that tourism and hospitality developments are largely dependent on the use of information and computer technologies (Marunda et al, 2014). While Tsokota et al (2014) agree with this, they argue that simple acquisition of ICT assets does not automatically generate business

value. ICTs are tools of business which need to be applied for the correct task. Tsokota et al (2014) then suggested several elements for the strategic use of ICT in Zimbabwe tourism sector. One of these elements was an integrated interactive portal for the tourism sector in Zimbabwe. This portal needs to "be able to interface with databases of related companies and allow virtual tours, videos, online bookings and payments". This idea is very applicable in the wake of fast growing ICT adoption rate by large internationally recognised hotels (Mupfiga, 2015) and massive investments by both the private sector and government in the tourism and ICT sectors (Tsokota et al, 2014). However, "obstacles like the lack of access to communication in remote areas, uncertain electricity availability, high cost of bandwidth, the lack of integrated, real-time reservation systems and local online payment gateways" (Mupfiga, 2015) continue to lurk behind. With such obstacles, implementation of the interactive portal would still perpetuate marginalisation of locals thus ultimately stunt overall tourism growth.

2.7 RESEARCH GAP

This research joins the quest for tourism development in Zimbabwe. Adoption of ICT even in remote areas is going to improve given that the data oriented communication and cheaper bandwidth are becoming available throughout the country (Mupfiga, 2015). The research therefore considers an amalgam of various proposed solutions. The study considers collaborating around ICT for the purpose of information sharing. This will capacitate the marginalised locals (tourists and tourism providers). To the knowledge of the researcher, such a study has not been carried before in Zimbabwe.

2.8 CONCEPTUAL FRAMEWORK

From the discussion above, three main concepts have emerged. From these a conceptual framework that will guide field research on information sharing and collaboration in Zimbabwe can now be built. This is a system of concepts, assumptions, expectations, beliefs and theories that support and inform a research (Miles & Huberman, 1994). The concepts identified from the literature review are as follows:

- **Information needs and sharing methods:** Tourism stakeholders have different information needs which results in different types of relationships (EC, 2001; Carvalho et al, 2013) and different methods of sharing information (Buhalis, 1998).
- **Use of ICT for information sharing:** Innovations in ICT continue to revolutionise tourism business process. The different technologies have a role to play.
- **Challenges in information sharing and collaboration:** The success of a collaborative network depends on a number of factors. Use of ICT for sharing information poses its own risks to the network (Microsoft, 2015).

2.9 CONCLUSION

This chapter was a review of literature on information sharing and collaboration in tourism and the role of ICT for such purpose. The literature review was guided by the research questions two and three. From the literature three main concepts emerged that have been used to build a conceptual framework that will guide the field research. There was no single theoretical framework that could be used. From the literature it was noted that there are three groups of stakeholders; destination promoters, tourism providers and tourists. Collaborative networks and use of ICT in tourism helps develop the sector by bringing competitive advantage and making tourism destinations attractive. Tourism stakeholders have different information needs and therefore form different types of collaborations. Different ICTs are used to share different information and emerging technologies change the way information is currently shared. Use of the internet for sharing information is now risky due to increased cyber-attacks. For the success of a collaborative network, factors such as trust, communication, commitment and use of right ICTs are crucial. The tourism status in Zimbabwe however is characterised by stunted growth, lack of collaboration and poor integration of ICT. This study therefore investigates the current state of information sharing in Zimbabwe and recommends ICT adoption for such purpose by proposing an information sharing and collaboration framework for tourism.

CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

The previous chapter, the literature review, summarised and evaluated existing knowledge on information sharing and collaboration in tourism. This knowledge helped develop a conceptual framework that formulated more guidelines for further research. The guidelines formulated are current information sharing methods, ICTs used and challenges faced. This chapter then proceeds to expound on the methodology employed to obtain such data. The chapter fully explains on both primary and secondary data collected and how it was analysed and the ethical considerations made during the process.

Methodology is a general approach to studying research topics (Silverman, 2010). The methodology employed for the overall study was the DSRF as applied in IT. The study followed qualitative research as the research design. The qualitative research strategy of inquiry used was grounded theory. The sub sections which follow will look these into detail together with the research method used for data collection, data analysis and interpretation.

3.2 RESEARCH METHODOLOGY: DESIGN SCIENCE RESEARCH

The overall research approach employed by this study is Design Science paradigm as applied in Information Systems research. According to Hevner et al (2004), in the design-science paradigm, knowledge and understanding of a problem domain and its solution are achieved in the building and application of the designed artifact. This is accomplished by bringing people organisations and technology together. Hevner et al proposed a framework for conducting information systems research as shown in the figure below. The design science paradigm was of relevance to this study since the study proposes a framework intended to solve a problem. This framework is the artefact of the study. Design science paradigm is also applicable since this study addresses issues of design which Hevner et al (2004) defined as the purposeful organization of resources to accomplish a goal. This study thus followed a set of guidelines for conducting and evaluating good design-science research as proposed by Hevner et al (2004).

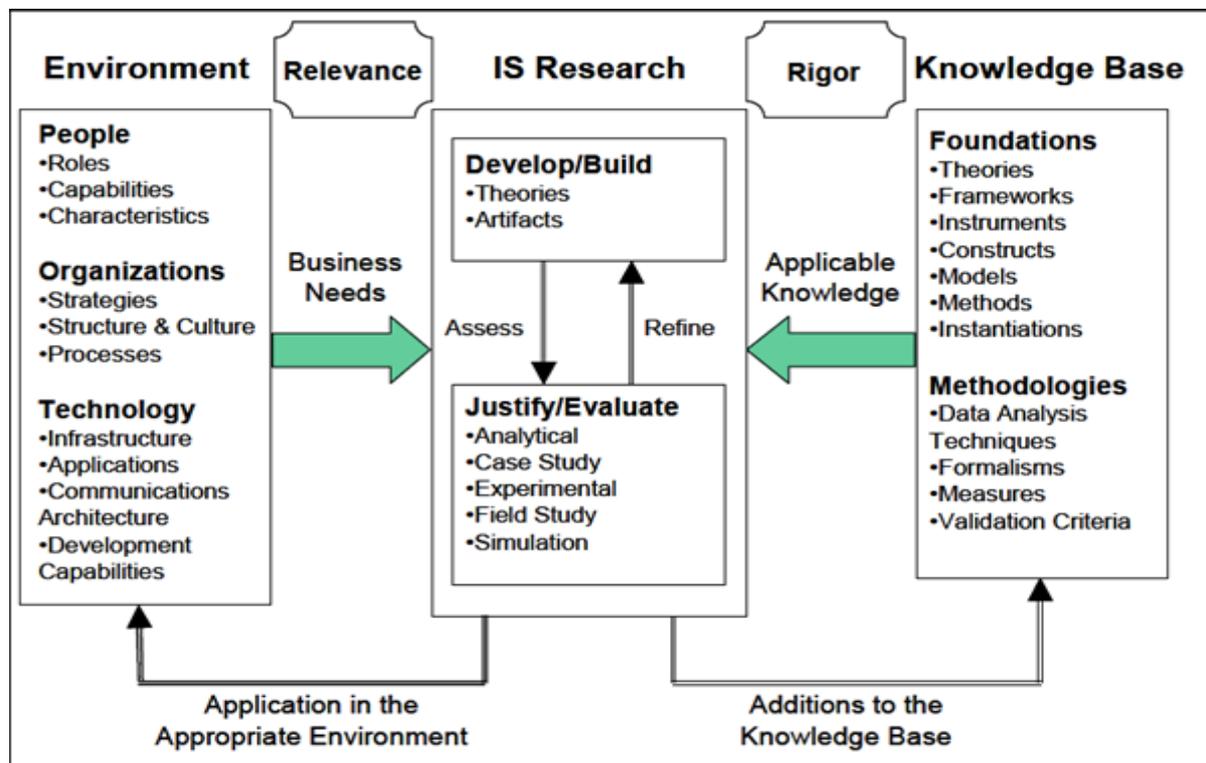


Figure 3.1: Information Systems Research Framework

Source: Hevner et al. (2004)

Guideline One: Design as an Artifact

Hevner et al (2004) recommended that a purposeful artefact be the product of the design science research to address unsolved problems. This artifact can be a construct, model, framework, method, or instantiation. The artifact of the study is the ICT based framework for Information sharing and collaboration in tourism in Zimbabwe. This artifact is intended to solve the problem of information unavailability and lack of ease of access to tourism information as caused by lack of collaboration among tourism stakeholders.

Guideline Two: Problem Relevance

In design science, the objective is the development of technology-based solutions to important and relevant business problems (Hevner et al., 2004). As shown in the problem statement and literature review, tourism in Zimbabwe is experiencing stunted growth due to political, social and economic problems. Underneath this is a fragmented sector with low ICT adoption rate. As researchers are proposing various solutions to enable tourism development, this study joins the discussion for solution and it centres around collaboration and sharing information using ICT.

Guideline Three: Design Evaluation

Hevner et al (2004) advocated for rigorous demonstration of the utility, quality, and efficacy of a design artifact through well-executed evaluation methods. To accomplish this, the artefact of this study was presented to expert reviewers for their critique. The feedback from

the reviewers was used to refine the framework until it was qualified usable in the problem domain.

Guideline Four: Research contributions

Hevner et al (2004) suggested that effective design-science research must provide clear and verifiable contributions in the areas of: the design artifact; design foundations, and/or design methodologies. This study contributes a design artefact in the form of a framework. This framework enables the solution to the previously mentioned unsolved problem by applying existing knowledge in information sharing and collaboration in new and innovative ways.

Guideline Five: Research Rigor Design

Design-science research depends on applying rigorous methods in both the construction and evaluation of the design artefact. This is achieved by using theories provided by scientific knowledge bases. In this study, the research rigor was achieved by carrying out an extensive literature review of previous theories, frameworks and methods used by reputable researchers and practitioners. The frameworks include: the Strategic use of ICT for business management; Framework for Cyber Security information sharing; and framework for meeting tourist information needs. They were used to construct conceptual framework for the study. The body of knowledge also helped in forming this research in terms of research methodology.

Guideline Six: Design as a search process

Design science research is an iterative process that searches for the optimal design as a solution to the identified problem (Hevner, 2004). The aim is to produce an effective artifact relevant to the business problem and needs. This study's design process iterated through research rigor, building/developing the artefact and evaluating the developed artefact (Figure above of framework)

Guideline Seven: Communication of Research

It is essential to present the design science research to both management oriented and technology oriented audiences (Hevner et al., 2004). This is so since practitioners need to enjoy the artefacts' benefits and researchers need to build a cumulative knowledge base for further extension and evaluation. This research shall be presented to organisations that participated in the research. It shall also be published in relevant journals to reach academic audiences and researchers.

3.3 RESEARCH DESIGN: QUALITATIVE RESEARCH

A research design determines the logical way of conducting a study by providing methods and procedures to be followed. The research design employed was qualitative research. According to Creswell (2009), qualitative research is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. He further explains that qualitative research "involves emerging questions and procedures, data typically collected in the participant's setting, data analysis inductively building from particulars to general themes and the researcher making interpretations of the meaning of data". The choice for this research design was mainly influenced by the research problem which needs an exploratory approach to find a solution. Qualitative approach was also appropriate as it is applicable in this situation where the specific variables to be studied were unknown to the researcher. These variables had to emerge as the study proceeded.

Through the qualitative research approach, the study was able to obtain views, opinions and experiences on information sharing and collaboration in tourism in Zimbabwe. The researcher also gained insight on the methods of sharing information currently employed among Zimbabwe tourism stakeholders and the challenges they face. All this information was essential as it helped in structuring the proposed framework

3.4 RESEARCH PROCESS

A research goes through several phases as the project progresses. Olivier (2009) suggested 6 phases that a research study iterates through. This research followed these phases as follows:

- **Explore:** In this phase, the researcher sought out to find an appropriate research problem and to gain understanding of the field of tourism and trending issues.
- **Propose:** The research proposal was then drafted to establish that the research is relevant and significant in tourism and ICT.
- **Prepare:** Preparations were made on the methods to be used for the research.
- **Execute:** The research was then carried out as proposed.
- **Analyse:** In this phase, data collected was processed, analysed, evaluated
- **Publish:** This phase is still pending. There is every intention to publish the research results.

3.5 RESEARCH METHODS

This section will focus on the methods employed during the research and the research instruments as well. These will be covered under the sub sections namely Researcher's Role, Sampling Strategy, Data Collection, Data Analysis and Ethical Considerations.

3.5.1 Researcher's Role

Scholars emphasise the need to specify the role the researcher played in the research in order to identify the researcher's personal values, assumptions and any of the researcher's biases (Creswell, 2009). In this study, the interest arose while the researcher was part of a project for the Ministry of Tourism. As a tourist, the researcher recalled her experience in failing to access unified information about Nyanga Resort Area and the inconvenience of having to go to ZTA offices to access the information. As an ICT professional, it occurred to the researcher that there was a problem which could be solved through ICT. However, the researcher's expertise in tourism was limited and had to be improved through intensive literature review. The researcher also worked closely with colleagues in the tourism industry in order to gain understanding of local tourism. Through these colleagues the researcher was able to gain access to key participants for the interviews.

3.5.2 Sampling Strategy

Sampling strategy is a laid down procedure that gives the researcher some guidelines to choose or select participants in a research. The target population that was suitable for selection in the study were institutions and associations (private and public) directly involved in tourism in Zimbabwe in Harare. The population was restricted to Harare which is the researcher's home area. Harare was also the choice as it is representative enough of tourism experiences across Zimbabwe with regards to ICT integration in business.

Non probability purposive sampling strategy was used in the study to collect data. This is because it is appropriate for qualitative research and it allows for selection of information rich cases for intensive study resulting in in-depth understanding of phenomena. A sample size of six participants, consisting of fairly representative tourism stakeholders who are well informed about ICT and tourism in Zimbabwe was chosen. The participants were ICT managers (2), association chairpersons (2) and marketing managers (2). The respondents were chosen basing on their expertise in tourism and/or expertise in ICT and also on being at managerial level. One of the respondents was well known to the researcher as a work colleague and the respondent initiated interviews with the other respondents.

3.5.3 Data Collection

This study used both primary and secondary data. Primary data was collected through semi-structured interviews while secondary data was collected through an extensive literature review.

3.5.3.1 Literature review

A literature review is a presentation of a logically argued case founded on a comprehensive understanding of the current state of knowledge about a topic of study Machi and McEvoy (2012). A basic literature review was conducted in order to summarise and evaluate the existing knowledge on this study's topic. The literature review was drafted following the six step literature review model by Machi and McEvoy (2012). These steps are Step 1: Select a topic Step 2: Search the literature Step 3: Develop the argument Step 4: Survey the literature Step 5: Critique the literature Step 6: Write the review. This helped the researcher to produce a position on the state of the knowledge in information sharing and collaboration in tourism. Ultimately the researcher was able to draft questions necessary to address the research problem of the study.

3.5.3.2 Interviews

Interviews are data gathering techniques which involve verbal communication between the researcher and the respondent and are popular in exploratory studies (Mathers; Fox and Hunn 1998) such as this one. In as much as interviews require a significant amount of time and are costly, they were useful for gaining insight and context into the study's topic. The interviews were the appropriate research method to give the researcher opinions and views of respondents about information sharing and collaboration in tourism.

A general interview guide was designed to help in conducting semi-structured interviews (Appendix A). The questions were categorised according to the conceptual framework formulated from the literature review. The strategy of inquiry employed was grounded theory as explained in the section below. Two types of interviews were conducted. Face to face interviews were conducted at the respondent's work place for the initial interviews and telephone interviews were conducted for following up on more issues which needed more elaboration. The interviews were recorded through note taking and voice recording on mobile phone. This was in full consent of the participants. However some of the recordings were lost due to interviewer's novelty in recording.

3.5.3.3 Grounded Theory

Grounded theory is the qualitative strategy of enquiry employed. It is a research method which begins by observing field of interest then allows theory to emerge from what is observed Martin (2013). Grounded theory allows the researcher to derive a general abstract theory of a process action or interaction grounded in the views of participants (Creswell 2012). Through grounded theory, the researcher iterates through collecting data and refining and interrelating of categories of information.

This study employed grounded theory for primary data collected. Initially information was gathered by interviewing people about information sharing and collaboration. Responses from participants were compared as the interviews progressed to derive a tentative theory. Iteratively this was compared with more information gathered from further interviews of new participants purposively selected basing on their differences with previous participants and follow up interviews of previous participants. The process ended at participant number 5 when the saturation level was reached.

3.5.4 Data Analysis

Data analysis involves segmenting and taking data apart as well as putting it back together with the intent of making sense out of it (Creswell 2009). For this research thematic analysis and structural coding was used for data analysis as described by Saldana (2009). This process commenced from data collection (grounded theory) through to the actual analysis (structural coding). No computerised software were used for this purpose since the data obtained was from relatively a few respondents and manual analysis was practical.

3.5.5 Expert review

The initial framework developed was presented to an expert reviewer from the academic community. This was according to the DSRF guideline which requires that the artifact be evaluated. The reviewer evaluated it for relevance and applicability in the problem domain and context and gave feedback (Appendix B). The reviewer's comments were contributed greatly to the refinement of the framework. The second framework was then presented to an expert reviewer from the practitioners' community. By the time of the report, the reviewer's feedback was yet to be solicited.

3.5.6 Ethical Considerations

Ethics refers to the appropriateness of the researcher's behaviour in relation to the rights of the participants of the study (Saunders, Lewis & Thornhill, 2009). The researcher must strike the balance between the quest for information and the rights of the participants. During information gathering, participants must be made aware of how data will be collected, analysed and reported. These considerations were made by the researcher during the interviewing process. Participants were notified of their rights and were allowed to participate voluntarily.

3.6 CONCLUSION

This chapter described the research design and methodology that was followed in this study involving the qualitative research approach, design science methodology, case study and expert review. The sampling strategy, target population, sampling procedure and data

collection instrument was also discussed. Ethical considerations have also been highlighted. The data were code according to various themes to facilitate easy comprehension and analysis. Now that data has been collected and analysed, the next chapter will present and discuss the findings that emerged from the coded data.

CHAPTER 4: RESULTS AND DISCUSSION

4.1 INTRODUCTION

The previous chapter on methodology gave the theoretical underpinnings employed in conducting the study. It also fully described how the data was collected and analysed for the purposes of answering the research questions laid out in Chapter 1. In chapter four, I take the results obtained for presentation and discussion. In the following sections, the chapter will start by presenting the results, followed by discussion of the results then description of the proposed framework deduced from the results.

4.2 DATA PRESENTATION

The results will be presented in descriptive, narrative form. This is because narrative text has been the most common employed means of presenting qualitative data (Creswell, 2014) in qualitative researches such as this one. The results shall also be presented in a structure corresponding to the research question (Stenius et al, 2004). The major research question that the interviews sought to answer was to ascertain the current information sharing initiatives occurring among tourism stakeholders. The question was further divided into three major categories as deduced from the conceptual framework in Chapter two. These questions are; 1) What are the tourism stakeholders' information needs 2) What are the current methods of sharing Information 3) How can information sharing be improved?

Data in response to these questions was obtained from three different categories of stakeholders. These are tourism providers associations (two participants, A1 and A2), government institutions (two participants, G1 and G2) and destination managers (D1 and D2). These categories have been chosen as they constitute the most significant players in information sharing. Results from their responses shall be presented below.

Results from qualitative data collection can only be presented after thorough analysis. Data analysis helps to identify and describe patterns and themes from the perspective of the participants. In this qualitative research, initial data analysis was carried out simultaneously with data collection as asserted by Creswell J (2014). Structural Coding is the data analysis technique that was used as a categorisation technique for further analysis (Saldana, 2009). As suggested by Saldana 2009, codes were applied to segments of data that related to specific research questions. This constituted First Cycle Coding process. The second Cycle Coding Process was conducted through thematic analysis because of the flexibility and the ability to be applied to any coded data that characterise thematic analysis (Stenius et al, 2004). This involved searching for themes, reviewing the themes and defining and naming the themes as suggested by Braun and Clarke (2006) in their 6 phases of conducting thematic analysis.

According to Saldana (2009), themes are statements developed by the researcher during a review of the data representing the ideas provided by participants during interviews. No quantitative follow up was made since the number of participants was very minimal.

4.2.1 What are the Tourism Stakeholders Information Needs?

Raw data was composed of brief notes collected by the researcher during the interview process. Through *Structural* coding, the initial coding cycle produced memo code composing of nine different labels. These labels are: Operational Information, Supply Chain Information, Executive Information, General Information, Trust Concerns, Information Utilisation Concerns, Benefit Concerns, Mandatory Collaboration and Voluntary Collaboration. These labels makeup the constructs that revolve around collaborative information sharing in Zimbabwe. Further analysis conducted during the second-level coding process, *thematic analysis*, constituted recoding the first-cycle coding data. The nine labels were grouped into three themes (meta code). These major themes were used to identify the aspects of Zimbabwe tourism stakeholders' collaborative information sharing. These are Information types which incorporate Operational Information, Supply chain information, Executive/Managerial Information and General Information; Information sharing concerns which are Trust Concerns, Information Utilisation Concerns and Benefit concerns; and Collaboration Types which are Mandatory and Voluntary Collaboration. These themes have been tabulated in Table 4.1 together with their corresponding first-cycle coding labels.

Table 4.1: Three Aspects of Tourism Information Sharing

Information Types	Information Sharing Concerns	Collaboration Types
<ul style="list-style-type: none"> • Operational Information • Supply Chain Information • Executive Information • General Information 	<ul style="list-style-type: none"> • Trust • Information Utilisation • Benefit Concerns 	<ul style="list-style-type: none"> • Mandatory Collaboration • Voluntary Collaboration

Finally, *triangulation* demonstrated the relevance of the data and themes developed.

4.2.1.1 Mandatory Collaboration: Data analysis revealed that mandatory collaboration is a critical element of collaboration among Zimbabwe's tourism stakeholders which significantly impacted the aspects around information sharing. Participants from the different types of tourism organisations revealed that information was being shared as a mandate outside which no information sharing was carried out. As one participant, (G1) stated, organisations are mandated to provide information about their customers. The

concept of mandatory collaboration is further strengthened in that stakeholders need incentives and to derive benefits from the information sharing initiative in order to participate. Two participants from opposing tourism organisations did note that organisations were willing to share information if they could see the benefit according to them. One of the participants, in the discussion about information sharing within their association's organisations, he stated that there was no need as each organisation was self-reliant.

4.2.1.2 Trust Concerns: In analysing the data associated with information sharing among tourism providers in Zimbabwe, trust concerns continue to appear. Tourism providers were concerned that competitors could use information obtained to out compete their peers. On the other hand, orchestrators were concerned about getting "misrepresented information" which was manipulated to best suite the tourism provider, for instance, to get charged lower rates. This shows that the concept of trust concerns in tourism information sharing and collaboration is very significant.

4.2.2 What are the Current Information Sharing Methods?

Brief notes collected by the researcher during the interview process provided the raw data for answering this question. Through *Structural* coding, the initial coding cycle produced memo code composing of six different labels. These labels are: Manual Sharing, Interactive/Social Sharing, ICT based sharing, Data Misrepresentation, Inconvenience and Maintenance costs. These labels makeup the constructs around collaborative information sharing methods in Zimbabwe. Further analysis conducted during the second-level coding process, *thematic analysis*, constituted recoding the first-cycle coding data. The six labels were grouped into two themes (meta code). These major themes were used to identify the aspects of Zimbabwe tourism stakeholders' collaborative information sharing methods. These are Information Sharing Methods which include Manual Sharing, Interactive/Social Sharing, ICT based sharing and Challenges in sharing information which include Data Misrepresentation, Inconvenience and Maintenance costs. These themes have been tabulated in Table 4.2 together with their corresponding first-cycle coding labels.

Table 4.2: Two Aspects of Tourism Information Sharing Methods

Information Sharing Method	Information Sharing Challenges
<ul style="list-style-type: none"> • Manual Sharing • Interactive/Social Sharing 	<ul style="list-style-type: none"> • Data Misrepresentation • Inconvenience

• ICT based sharing	• Maintenance costs.
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Again, through *triangulation* the relevance of the data and themes developed could be demonstrated.

4.2.2.1 Inconvenience: Data analysis revealed that some data sharing methods are proving inconvenient for their purpose. This theme manifested in the way all participants felt the need to make changes in the way information was being shared. Participants stated that websites "lacked functionality" and were not interactive thus prohibiting feedback from tourists and other stakeholders. Another participant noted that social media were too diverse and fragmented thus inconveniently not providing full information. This shows that convenience is an important aspect of information sharing methods for all stakeholders involved.

4.2.2.2 Interactive/Social Sharing: From the data analysis, it could be seen that interaction among stakeholders is an important element in collaborative information sharing methods. Through functions organised by the orchestrator, tourism stakeholders get to meet and share information. One participant in the discussion on ways of improving the current sharing methods stated that more workshops, conferences, seminars and fairs are needed to market the destination. The participant felt that it is in such functions that stakeholders get to know more of developments in local tourism. Another participant felt that more of such functions can help to brand the nation as a good destination. Interactive sharing, thus, is significant in the discussion of key aspects of tourism information sharing methods.

4.2.3 How can information sharing be improved?

Just as in previous sections, raw data for this section came from the brief notes collected by the researcher during the interview process. Through *Structural* coding, the initial coding cycle produced memo code composing of 8 different labels. These labels are: System Integration, Statistics, Data Analytics, more interactive websites, proactive and reactive measures, logistics, infrastructure, online information sharing platform. These labels makeup the potential remedies for overcoming and/or improving collaborative information sharing challenges among tourism stakeholders in Zimbabwe. Further analysis conducted during the second- level coding process, *thematic analysis*, constituted recoding the first-cycle coding data. The eight labels were grouped into two themes (Meta code). These major themes were used to identify the aspects that constitute better or improved collaborative information sharing in Zimbabwe's tourism sector. These are Technology Based Initiatives which incorporate Systems Integration, Statistics, Data Analytics, More Interactive Websites and

Online Information Sharing Platform as well as Micro Level Initiatives which incorporate proactive and reactive measures, logistics and infrastructure. These themes have been tabulated together with their corresponding first-cycle coding labels in Table 4.3.

Table 4.3: Two Initiatives for Improving Tourism Information Sharing

Technology Based Initiatives	Micro Level Initiatives
<ul style="list-style-type: none"> • System Integration • Statistics • Data Analytics • More-interactive websites • Online information sharing platform 	<ul style="list-style-type: none"> • proactive and reactive measures • logistics • infrastructure

Again, the relevance of the data and themes developed could be demonstrated through *triangulation*

4.2.3.1 Technology Based Initiatives: From the Data analysis, it was discovered that technology has a crucial contributions in the enhancement of tourism collaborative information sharing. All participants felt that more adoption of ICT within tourism would greatly help market destinations. One participant felt that there was need for change of attitude towards ICT through applying "more commitment to good IT". The significance of this theme is further strengthened by ongoing implementation of new web based information sharing systems by two organisations from which participants were selected. The participants were excited about the development as they believed this would make huge change in the way information is shared.

4.2.3.2 Thematic Analysis. The third-level coding phase of the data analysis process, composed of further *thematic analysis*, resulted in the meta-code: the six categories or themes. This was meant to deduce the overall challenges being faced by tourism stakeholders in information sharing. These were deduced from a hierarchical code list derived from the raw data.

1) *Inadequate information sharing*: The labels categorised under this theme are those initially categorised under the theme information types and those under the theme information sharing methods. The researcher found that these labels represented the gaps that exist between the types of information needed and the means employed for sharing the information.

2) *Fragmented information sharing*: The labels categorised under this theme are those initially categorised under the theme information sharing methods and the challenges

experienced in collaboration. These labels constitute some of the information sharing experiences encountered by tourism stakeholders

3) *Rivalry between regulators and operators*: This theme sufficed from the collaboration challenges. It has no labels under it as it wholly constitutes a major issue in information sharing

4) *Mistrust Between Regulators and Providers*: The labels categorised under this theme are those initially categorised under information sharing concerns except for data misrepresentation (benefit concerns, lack of incentives, lack of data utilisation, lack of cooperation). The theme was appropriate for these labels as they all entail perception issues from the perspective of the participant.

5) *Poor infrastructure*: The labels categorised under this theme are those initially categorised under micro level initiatives (poor infrastructure, transport logistics) . These first cycle codes entail aspects that hinder overall tourism performance and ultimately collaboration.

4.2.3.3 Triangulation. The process of triangulation was employed to prove corroboration in the data analysis. The researcher would code and recode the initial raw data. After this, the researcher would examine ways in which new labels affected the data analysis. In the first-cycle coding, several codes/labels were dropped while new ones were adopted. In the second cycle, the codes were fitted within seven meta codes that is themes according to the researcher's interpretations. In the third cycle the researcher recoded the second level themes in accordance with the research problem statement. Some labels were amalgamated while others were maintained.

4.3 FINDINGS AND DISCUSSION

This section will present the findings from the research. While the data was presented according to research questions, the findings and discussion shall be done simultaneously basing on participants and themes. The findings shall be discussed according to the themes and the responses obtained from the participants. These themes are 1) Inadequate information sharing 2) Fragmented Information 3) Rivalry between Regulators and Operators 4) Mistrust in data sharing and 5) Poor infrastructure: For each theme, a brief introduction about the theme shall be given, followed by a tabulated discussion of the participants' responses before ending with a summary of the discussion. Participants shall be referred to according to the labels ascribed in the data presentation section.

4.3.1 Inadequate Information Sharing

In tourism collaborative information sharing, issues of inadequate information sharing were discovered resulting from fragmented nature of information. The participants experienced these issues differently according to their own information needs. The researcher found that

operational, supply chain, executive and general information are the types of information that tourism stakeholders may require among themselves. Where information is shared, it is mandatory sharing. Table 4.4 shows these results according to participants.

Table 4.4: Inadequate Information Sharing

Participant	Comment
G1	We do share information with tourism providers. These are lease holders and tour operators. The operators are mandated to provide information about their takings. This information is provided as hard copies. Recently they can be provided through email.
A1	No, we do not share any information among ourselves. We do not want to give away information to competitors. Also we do not see the benefit for sharing information. Perhaps incentives would help.
D1	We get information from the ZTA who are responsible for the marketing of Zimbabwe as a destination. This information is about the providers' details and gradings. The information is provided through hard copies.
D2	Information is available over the website. However it is difficult to keep the website updated such that information may be stale and irrelevant to current events.

From the above it can be noted that the current information sharing is not sufficient to meet all the needs of the stakeholders. There is no information sharing except for when its mandated by regulation. There is need to mitigate on the issues raised in order to enhance information sharing. Thus information sharing is critical for framework being proposed for enhancing information sharing.

4.3.2 Fragmented Information

The current information sharing methods are proving inconvenient for the enhancement of information sharing due to the fragmented nature of the information needed and the sharing methods available. Websites lack functionality and interactivity such that tourists fail to provide feedback. Use of social media is staging financial cost implications as these are fragmented and require significant time commitment. Manual methods of sharing information are inconvenient as well since data can be misrepresented. Table 4.5 shows the participants' opinions regarding the information sharing methods.

Table 4.5: Fragmented Information Sharing

Participant	Comment
G1	There is the problem of information misrepresentation where operators alter figures or provide incorrect customer information. They do this so that they

	can get cheaper rates.
A2	Systems are implemented on different platforms. Integration tends to introduce additional costs whose funds are not always available
D1, A1	Websites are inconvenient as they lack functionality for interaction such as feedback from tourists.
G2	Data may be provided as Excel Sheets by email but still need to be captured in the system. This is very inconvenient

The discussion shows dissatisfaction in the current sharing methods employed. Addressing these issues can greatly influence information sharing in the positive. As such methods of information sharing shall be part of the framework being built by the study.

4.3.3 Rivalry between Regulators and Operators

Results from the research showed hostility between regulators and operators. While the factors contributing to such rivalry are irrelevant to the purpose of this study, the rivalry is certainly apparent. Issues of misrepresentation of data and unwillingness to share data and lack of cooperation are clear signs of the hostility. Information exchanged in the prevalence of such hostility is exposed to manipulation. As a result it can be noted that data integrity is highly compromised in mandatory collaboration types.

Table 4.6: Rivalry between Regulators and Operators

Participant	Comment
G1	Information can be misrepresented by altering figures or changing customers' demographic information such as nationality. This is done to get cheaper tariffs.
A1	The information is redundant. No statistics are provided and no data analytics are done. Therefore it is not necessary to participate.

Rivalry between stakeholders is a significant inhibitor of information sharing. When information can be manipulated and altered, data integrity is compromised. This further inhibits information sharing. This factor is therefore significant in the proposed framework for information sharing and collaboration.

4.3.4 Mistrust in Sharing Data

It was noticed that the diversified tourism stakeholders do not trust each other in sharing information. Fear of competition and lack of derived benefit from the sharing initiative constituted the trust concerns. To further explain, the need for incentives to participate in information sharing revealed the lack of trust was imminent.

Table 4.7: Mistrust in Sharing Data

Participant	Comment
A1	Competitors may take the information and use it for their benefit.
A2	If there were incentives provided, it would be worthy while to get involved. And also if the information was used by for instance providing statistics then the effort will be worth it. However no such action can ever be taken.

Trust is critical for sharing information that may be sensitive. As trust is critical for sharing information, it is of paramount importance to address issues of trust in the framework. There is need to clearly show benefits that can be derived from information sharing so that stakeholders can opt for the idea. This theme then qualifies as a factor for the framework for information sharing.

4.3.5 Poor infrastructure

From the research it emerged that while there may be willingness to engage in information sharing, there were other critical issues that needed to be addressed. These are infrastructure issues raised by participants that pertain to accessibility of tourism facility not information. The issues under this theme are infrastructure and transport logistics. Participants felt these issues were critical since they can prohibit a destination from being attractive.

Table 4.8: Poor Infrastructure

Participant	Comment
G2	Tourists may find it difficult to access our facilities due to poor infrastructure
A1	There are serious logistics issues. No matter how easily information about a destination can be found, it is of no use if the destination is inaccessible.

As seen from the literature review, whole tourism development can be achieved through an amalgam of solutions among them, ICT based solutions. It is imperative for this study to consider such initiatives as they may indirectly be inhibiting information sharing. Infrastructure and logistics do contribute to the lack of collaborative information sharing. It may seem futile to focus on sharing information while the tourism facilities are inaccessible. Therefore such factors need to be incorporated in the framework.

4.4FACTORS FOR THE DEVELOPMENT OF THE FRAMEWORK

The themes discussed in the findings constitute the five factors for the development of the proposed framework. These factors are critical for enhancing information sharing and

collaboration in Zimbabwe. Detailed explanation of the factors shall be given in the next chapter. The five factors are:

4.1 Inadequate Information Sharing: The current information sharing is inadequate to meet the diversified information needs

4.2 Fragmented Sharing Methods: Information sharing methods are inconvenient due to their fragmented nature. They are ineffective, requiring significant time and financial resources.

4.3 Rivalry between Regulators and Operators: Data integrity is highly exposed and vulnerable when being shared in the presence of hostility between regulators and operators.

4.4 Mistrust among Collaborators and Providers: The decision to participate in information sharing is propelled by the level of trust among participants.

4.5 Poor Infrastructure: Accessibility of information and attractions depends on the underlying infrastructure that has been set up.

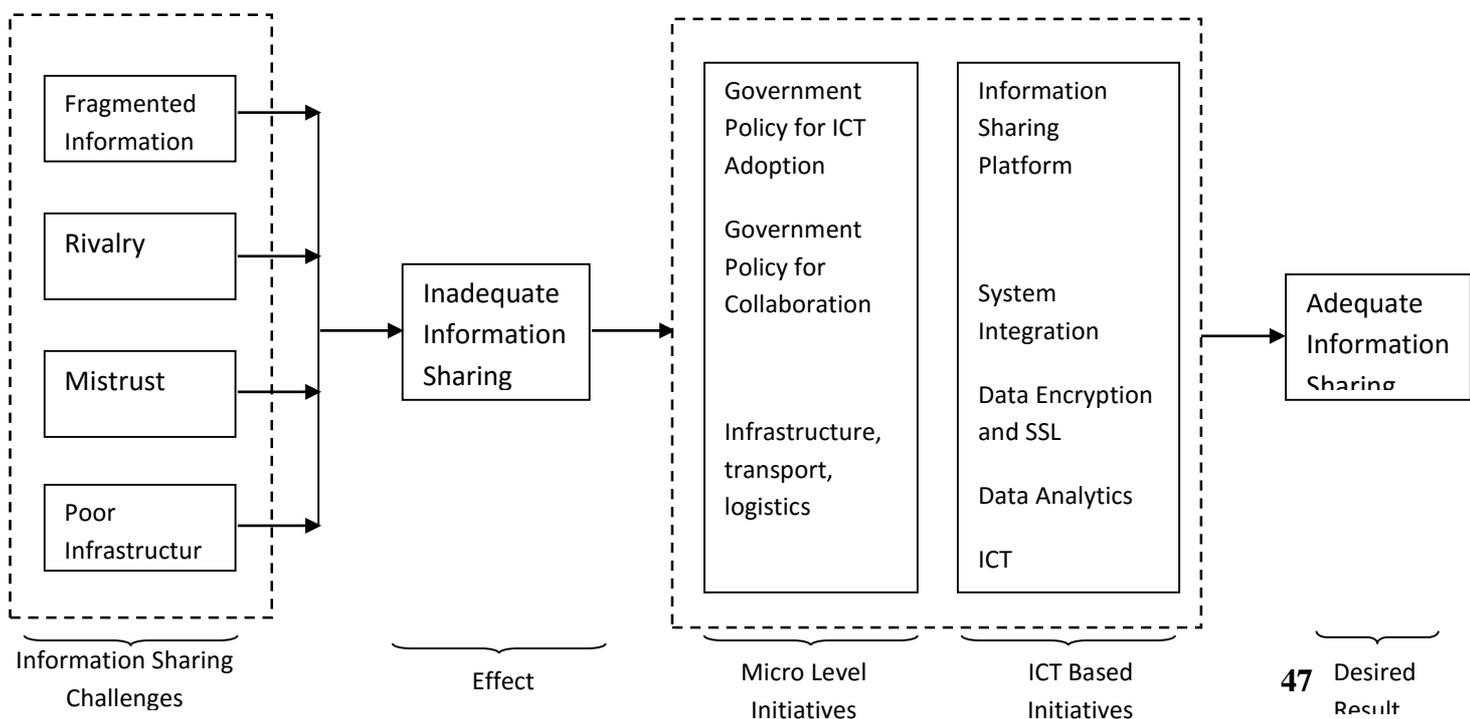
4.6 Technological Initiatives: ICT based initiatives for the enhancement of information sharing

4.7 Micro Level Initiatives: Central government solicited initiatives for the enhancement of information sharing

4.5 PROPOSED FRAMEWORK BEFORE REVIEW

The proposed framework's components have been fully discussed in the previous sub section. Once the components have been interlinked, the framework livens up as shown in Figure below. Braces at the bottom label the components that are above.

Figure 4.5: Proposed Framework before review.



4.6 CONCLUSION

Inter organisational collaborations in tourism are complex and difficult to uphold. Many attempts at such initiatives have produced very unsatisfactory results. The case is even worse if the purpose is sharing information. Issues of trust, relationships and infrastructure do not make things any better. There is need to be open minded and take advantage of any tools available to smoothen the collaborative initiative. This is the approach that will be used by the proposed framework to mitigate the challenges faced in collaborative information sharing.

This chapter described the results and findings from the interviews carried out to understand the current information sharing methods in Zimbabwe in tourism. From these results, five factors for the development of the framework have been derived. A detailed explanation of these shall be provided in the following chapter. The chapter shall also detail the proposed framework and show how the framework will provide solutions to the challenges faced in collaborative information sharing in Zimbabwe.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

In chapter four, results from the research were presented and discussed leading to formulation of the key factors for the development of the proposed framework. The aim of this chapter is to present the proposed framework and to describe in detail before concluding the whole study. This shall begin by recapping on the research problem and the objectives. The framework shall then be presented as a solution to the research problem. Further recommendations shall then be made for effective adoption of the framework by destination managers who intend to enhance tourism development through collaborative information sharing.

5.2 RE-STATEMENT OF RESEARCH PROBLEM AND OBJECTIVES

Zimbabwe's tourism sector is experiencing declined growth due to perpetuating political, social and economic problems. On top of this, the sector is characterised by high fragmentation and little collaboration. In terms of ICT, while adoption rate is improving, it is still significantly low. Information about tourism facilities is not readily available and difficult to access. Consequently, local communities and the tourist have been marginalised and are failing to enjoy the destination, Zimbabwe. However, efforts are being made to revitalise the sector. This study thus joins such efforts with the major objective of developing an ICT based framework for the enhancement of information sharing and collaboration in Zimbabwe. Two other objectives have been set in order to ascertain the current situation in information sharing and collaboration in tourism in Zimbabwe as well as to determine the role that ICT can play in collaboratively sharing information. Accomplishing the other two goals was intended to help build the foundation for the proposed framework.

5.3 ANSWERING THE MAJOR RESEARCH QUESTION

Information sharing and collaboration are crucial for the attractiveness of a destination as they improve availability and accessibility of tourism information and also as they help improve service delivery. However, collaborative networks are difficult to initiate, setup and maintain. The network orchestrator has to lure stakeholders to participate and must overcome stakeholder concerns that may prohibit them from participating. This study then focused on how ICT may be used to enhance information sharing and collaboration. For such purpose, data was collected by reviewing literature and interviewing key stakeholders at managerial levels in tourism. Results from the data enlightened on the current collaborative information sharing initiatives in tourism in Zimbabwe; methods of sharing data employed; challenges being faced; and possible ways to overcome the challenges. Through rigorous analysis of the data, the researcher was able to formulate factors for the development of the proposed

framework. The factors ultimately became the building block for an ICT based framework for enhancing information sharing and collaboration in Zimbabwe.

5.3.1 Challenges in Information Sharing and Collaboration and Proposed Solutions

While this study is taking an ICT based approach to solving the problem of lack of availability of information, it takes into cognisance that ICT alone does not provide solutions to a problem. ICT is a tool for accomplishing a task. Thus the proposed solutions are of two types; technical (ICT based) and micro level (central government). Table 5.1 lists the solutions against the identified challenges.

Table 5.1: Proposed Solutions for Overcoming Collaboration Challenges

Challenge	Proposed Solution(s)	
	Technical Initiatives	Micro Level Initiatives
Fragmented Information	Online Platform Systems Integration Business Analytics	
Rivalry Among stakeholders	Systems Integration	Policy formulation for tourism mandatory information sharing and collaboration
Mistrust among stakeholders	Data Security (Data encryption, SSL)	ICT Policy for sharing data
Poor Infrastructure	ICT Infrastructure (networking and mobile and data communications)	Transport logistics Infrastructure

5.3.2 Factors for the Development of the Framework

In order to accomplish the main objective of this study, seven factors have been formulated as building blocks for the framework. These factors are critical for enhancing information sharing and collaboration in Zimbabwe. The seven factors are:

- **Inadequate Information Sharing:** The current information sharing is inadequate to meet the diversified information needs
- **Fragmented Sharing Methods:** Information sharing methods are inconvenient due to their fragmented nature. They are ineffective, requiring significant time and financial resources.
- **Rivalry between Regulators and Operators:** Data integrity is highly exposed and vulnerable when being shared in the presence of hostility between regulators and operators.

- **Mistrust among Collaborators and Providers:** The decision to participate in information sharing is propelled by the level of trust among participants.
- **Poor Infrastructure:** Accessibility of information and attractions depends on the underlying infrastructure that has been set up.
- **Technological Initiatives:** ICT based initiatives for the enhancement of information sharing
- **Micro Level Initiatives:** Central government solicited initiatives for the enhancement of information sharing

5.3.3 Overview of the proposed framework

According to Hevner et al (2004), design science research in information systems must produce an artifact which is applicable in the appropriate environment. The artifact of this study is the proposed framework for enhancing information sharing and collaboration in Zimbabwe. This artefact is developed from the findings of the study and also borrowing concepts from cyber-security information sharing frameworks. It is intended to be applied in the tourism sector at any level for which collaboration is practical. This is because ICT has become within reach of the majority of Zimbabweans across the nation.

The five factors deduced from the research constitute the components that make up the framework. The components are; rivalry between regulators and operators; mistrust between collaborators and operators; poor infrastructure; fragmented information needs; inadequate information needs, technological initiatives for mitigating challenges and micro level initiatives. The components have been categorised according to the impact they have on information sharing since they are interlinked with the causality effect. The categories are Information Sharing Challenges, effects of the challenges, mitigating initiatives and the desired result. This implies that the challenges of rivalry between regulators and operators, mistrust between collaborators and operators, poor infrastructure and fragmented information needs are all contributing to inadequate information sharing. Ultimately, the application of ICT and or Micro Level initiatives improves collaboration thus enhancing information sharing.

The categories and their subsequent components are:

5.3.3.1 Information Sharing Challenges

- **Fragmented information needs:** Tourism stakeholders (government, government institutions and tourism providers) have diversified information needs among themselves. As the study revealed, there is need for operational, executive, supply chain management

and general information depending on the organisation needing the information. The ultimate goal for all the stakeholders is the intention to give the tourist quality service and convenience during consumption of the tourism service. This can help to meet the tourists' need for a unified view of destination as well as providing a tourism experience as a whole package. Tourism stakeholders have turned to any available means for meeting their information needs which offer them minimum cost. It was seen that the traditional ways of sharing information through printed copies and social interactions through workshops, seminars and expos are quite dominant. ICT related methods have been limited to websites and social media due to the low costs of setting up. However the methods are failing to provide the convenience and effectiveness that they are intended to produce due to their fragmented nature. Information is scattered across platforms. They are ineffective, requiring significant time and financial resources to maintain. This can be noticed by outdated websites and lack of responses or delayed responses on enquiries by tourists and other stakeholders. In such a scenario, the motive to participate in collaborative information sharing is low even though the need to may be acknowledged by the stakeholders.

- An integrated online information sharing platform can alleviate the frustrations arising from diversification of information needs and information sharing methods. The system can be integrated with operators' own systems to provide real time information sharing. Stakeholders can provide information into the platform directly. When made accessible to the public, views, reviews and comments can be added for interactivity.
- ***Rivalry between Regulators and Operators:*** The study established that relations between regulators and operators are not conducive for information sharing. Operators are seeking to minimise operational costs and are looking at ways to evade any tariffs and taxes due from them. On the other hand, the government seeks to retain income from the operators for the services that they are providing. For the operators to comply, it was discovered, the government has resorted to mandatory sharing through regulations. Mandatory collaborative information sharing however is not producing satisfactory results. Data integrity is highly compromised when information is being shared in the presence of hostility between regulators and operators. By employing data security protocols such as SSL and data encryption, data shared through system integration can be guaranteed to be unhampered with.
- ***Mistrust among Collaborators and Providers:*** Trust is an essential part of sharing especially information that may be sensitive. While collaborators may decide to engage information sharing, this is held suspiciously by the providers who would be the sources of information. Daily business operations can be analysed to produce statistics for tourism

planning and development. Through data analytics, forecasting and trend analysis can greatly contribute to tourism development. However, it was discovered providers are not willing to share information with the orchestrators or even among themselves. They are concerned that the information may be used by competitors to gain competitive advantage over them. Moreover, low confidence with the orchestrator's ability to utilise the information effectively is demotivating the operators to participate. On the other hand collaborators do not trust providers and argue that they are not cooperative. It is only when benefits start to accrue that they get involved. Since the decision to participate in information sharing is propelled by the level of trust among participants, it can be noted that the lack of adequate information sharing is also emanating from this issue.

- For trust to develop, it is imperative for the government to be consistent with policy and implementation. Policy formulation must involve extensive stakeholder involvement. It becomes easier for the operators to buy in the government initiatives that are introduced.
- **Poor Infrastructure:** Accessibility of information and attractions depends on the underlying infrastructure that has been set up. Operators in Zimbabwe bemoan collapsed infrastructure and inefficient transport and logistics. Information sharing initiatives tend to be in vain in such a scenario when tourism sites and facilities are not accessible. ICT infrastructure is also crucial to complement any systems integration and online platforms that can be developed for sharing information. A poor ICT infrastructure may result in the information sharing platforms not being utilised at all. Infrastructure is of crucial importance. The government can form private-public initiatives for the development infrastructure. Given the political, social and economic challenges perpetuating in the article.

5.3.3.2 Effects of challenges on information sharing

- **Inadequate information sharing:** Due to the challenges mentioned above, the current information sharing is inadequate to meet the diversified information needs. It is only occurring mandatorily.
- **Orchestrators:** Collaboration orchestrators such as the government cannot provide unified information about the Zimbabwe destination. Socially interactive activities such as seminars, expos and conferences do make a difference but due to the costs of participation, not all key players are involved. Small to medium tourism enterprises and majority of local stakeholders get left behind. General information about these players needs to be made public and accessible to every potential tourist and bring growth in the sector.

- **Operators and Providers:** These stakeholders need to give the tourist a whole product experience. The supply chain needs to be fully interlinked to allow for seamless flow of information between related providers of tourism experience. For instance transport, accomodation, communication, payment and attraction providers can be interlinked for the tourist information to flow through the chain seamlessly. By doing so, the tourism operators would have to engage mutually beneficial co-opetition as described in the literature review.
- **Regulators:** Government institutions that are custodians of tourism facilities such as national parks and museums require operational information from operators and providers. Information provided is highly compromised with substantial financial and statistical implications. Inaccurate information implies inaccurate statistics which consequently results in poor planning.

5.3.3.3 Initiatives for mitigating the challenges

- **Technological Initiatives:** ICT can play a significant role in changing the current information sharing in Zimbabwe tourism sector. It is a tool constantly evolving through continuous innovations. For full benefit, all ICT available needs to be adopted and applied. Application of ICT needs to be carried by using the right ICT for the task at hand in order to be effective. If ICT is not applied correctly, it may not yield the expected result resulting in frustration and lost time and finances.
- **Online Information Sharing Platform (OISP):** An information sharing platform as described in the literature review is critical in a collaborative network for sharing platform. Due to the internet, OISP can help reduce time required for sharing information. When made public, the system is accessible by anyone from anywhere across the globe. All tourism stakeholders including tourists are able to obtain unified general information about destinations. Moreover, it is easy to provide reviews and comments about any tourism experience through additional functionality that is usually not available on websites. Social media and websites can be incorporated as well by providing links to the websites and external portals such as facebook, twitter, whatsapp, hangouts and others. Consequently this implies the OISP needs to be fully accessible across the diversity of communication devices to make information easily accessible.
- An OISP provides great convenience in managing information as all information is available at one source. This is practical especially when all the information is stored in one central repository. Tourism providers can have access to the repository through systems integration or they can feed data through the interface. Figure 5.1 below illustrates this.

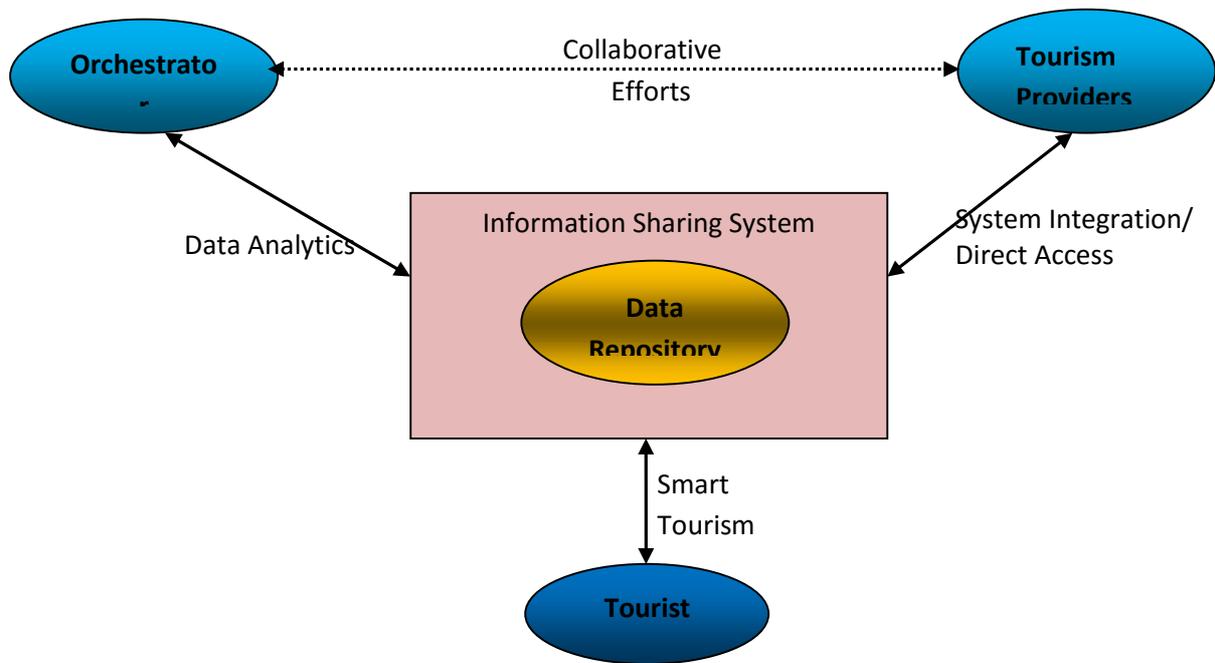


Figure 5.1: Collaborative Information Sharing Platform for tourism

Source: Own Compilation

- With data in one central repository, it is easy for destination promoters or orchestrators to provide accurate and timely executive information such as statistics and trend analysis figures. This information can be extracted through data analytics tools.
- **Systems Integration:** Direct information sharing between stakeholders can be greatly facilitated through systems integration. This applies for between regulators and operators as well as among operators themselves and allows data to be transferred in near real time across tourism organisations. Through technologies such as web services and Electronic Data Interchange (EDI), human interference is greatly reduced thus countering issues of data manipulation for misrepresentation. These technologies are platform independent so systems integration is relatively easy to implement and to maintain. Another importance of systems integration is the ability to provide tourism as a whole product in the tourism supply chain. When related organisations are integrated, tourists need not to provide their details for every service they consume. This improves the quality of service and efficiency of systems.
- **Data integrity and security.** Sharing data electronically especially over the internet has become very prone to manipulation. In order to establish trust reliable data security mechanisms need to be applied to systems integration and the OISP. Data transmitted needs to be encrypted and should be transmitted over secured protocols such as Secure Socket Layer (SSL). It is difficult for external intruders to break through systems and steal data for malicious intentions.

- **ICT Infrastructure:** Effective ICT relies on an efficient ICT infrastructure as its backbone. There is need for data communications to be reliable and stable across the nation for a collaborative network to be successful. This is imperative as information needs to be accessible anytime from anywhere. The current ICT infrastructure in Zimbabwe while improving, needs to be vitalised. Private public partnerships can help in ensuring this is accomplished.
- **Micro Level Initiatives:** These are central government solicited initiatives for the enhancement of information sharing. They include infrastructure establishment, policy formulation for collaboration with stakeholder consultation, consistency in policy implementation and ICT policy formulation. The central government needs to reestablish accessibility to tourism sites by reestablishing infrastructure such as roads, airlines. There is also need to promote infrastructure sharing given economic challenges that persist in the nation. It is also imperative for government to formulate tourism and ICT policies that govern issues of sharing data. This should be accomplished through extensive stakeholder consultations. Stakeholder involvement is crucial for collaborations. It helps establish policy ownership and willingness to participate.

5.3.4 Reviewed Proposed Framework.

The proposed framework's components have been fully discussed in the previous sub section. After taking into consideration the comments from reviewer, the final framework is presented in Figure 5.2 below. The current situation of inadequate information sharing can be applied micro level and ICT based initiatives to transform it to a more functional collaborative information sharing network. In this network can be seen collaboration, trust, coopeition and improved structure. This produces more adequate information sharing. Continued application of the micro level and ICT initiatives will continues to improve the information sharing in tourism. Once the components have been interlinked, the framework livens up as shown in Figure 5.2 below. Braces at the bottom label the components that are above.

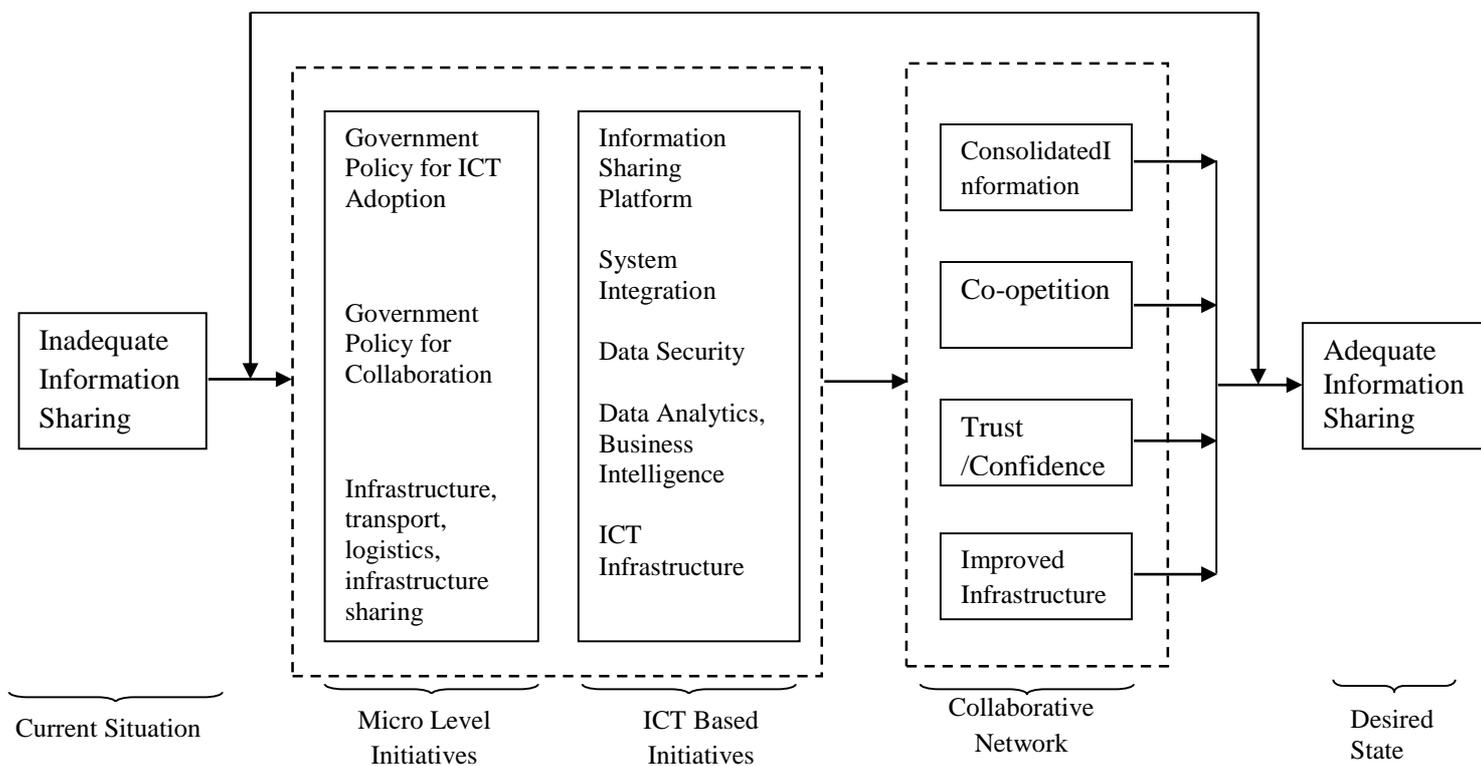


Figure 5.2: ICT Based Framework for Enhancing Information Sharing and Collaboration

The discussion and presentation of the framework, forms the answer to the major research question. The study sought to establish how ICT can be used to enhance information sharing and collaboration. The key factors identified during analysis have been used to provide the answer. In the next section is a presentation of the evaluation step towards the proposed framework.

5.4 EVALUATION OF THE PROPOSED FRAMEWORK

The DSRF Guideline 3 (Design evaluation) requires that the artefact of the study be evaluated rigorously to determine its relevance. In the previous section was full description and presentation of the artefact. In this section is description of the evaluation procedure carried out to meet the requirements of DSRF. This stage is the analysis phase as stated in the research process.

Once the initial framework was drafted, it was presented to an expert reviewer who is an academic professional in the field of tourism. The reviewer evaluated applicability of the framework in the tourism domain. This was essential to determine if the framework's proposed solutions can indeed be applied in tourism in the problem domain and bring the purported changes. In this case, this was to establish whether the proposed framework can

help enhance information sharing and collaboration in tourism in Zimbabwe. The reviewer's comments (Appendix B) were incorporated and the framework was adjusted accordingly. A second draft of the framework was then designed for further review by another expert from the practitioners in tourism and ICT. The comments from the expert reviewer shall also be used for further refinement of the framework before the final presentation. Where comments have not been considered, it shall be justified.

5.5 CONTRIBUTIONS TO KNOWLEDGE

While the previous section provided the validation of the proposed framework, this section will present the contributions of the proposed framework to both the application environment and the knowledge base.

In information systems research, the result is value added back to the practising and knowledge base. This follows the recommendations made by Hevner et al. (2004) for adopting the DSRF. This is can be accomplished by extending theories and methods that have been presented by previous studies. The major artifact of this study that has contributed to the scholarly and practising fraternity, is a framework for enhancing information sharing and collaboration in tourism. The framework can be used by tourism destination managers for the purposes of marketing destinations by providing one stop shops for destination information. It can also be used by tourism providers and regulators for systems integration to enable direct information sharing. Tourism policy formulators can also make use of this framework for the purpose of aiding in formulating policies that can be implemented voluntarily by stakeholders. This framework intends to resolve the lack of availability of tourism information by advocating for more information sharing and providing for ways of accessibility of information. Through online platforms, systems integration, mobile devices and social media the framework can help to make the tourism experience seamlessly convenient and worth it. On the other hand, through data analytics and convenience of sharing data, the framework can help inspire operators and providers to collaborate. While the framework is ICT based, it did acknowledge the need for other initiatives that can complement the efforts made through ICT to make the collaboration a success. As such the framework helps to improve appreciation of ICT in tourism and enhance its adoption particularly in countries such as Zimbabwe with low ICT adoption rate. Finally, in the field of research, the framework can also provide a theory base (generic framework) for other researchers studying information sharing and collaboration in their own domains.

5.6 RECOMMENDATIONS

The previous section showed the framework's worth to the tourism sector by highlighting the contributions that it makes. This section will now highlight the necessary recommendations to the collaboration orchestrators and tourism stakeholders.

This study recommends that destination promoters should assume the role of orchestrator and facilitate collaborative information sharing. To make the orchestrator effective, government needs to formulate policies that govern tourism collaborations especially granting the orchestrator power to effect collaborations. The orchestrator then needs to consultatively design a public OISP that will help increase visibility of tourism facilities and their information.

Tourism providers and operators need to adopt ICT for tourism supply chain and integrate them in order to improve service for the tourist. Improved service helps encourage more business.

Finally the study recommends that the government improves road network, infrastructure and transport logistics to enable tourism facilities to be accessible. Information availability is insignificant if the service cannot be enjoyed. The government can consultatively formulate policies that encourage ICT adoption, information sharing and collaboration among tourism providers and stakeholders. One such policy is infrastructure sharing.

5.7 LIMITATIONS OF THE STUDY

As with any study, the study has its own limitations. This section gives an overview of these.

The study's main limitation is the research method chosen. The study is entirely a qualitative research. There is need to quantitatively evaluate factors raised for the proposed framework. This can help in increasing the framework's thoroughness. The other limitation is that target population was limited to Harare, which is the researcher's home area. ICT experiences tend to differ nationally.

5.8 FUTURE RESEARCH

This section presents recommendations for future research that can help improve the proposed framework or that can enhance the studies undertaken by this study. These guidelines are based upon the limitations of the study discussed in the previous section.

The study recommends two more studies as future work. First of all, future work can start by broadening the target population to include tourism providers in other regions of the country.

this could help to provide more challenges being faced tourism providers in sharing information collaboratively. After this the future work in this study can then involve quantitative methods of research to deal with scientifically proven variables raised from the factors for the framework. Quantitative methods can help ascertain the credibility of the research and the resulting framework.

5.9 CONCLUSION

The answer to the major research question of the study has been a framework for enhancing information sharing and collaboration in tourism in Zimbabwe. From the framework, the current situation of inadequate information sharing can be applied micro level and ICT based initiatives to transform it to a more functional collaborative information sharing network. In this network can be seen collaboration, trust, co-opetition and improved structure. This produces more adequate information sharing. Continued application of the micro level and ICT initiatives will continue to improve the information sharing in tourism. Application of the proposed framework is expected to improve collaboration and information sharing in tourism. Basing on the reviews from the experts conducted, it can be concluded that the framework is relevant and applicable in the tourism sector for the purpose of sharing information collaboratively.

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INTERVIEW GUIDE

- Good day. I am Ms Susan Mahakata, a Master of Science in Information Systems student studying at the Midlands State University in Zimbabwe.
- As part of my studies, I am doing a dissertation. I am researching on information sharing and collaboration in tourism in Zimbabwe and the use of ICT for such purposes. The aim of this research is to develop a framework to enhance information sharing and collaboration in the tourism industry in Zimbabwe through ICT. This interview is intended to shed more light on that. The ultimate benefit of this framework is to help tourism develop some more by making information more available and easily accessible for any stakeholder. Your views and opinions are greatly valuable.
- You are part of this interview because your position at this institution is key to the study. With your permission, I would like to record the interview as we conduct it. Please rest assured that it is only for this research the information recorded will be used. Moreover the audio shall be discarded after the data analysis is completed. For total confidentiality, no names shall be mentioned. Your participation in this interview is completely at your disposal. You are not obliged to answer any question for which you are not comfortable. Moreover, you are free to terminate the interview at any moment should you desire to do so.
- Before we proceed, do you have any questions or do you need any clarification on anything?

How are tourism providers and consumers currently sharing information?

a) What are the tourism stakeholders information needs

- Do you get to collaborate with other tourism related organisation to deliberate on issues pertaining to your business?
- What are some of the issues you collaborate on?
- What type of information do you need from each other to improve business?
- What are your concerns in sharing this information?

b) Current Methods

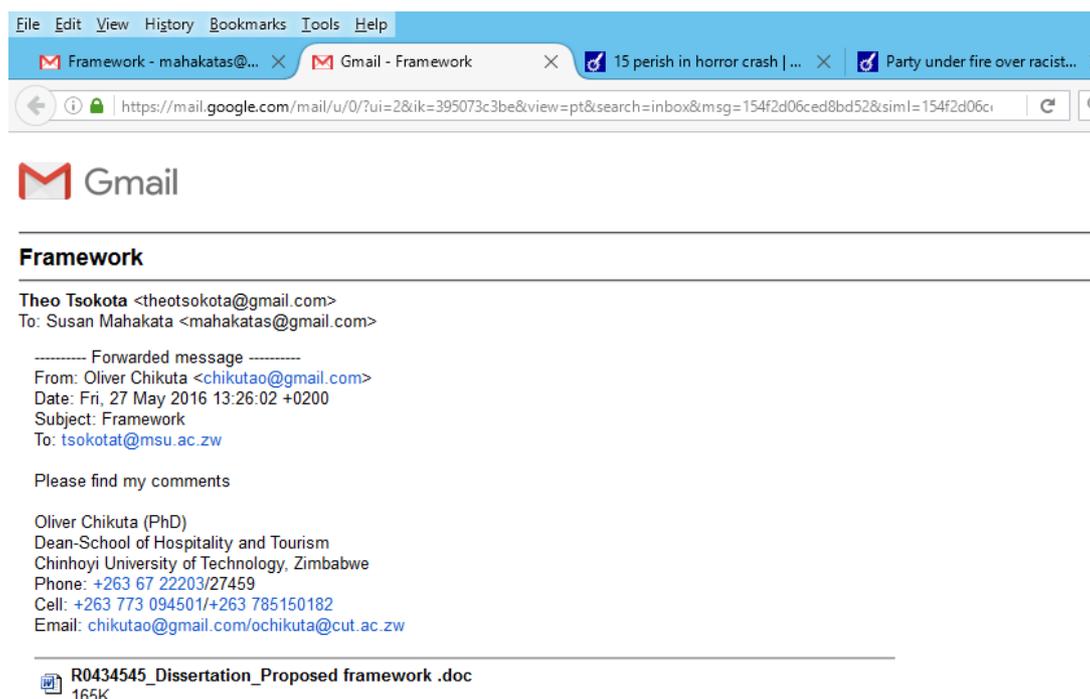
- Currently how do you share information?
- What are some of the challenges you face?

c) Areas of improvement

- In your opinion, how can ICT be used to improve the current ways of sharing information?
- What other non ICT initiatives can help improve the current ways of sharing information?

REVIEWER'S COMMENTS

The image below shows the communication made as the expert reviewer was contacted.



The table below shows comments made by the reviewer and the subsequent responses by the researcher.

Concerns raised by expert	Response by the researcher
The student must compare like to like. You are comparing industry growth rate and arrivals, its not possible	Tourist arrivals have been used as an example since they are one of the indicators of tourism growth
Tenses	These have been adjusted accordingly
I think this should be the last objective. if these were aims, it would be the first	The objectives have been laid out as recommended by the panel during the research proposal presentation.
Sorry, is this a proposal or the report?	Report. The document sent to reviewer contained material from the introduction section. This has been adjusted accordingly.
Try to be more specific here	Adjustments have been made to include more detail about participants
Do you think a purely qualitative approach will do? I propose a mixed method approach so that you deal with scientifically measurable variables that are supported by the qualitative data.	A purely qualitative approach is appropriate because of the nature of the study. The second major objective is to determine the current state of collaborative information sharing in tourism. This would reveal the factors for information sharing and collaboration in Zimbabwe and therefore

	determine appropriate approach to integration of ICT for such purpose.
List of the studies that support your argument	This is shown in the literature review as the statement said earlier on.
Beware of shooting yourself in the foot. Your study may end up being useless if it has too strong limitations	These have been adjusted accordingly
This statement shows that the research has been done yet previous statements makes it appear as if it is still a proposal. Go through the study and make the terminology and tenses appropriate.	This has been adjusted accordingly
An exploratory factor analysis would be best for such a study for you to determine the most important factors of components.	This has been covered in Data Analysis (Section 3.5.4) where it was shown how the factors were deduced.
Instead of putting the challenges, I would prefer that you put the solutions. The problem is known and what we need here is the solution (framework)	The framework was adjusted to be solution based only.



A framework for enhancing Information Sharing and Collaboration within the Tourism Industry in Zimbabwe

Susan Mahakata, Theo Tsokota, Paul Mupfiga*
Midlands State University
Zimbabwe
psmupfiga@gmail.com

and

Oliver Chikuta
Chinhoyi University of Technology
Zimbabwe

Corresponding author*

Abstract

The research upon which this article is based aimed at developing an ICT based framework that enhances information sharing and collaboration within the tourism industry. The research showed the current information sharing methods employed by tourism service providers and consumers. It illustrated the role ICTs can play in information sharing and collaboration in the tourism sector. The Design Science Research paradigm for Information technology was employed to conduct a qualitative research study. The data for the study was collected through semi-structured interviews and was analysed using structural coding to find emerging themes. The findings of the study revealed that collaborative information sharing in Zimbabwe is minimal and mainly occurs mandatorily between government institutions and tourism providers. Issues of trust, diversified information needs, poor infrastructure and rivalry between regulators and tourism providers hamper information sharing. The study developed a framework, which when adopted can help mitigate against the issues hampering information sharing.

Keywords: Framework, information sharing, collaboration, tourism

Introduction

Tourism is globally noted as being a major driver of economic and social development. According to Nathan Associates Inc. (2013), tourism generates foreign earnings, creates incomes, stimulates domestic consumption and creates employment especially for low and semi-skilled workers particularly benefiting women and the youth. The industry is able to accomplish this due to its diffuse and fragmented nature which encompass many components, stages and decision-making processes in the creation and delivery of the tourism product (Bramwell and Lane, 2003). Regardless of the fragmentation, there is extensive dependence on each other among tourism businesses, government and residents of the local community (Karambakuwa et al, 2011). These businesses need each other to optimise benefits of the tourism activity thus are interested in the development of the industry. The government is interested in tourism development as well as it drives economic development. Bramwell and Lane (2003) advocate for collaboration among a number of tourism stakeholders, in relation to a common issue or 'problem domain' in order to achieve significant tourism development. Collaboration has been recognised as an important determinant of the success and competitiveness of a tourism destination (Rodolfo, 2010). As Tazim and Donald (1995) noted, collaboration can also lead to the exchange of information, goals and resources.

The tourism industry has been acknowledged to be very information intensive. The information has been labeled as the life blood of travel industry where today's consumers

1



are very demanding, requiring flexible, specialised, accessible, interactive products as well as communication with suppliers (Buhalis, 1998). This has facilitated ICT to become an integral part of tourism operation. This is because ICT “encompasses all technologies that enable the handling of information and facilitate different forms of communication among human actors, between human beings and electronic systems, and among electronic systems” (Hamelink, 1997, as cited in Tsokota and von Solms 2013). In the tourism supply chain, not only is the exchange of information very crucial, but the information must be able to flow quickly and accurately between the client, intermediaries and each of the tourism suppliers involved in servicing the client’s needs (Nwakanma et al, 2014). Thus by harnessing the power of ICT, information in tourism can be managed more effectively and transported globally almost instantly.

Achievements in ICT have given scope for the development of a wide range of new tools and services that facilitate global interaction between players around the world (Buhalis, 2008). These new tools include the internet, mobile devices and social media and have facilitated smart tourism. An example is the existence of virtual communities for sharing information through smart tourism. As Buhalis (2008) predicted, ICT is providing the “infrastructure” for the entire industry and is overtaking all mechanistic aspects of tourism transactions. On the other hand, achieving collaboration among the key tourism stakeholders is a well-known problem that has proved a challenging task requiring the development of new mechanisms and processes for incorporating the diverse elements of the tourism system (Tazim and Donald, 1995). This is despite the fact that destination organizations generally see it as part of their role to enhance collaborative partnerships (Tremblay and Wegner, 2009). A study by Tremblay and Wegner (2009) showed that organisations are interested and desire to collaborate and saw the benefits collaboration will bring to their businesses and the tourism sector as a whole.

Globally, markets have increased their levels of focus on domestic tourism in order to develop their tourism industry and Zimbabwe has recently joined the band wagon (Mtomba, 2015). This has been facilitated further by the poor performance in the tourism industry where for instance in 2013 Zimbabwe had 2% growth in tourist arrivals below the global average of 5% (Zimbabwe Tourism Authority, 2014). The World Travel and Tourism Council (2016) showed that Zimbabwe's tourism industry is not creating any new employment stagnantly contributing 3.1 % of total employment in the years 2014 and 2015 and still forecast to remain that way. Since 2000, the majority of literature agrees that tourism development is continuously fluctuating (Chingarande, 2014; Zhou, 2013; Muzvidziwa 2013; Ndlovu and Heath 2013).

Others even attest that tourism development is declining (Mupfiga 2015; Mirimi et al, 2014; Nyahunzvi 2014). Even though the research by Taru and Gukurume (2013) in Masvingo, showed that local communities and individuals have benefited through “economic synergies” between the industries and local communities, these “synergies” have not been effected countrywide due to uneven tourism developments (Zhou, 2013). The majority of local communities are marginalised and play a peripheral role in the tourism sector matrix (Chiutsi and Mudzengi, 2012; Manwa 2003; Zhou, 2013; Nyahunzvi 2014). Nathan Associates Inc. (2013) listed a number of growth constraining challenges the Zimbabwe tourism industry is facing and among them was limited ICT usage and lack of inter-governmental policy formulation ultimately negatively impacting the tourism sector. Mutsena and Kabote, (2015) echoed the need for a synchronised policy development approach that ensures a safe environment to do business and participate in domestic tourism. Moreover, the local tourist, who is crucial for tourism development, lacks information on the products and services available (Ministry of Tourism and Hospitality Industry, 2012) yet as shown earlier, information is the lifeblood of travel industry. Without information, a tourist may not travel even if they can afford it and this is a huge challenge (Nyambura, 2014).



Study Objectives

This study sought to address the problem of constrained growth and development in the tourism industry in Zimbabwe which is caused by the lack of collaboration among tourism providers and which is affecting information availability and ease of access to information within the tourism industry in Zimbabwe, thus disadvantaging the local tourism stakeholders. The paper aims to demonstrate the current information sharing methods employed by tourism providers and consumers, and to illustrate the role ICTs can play in information sharing and collaboration within domestic tourism. To accomplish this, the research developed an ICT based framework that enhances information sharing and collaboration within the tourism industry.

Literature on information sharing and collaboration

The information sharing theory in tourism has not received much attention. In tourism literature therefore, information sharing has been discussed in passing and is not viewed as as a critical domain. However, tourism information needs differ greatly due to the multiplicity of stakeholders in tourism (Manente, 2009). The tourism stakeholders are made up of tourism organisations, governments, local residents/communities, tourists and environment (Buhalis and Amaranggana, 2015). The stakeholders have an enormous need for and a growing request for information. This need is caused by i) information not being available, outdated or insufficient; ii) difficulty in information access (the right information or to have knowledge of its availability); iii) information retrieval costs are frequently too high making it inaccessible; iv) the information is inadequate to the role and needs of the stakeholders (Manente, 2009). Tourists' today are increasingly longing for information pertaining to their environment (Mupfiga, 2015, Carvalho, Cunha, and Morais, 2010). A tourist's information needs include unified information of destination (Peace, Rowe and Cooper, 2005); real time support during tourism consumption (Carvalho, Cunha, and Morais, 2010); and sharing experiences with other tourists easily (Mupfiga, 2015, Amadeus, 2012). Tourists need assurance of the information's availability post visit for peer review. In this study, identification of tourism information needs is crucial to determine the information to be shared and produced. A 2012 study by Amadeus IT Group foresaw an era of 'collaborative travel' consisting of information sharing in order to transform travel and tourism and the tourism experience (Amadeus, 2012). The study suggested a world of collaboration where service users become partners rather than customers through i) working more with data ii) working more with others and iii) helping people learn from others.

Collaboration among tourism stakeholders however is not a new phenomenon in tourism literature. It is acknowledged that not much can be accomplished in tourism without multiple firms working collaboratively with one another to serve the consumer (Crotts, Buhalis and March, 2000). Collaborative effort is centred on different problem domains; policy making (Bramwell and Sharman, 1999; Hall, 1999); destination marketing; tourism planning (Bramwell and Lane, 2003; Ladkin and Bertramini 2002); and information sharing. Organisations engage information sharing strategies to gain direct access to all relevant information for their business operations (Li, 2010) and to formulate total tourism product for the consumer (Buhalis, 1998) resulting in a more efficient flow of goods and services. While organisations may be willing to collaborate, literature shows that it is not always easy and organisations are not always willing to share information. Factors such as relationship investment, shared vision and communication influence inter-organizational information sharing (Egberink, 2015). These factors help create trust and stimulate partnering organisations to collaborate to share information.



However Tengberg (2013) stated that companies are more willing to share information when these four concerns are addressed: legal and privacy concerns; technical concerns; knowledge gains and strategic concerns. An organisation needs to be assured that the inter-organisational information sharing strategy will give it a much needed competitive advantage and that it is technically viable. Cresswell et al (2013) identified trust and candor, high levels of individual and organizational commitment and the right mix of participants as crucial aspects. While there may not be a universal list of key success factors for inter organisational networks, scholars and practitioners recognize the need to breach boundaries between agencies, professions, sectors, governments, and even nations (Cresswell et al, 2013; Fan, 2013; Amadeus, 2012). A redesign of the various business processes is needed to eliminate organizational boundaries and to facilitate data exchange (Fan, 2013; Buhalis, 1998). Once the boundaries have been ignored, organisations in a collaborative network need to exert rigorous communication and commitment (Ramayah, Lee and Chyaw, 2011; Khuong 2013) to keep the network functional.

Organisations in collaborative networks tend to form different kinds of inter organisational relationships (Crotts, Buhalis and March, 2000). Tengberg (2013) identified five different structures of relationships among firms involved in sharing information. These structures are: i) No collaboration: An organisation uses its own data and does not share with anyone; ii) Direct sharing: Organisations form direct alliances with others and share data between themselves; iii) Joint collaboration: Organisations form a separate unit for sharing information with its own repository. One of these organisations will be responsible for managing the information sharing, iv) Third party aggregator: Unlike joint collaboration the information sharing unit is managed by an independent party; and v) Personal data wallets: An organisation collects data individually from various units then controls the degree of sharing and with whom to share the data.

Tourism, ICT and Information Sharing

ICT is an enabler of development in every sector of society and the economy (Microsoft, 2004) and a major contributor to competitiveness and competitive advantage (Buhalis, 1998). However it can only be part of the solutions in solving the challenges facing the international development community (Microsoft, 2004; Pease, Rowe, and Cooper, 2005) as it is unable to accomplish this single handed (Buhalis, 1998). This research takes into cognisance this fact, and the framework proposed here comes in as one of the pieces to address Zimbabwe's tourism situation. ICT qualifies in this quest because of its key attributes, namely: knowledge management; efficiency; networks; and multipurpose (Microsoft, 2004). This means that ICT is appropriate for sharing information through inter organisation networks and is versatile enough to be applied according to specific needs. However the form and nature of ICT infrastructure is crucial for successful implementation (William, 2009) especially when the organisations have different ICT configurations. The size and complexity of the network can cause serious technological challenges as they grow (Creswell et al, 2013). At the same time, the technical infrastructure must encourage free exchange and enforce risk mitigation controls (McKinsey Quarterly, 2013).

Businesses in a collaborative network as facilitated by innovations in ICT have been called virtual organisations (Fan, 2013; IOM, 2012). Pease, Rowe and Cooper (2005) defined a virtual organisation as "a network of independent tourism sector competitors linked by ICT to share skills, costs, assets and broaden access to markets". Virtual organisations are strategically engaged in coopetition (simultaneous cooperation and competition between businesses). Virtual organisations are built upon the developments of the internet. Online platforms that match demand and supply are acting as intermediaries between peers who

are involved in sharing (Juul, 2015). One such platform is a collaborative information sharing platform. IACA (2014) defined an information sharing platform as "a centralized computer system that allows authenticated users to collect, manage and share structured and unstructured data sets from a variety of sources " When well designed, information sharing platforms serve as "one stop shops" for users (IACA 2014; Pease, Rowe and Cooper, 2005) who are the members of the collaborative network. IACA (2014) further explains that by deploying an information sharing platform, organisations can share a wide variety of content (pictures, videos, illustrations, geospatial content and links to internal and external websites) can be shared and discovered over an information-sharing platform. The platform can be integrated with existing systems allowing access to external data sources through exceptional connectivity often established over a secured socket layer (SSL) or through a virtual private network (VPN). Moreover, an information sharing platform leverages communication facilities across board making them good channels for communication. That way, members can work together towards a common goal by focusing on their respective collaborative activities for different. Lastly, information sharing platforms allow for automated content discovery which reduces information overload and ensures information is communicated to the right person, at the right place, at the right time basing on a user's context.

However, while the internet conveniently enables information sharing, it poses its own risks. The recent sophisticated, targeted cyber-attacks on governments and businesses call for information sharing platforms to incorporate security features that safeguard against such attacks Microsoft (2015). Recent studies in the strategic adoption of ICT in tourism are more centered on the use of the internet, social media and mobile technologies (Buhalis, 1998; Carvhlo et al 2010). Buhalis (1998) proposed the multi-dimensional framework for strategic adoption of ICT in tourism. He mentioned different applications that support inter-organisational functions for horizontal, vertical and diagonal integration. However as innovations in ICT continue to improve, systems integration technologies have also changed. New business concepts such as smart tourism are being adopted which have provided tourism organisations with marketing platforms through persuasive power of word of mouth. Moreover, using social media analytics tools, organizations can transform massive volumes of social media data into useful business insights (IBM, 2013). Carvalho et al (2010) proposed a framework that is aimed at meeting the tourist's information needs. This framework targets mobile devices by integrating multiple mechanisms so as to continuously serve the tourist regardless his circumstances, Cavhalo et al (2010). Fundamental technologies such as data, devices, screens and sensors are implemented to enable applications at different stages of the travel experience (Amadeus, 2012).

Nevertheless, collaboration around ICT is becoming the rule in tourism. Collaborative networks among businesses have become one of the workarounds towards destination promotion and enhancement of regional economic development (Pease, Rowe and Cooper, 2005). By forming inter organisational ICT enabled networks, tourists can be granted a concerted and unified tourism experience. Peace Rowe and Cooper (2005) argue that multiple websites are failing to provide a unified view of the destination to the tourist since each website individually represent the numerous autonomous suppliers making up a tourism destination. As Buhalis (1998) suggested, destination managers need new ways to serve the tourists' demands. Literature shows that destination management organisations (DMO) have implemented destination management systems (DMS) with the intention to provide complete and up to date information on a particular destination making it competitive (Rowe, 1992). TDN (2007) citing Pollock (2001) defined a DMS as 'the IT infrastructure used by a destination organisation for the collection, storage, manipulation and distribution of information in all its forms, and for the transaction of reservations and other commercial activities'. However a significant number of DMSs have been known to be unsuccessful as they failed to gain the support and commitment of stakeholders (TDN, 2007). Buhalis (1998)

suggested for the full utilisation of the entire range of ICTs available. Rodolfo (2010) on the other hand, believe that closer partnership and cooperation (collaboration) throughout the tourism industry is essential for the success of such a system.

The factors elaborated on earlier on (Egberink, 2015; Tengberg, 2013; Ramayah, Lee and Chyaw, 2011) need to be considered for a collaborative system to be successful. Thus by collaborating and information sharing the information's value is optimised in service provision and responding to problems (IOM, 2012) with more efficient flow of goods and services. This call for collaboration to enhance tourism development has been echoed in Zimbabwe. Muzvidziwa (2013) advocates for the tourism stakeholders (governments, communities and tourists) to give more commitment and coordination to their activities. In support of this view, Mirimi et al (2014) and Kabote and Motsena (2015) argue that it is crucial for the different players in the tourism sector to collaborate through incorporating stakeholder perspectives so they can competitively contribute to tourism development. Marunda, Marunda and Munyanyiwa (2014) call for electronically empowering tourism communities by availing computers and connectivity to them since tourism and hospitality developments are largely dependent on the use of ICT. Tsokota et al (2014) further expound that simple acquisition of ICT assets does not automatically generate business value. ICTs are tools of business which need to be applied for the correct task. Tsokota et al (2014) then suggested several elements for the strategic use of ICT in Zimbabwe tourism sector.

One of these elements was an integrated interactive portal for the tourism sector in Zimbabwe which would interface with databases of related companies and allow virtual tours, videos, online bookings and payments. This idea is very applicable in the wake of fast growing ICT adoption rate by large internationally recognised hotels (Mupfiga, 2015) and massive investments by both the private sector and government in the tourism and ICT sectors (Tsokota et al, 2014).

Conceptual Framework

From the discussion above, three main concepts have emerged. From these a conceptual framework that will guide field research on information sharing and collaboration in Zimbabwe has been built. The first concept is the fact that for information to be shared there has to be need for it among the different tourism stakeholders. Due to diversity in the tourism sector, the information needed is different. Consequently in sharing information, there exist different types of relationships/collaborations as well as the methods of sharing the information. The second concept is the use of ICT for information sharing. Different industries have applied ICT in this domain. As innovations in ICT continue to revolutionalise tourism business process, the different technologies have a role to play. The last concept highlights the prevalence of challenges in information sharing and collaboration. On one hand lies the fact that the success of a collaborative network depends on a number of factors. On the other hand, the use of ICT for sharing information poses its own risks to the network (Microsoft, 2015). Figure 1 below illustrates this scenario.

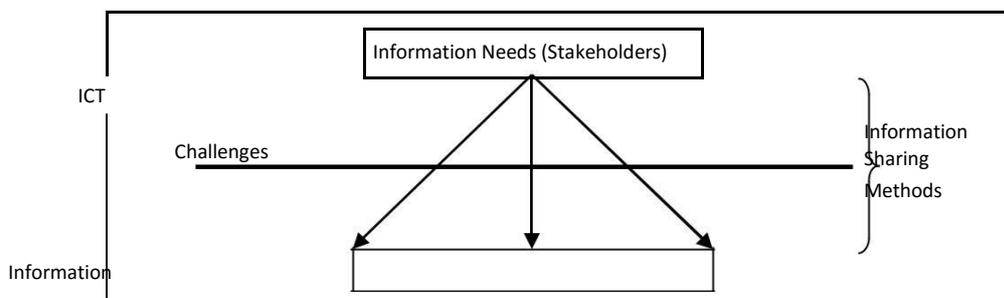


Figure 1. Tourism information sharing and collaboration conceptual framework Source: own compilation



Research Methodology

A qualitative research guided by the design science research paradigm as applied in Information Systems research was employed. According to Hervner et al (2004), in the design-science paradigm, knowledge and understanding of a problem domain and its solution are achieved in the building and application of the designed artefact. This is accomplished by bringing people organisations and technology together. Field research was carried out through in depth semi-structured interviews. Non probability purposive sampling strategy was used in the study to collect data. The target population that was suitable for selection in the study were government institutions and associations (private) directly involved in tourism in Zimbabwe in Harare. The government institutions involved were regulatory authorities and tourism providers. Private tourism associations were appropriate as they were central and key to collaborative activities among their tourism members. These organisations were purposefully chosen to allow for complete representation across the business variations in tourism industry. That way the study was able to select information rich cases for intensive study resulting in in-depth understanding of the phenomena pertaining to the current collaborative information sharing activities in Zimbabwe. The sample size was small consisting of six participants each from their own organisation who are well informed about ICT and tourism in Zimbabwe. The sample size was determined by the saturation level which in this case was six. It was possible to reach saturation at six since participants were from representative organisations that is regulatory authorities and associations. The participants were ICT managers (2), association chairpersons (2) and marketing managers (2).

The respondents were chosen basing on their expertise in tourism and/or expertise in ICT and also on being at managerial level. The participants were knowledgeable in collaborative activities that occur in Zimbabwe's tourism sector.

Data Collection

Primary data was collected through semi-structured interviews while secondary data was collected through an extensive literature review. A literature review is a presentation of a logically argued case founded on a comprehensive understanding of the current state of knowledge about a topic of study Machi and McEvoy (2012). A basic literature review was conducted in order to summarise and evaluate the existing knowledge on this study's topic. From the knowledge, the researchers were able to draft questions necessary to address the research problem of the study.

Interviews were conducted to give the researchers opinions and views of respondents about information sharing and collaboration in tourism. A general interview guide was designed to help in conducting semi-structured interviews. The questions were categorised according to the conceptual framework formulated from the literature review. The strategy of inquiry employed was grounded theory. Face to face interviews were conducted at the respondents' work places for the initial interviews and telephone interviews were conducted for following up on more issues which needed more elaboration. Face to face interviews lasted between 45 to 60 minutes. The interviews were recorded through note taking and voice recording with the full consent of the participants.

Data Analysis

Data analysis involved segmenting and taking data apart as well as putting it back together with the intent of making sense out of it (Creswell, 2014). Raw data was composed of brief notes collected by the researcher during the interview process. Structural coding and



thematic analysis were used for data analysis as described by Saldana (2009). This process commenced from data collection (grounded theory) through to the actual analysis (structural coding). As suggested by Saldana (2009), codes were applied to segments of data that related to specific research questions. This constituted First Cycle Coding (FCC) process.

The Second Cycle Coding (SCC) process was conducted through thematic analysis because of the flexibility and the ability to be applied to any coded data that characterise thematic analysis (Stenius et al, 2004). This involved searching for themes, reviewing the themes and defining and naming the themes as suggested by Braun and Clarke (2006) in their 6 phases of conducting thematic analysis. No quantitative follow up was made since the number of participants was very minimal. The initial framework developed was presented to an expert reviewer from the academic community. The reviewer evaluated it for relevance and applicability in the problem domain and context and gave feedback. The reviewer's comments were incorporated in the refinement of the framework.

Results

The results will be presented in descriptive, narrative form which is the most common employed means of presenting qualitative data (Creswell, 2014) in qualitative researches. The results shall also be presented in a structure corresponding to the research questions (Stenius et al, 2004). The major research question that the interviews sought to answer was to ascertain the current information sharing initiatives occurring among tourism stakeholders. The question was further divided into three major categories as deduced from the conceptual framework. These categories are: i) Tourism stakeholders' information needs ii) Current methods of sharing information iii) Ways of improving information sharing.

Tourism stakeholder information requirements

Through structural coding, the FCC process produced memo code composing of nine different labels pertaining to tourism stakeholders' information needs. These labels are: Operational Information, Supply Chain Information, Executive Information, General Information, Trust Concerns, Information Utilisation Concerns, Benefit Concerns, Mandatory Collaboration and Voluntary Collaboration. Further analysis conducted during the SCC process, thematic analysis, constituted recoding the FCC data. The nine labels were grouped into three major themes. These major themes were used to identify the aspects of Zimbabwe tourism stakeholders' information needs. These are: i) Information Types which incorporate Operational Information, Supply chain information, Executive/Managerial Information and General Information; ii) Information Sharing Concerns which incorporate Trust Concerns, Information Utilisation Concerns and Benefit concerns; and iii) Collaboration Types which are Mandatory and Voluntary Collaboration. These themes have been tabulated below together with their corresponding FCC labels (Table 1).

Table 1: Three Aspects of Tourism Information Sharing

Information Types	Information Sharing Concerns	Collaboration Types
<ul style="list-style-type: none"> • Operational Information • Supply Chain Information • Executive Information • General Information 	<ul style="list-style-type: none"> • Lack of Trust • Information Utilisation • Benefit Concerns • Lack of incentives • Lack of data utilisation • Lack of cooperation 	<ul style="list-style-type: none"> • Mandatory Collaboration • Voluntary Collaboration

Finally, triangulation demonstrated the relevance of the data and themes developed.



Mandatory Collaboration: Data analysis revealed that mandatory collaboration is a critical element of collaboration among Zimbabwe's tourism stakeholders which significantly impacted the aspects around information sharing. Participants from the different types of tourism organisations revealed that information was being shared as a mandate outside which no information sharing was carried out. As one participant stated, organisations are mandated to provide information about their customers. The concept of mandatory

collaboration is further strengthened in that stakeholders need incentives and to derive benefits from the information sharing initiative in order to participate. Two participants from opposing tourism organisations did note that organisations were willing to share information if they could see the benefit according to them. One of the participants, in the discussion about information sharing within their association's organisations, he stated that there was no need as each organisation was self-reliant.

Trust Concerns: In analyzing the data associated with information sharing among tourism providers in Zimbabwe, trust concerns continue to appear. Tourism providers were concerned that competitors could use information obtained to out compete their peers. On the other hand, orchestrators were concerned about getting "misrepresented information" which was manipulated to best suite the tourism provider, for instance, to get charged lower rates. This shows that the concept of trust concerns in tourism information sharing and collaboration is very significant.

Current information sharing methods

With respect to the current methods in which Zimbabwe tourism stakeholders are sharing information, the FCC process produced memo code composing of six different labels. The labels are: Manual Sharing, Interactive/Social Sharing, ICT based sharing, Data Misrepresentation, Inconvenience and Maintenance costs. Further analysis of the labels conducted during the SCC process, produced two major themes that identify the aspects of Zimbabwe tourism stakeholders' collaborative information sharing methods. These are; i) Information Sharing Methods which include Manual Sharing, Interactive/Social Sharing, ICT based sharing and ii) Challenges in sharing information which include Data Misrepresentation, Inconvenience and Maintenance costs. These themes have been tabulated below together with their corresponding FCC labels (Table 2).

Table 2: Two Aspects of Tourism Information Sharing Methods

Information Sharing Method	Information Sharing Challenges
<ul style="list-style-type: none"> • Manual Sharing • Interactive/Social Sharing • ICT based sharing 	<ul style="list-style-type: none"> • Data Misrepresentation • Inconvenience • Maintenance costs.

Again, through triangulation the relevance of the data and themes developed could be demonstrated.

Inconvenience: Data analysis revealed that some data sharing methods are proving inconvenient for their purpose. This theme manifested in the way all participants felt the need to make changes in the way information was being shared. Participants stated that websites "lacked functionality" and were not interactive thus prohibiting feedback from tourists and other stakeholders. Another participant noted that social media were too diverse and fragmented thus inconveniently not providing full information. This shows that convenience is an important aspect of information sharing methods for all stakeholders involved.



Interactive/Social Sharing: From the data analysis, it could be seen that interaction among stakeholders is an important element in collaborative information sharing methods. Through functions organised by the orchestrator, tourism stakeholders get to meet and share information. One participant in the discussion on ways of improving the current sharing methods stated that more workshops, conferences, seminars and fairs are needed to market the destination. The participant felt that it is in such functions that stakeholders get to know more of developments in local tourism. Another participant felt that more of such functions can help to brand the nation as a good destination. Interactive sharing, thus, is significant in the discussion of key aspects of tourism information sharing methods.

Ways of improving information sharing

The FCC process produced eight different labels with regards to ways of improving information sharing and collaboration in Zimbabwe. These labels are: System Integration, Statistics, Data Analytics, more interactive websites, proactive and reactive measures, logistics, infrastructure, online information sharing platform. These labels makeup the potential remedies for overcoming challenges and/or improving collaborative information sharing among tourism stakeholders in Zimbabwe. Further analysis conducted during the SCC process grouped the eight labels into two major themes. These major themes were used to identify the aspects that constitute better or improved collaborative information sharing in Zimbabwe's tourism sector. These are Technology Based Initiatives incorporating System Integration, Statistics, Data Analytics, more interactive websites and online information sharing platform and Micro Level Initiatives incorporating proactive and reactive measures, logistics and infrastructure. These themes have been tabulated below together with their corresponding FCC labels (Table 3).

Table 3: Two Initiatives for improving tourism information sharing

Technology Based Initiatives	Micro Level Initiatives
<ul style="list-style-type: none"> • System integration • Statistics • Data analytics • More-interactive websites • Online information sharing platform 	<ul style="list-style-type: none"> • Proactive and reactive measures • Logistics • Infrastructure

Again, the relevance of the data and themes developed could be demonstrated through triangulation.

Technology Based Initiatives: From the Data analysis, it was discovered that technology has a crucial contribution in the enhancement of tourism collaborative information sharing. All participants felt that more adoption of ICT within tourism would greatly help market destinations. One participant felt that there was need for change of attitude towards ICT through applying "more commitment to good IT". The significance of this theme is further strengthened by ongoing implementation of new web based information sharing systems by two organisations from which participants were selected. The participants were excited about the development as they believed this would make huge change in the way information is shared.

Challenges posed in tourism information sharing

In order to deduce the overall challenges being faced by tourism stakeholders in information sharing another coding process level was applied (third-level coding). Further thematic analysis was carried out on a hierarchical code list derived from the raw data. The code list was made of all codes from the first level coding phase. The third-level coding process resulted in six themes.



1) Inadequate information sharing: The labels categorised under this theme are those initially categorised under the theme information types (Operational Information, Supply Chain Information, Executive Information and General Information) and those under the theme information sharing methods (Manual Sharing, Interactive/Social Sharing and ICT based sharing) as well as the label Inconvenience. The researchers found that these labels represented the gaps that exist between the types of information needed and the means employed for sharing the information.

2) Fragmented information sharing: The labels categorised under this theme are those initially categorised under the theme information sharing methods (Manual Sharing, Interactive/Social Sharing and ICT based sharing) and the challenges experienced in collaboration (Inconvenience and Maintenance costs.). These labels constitute some of the information sharing experiences encountered by tourism stakeholders.

3) Rivalry between regulators and operators: This theme sufficed from the information sharing concerns (Lack of Trust, Benefit Concerns, Lack of incentives and Lack of cooperation) and Data Misrepresentation. The labels under this theme depict tensions that exist among tourism stakeholders.

4) Mistrust Between Regulators and Providers: The labels categorised under this theme are those initially categorised under information sharing concerns (Lack of trust, lack of data utilisation). The theme was appropriate for these labels as they all entail perception issues from the perspective of the participant.

5) Poor infrastructure: The labels categorised under this theme are those initially categorised under micro level initiatives (poor infrastructure, transport logistics). These first cycle codes entail aspects that hinder overall tourism performance and ultimately collaboration.

Triangulation. The process of triangulation was employed to prove corroboration in the data analysis. The researcher would code and recode the initial raw data. After this, the researcher would examine ways in which new labels affected the data analysis. In the first-cycle coding, several codes/labels were dropped while new ones were adopted. In the second cycle, the codes were fitted within seven meta codes that is themes according to the researcher's interpretations. In the third cycle the researcher recoded the second level themes in accordance with the research problem statement. Some labels were amalgamated while others were maintained.

Findings and discussion

The findings shall be discussed according to the themes and the responses obtained from the participants. These themes are i) Inadequate information sharing ii) Fragmented Information iii) Rivalry between Regulators and Operators iv) Mistrust in data sharing and v) Poor infrastructure. Participants shall be referred to according to the labels ascribed in the data presentation section. The participants are tourism providers associations (two participants, A1 and A2), government institutions (two participants, G1 and G2) and destination managers (D1 and D2).

Inadequate information sharing

In tourism collaborative information sharing, issues of inadequate information sharing were discovered resulting from fragmented nature of information. The participants experienced these issues differently according to their own information needs. The researcher found that

operational, supply chain, executive and general information are the types of information that tourism stakeholders may require among themselves. Where information is shared, it is mandatory sharing. Table 4 below shows these results according to participants.

Table 4: Inadequate Information sharing

Participant	Comment
G1	We do share information with tourism providers. These are lease holders and tour operators. The operators are mandated to provide information about their takings. This information is provided as hard copies. Recently they can be provided through email.
A1	No, we do not share any information among ourselves. We do not want to give away information to competitors. Also we do not see the benefit for sharing information. Perhaps incentives would help.
D1	We get information from the ZTA who are responsible for the marketing of Zimbabwe as a destination. This information is about the providers' details and grades. The information is provided through hard copies.
D2	Information is available over the website. However it is difficult to keep the website updated such that information may be stale and irrelevant to current events.

From the above it can be noted that the current information sharing is not sufficient to meet all the needs of the stakeholders. There is no information sharing except for when it is mandated by regulation. There is need to mitigate on the issues raised in order to enhance information sharing. Thus information sharing is critical for framework being proposed for enhancing information sharing.

Fragmented information

The current information sharing methods are proving inconvenient for the enhancement of information sharing due to the fragmented nature of the information needed and the sharing methods available. Websites lack functionality and interactivity such that tourists fail to provide feedback. Use of social media is staging financial cost implications as these are fragmented and require significant time commitment. Manual methods of sharing information are inconvenient as well since data can be misrepresented. The table below (table 5) shows the participants' opinions regarding the information sharing methods.

Table 5: Fragmented Information sharing

Participant	Comment
G1	There is the problem of information misrepresentation where operators alter figures or provide incorrect customer information. They do this so that they can get cheaper rates.
A2	Systems are implemented on different platforms. Integration tends to introduce additional costs whose funds are not always available
D1, A1	Websites are inconvenient as they lack functionality for interaction such as feedback from tourists.
G2	Data may be provided as Excel Sheets by email but still need to be captured in the system. This is very inconvenient

The discussion shows dissatisfaction in the current sharing methods employed. Addressing these issues can greatly influence information sharing in the positive. As such methods of information sharing shall be part of the framework being built by the study.

Inter regulator-operator rivalry

Results from the research showed hostility between regulators and operators. While the factors contributing to such rivalry are irrelevant to the purpose of this study, the rivalry is certainly apparent. Issues of misrepresentation of data, lack of cooperation and the need for perceived benefits or incentives to share data are clear signs of the hostility. Information exchanged in the prevalence of such hostility is exposed to manipulation. As a result it can be noted that data integrity is highly compromised in mandatory collaboration types.

Table 6: Rivalry between regulators and operators

Participant	Comment
G1	Information can be misrepresented by altering figures or changing customers' demographic information such as nationality. This is done to get cheaper tariffs.
A1	If there were incentives provided, it would be worthy while to get involved.

Rivalry between stakeholders is a significant inhibitor of information sharing. When information can be manipulated and altered, data integrity is compromised. This further inhibits information sharing. This factor is therefore significant in the proposed framework for information sharing and collaboration.

Mistrust in data sharing

It was noticed that the diversified tourism stakeholders do not trust each other in sharing information. Fear of competition, and lack of derived benefit from the sharing initiative constituted the trust concerns. To further explain, the need for incentives to participate in information sharing revealed the lack of trust was imminent.

Table 7: Mistrust in sharing data

Participant	Comment
A1	Competitors may take the information and use it for their benefit.
A2	The information is redundant. No statistics are provided and no data analytics are done. Therefore it is not necessary to participate.

Trust is critical for sharing information that may be sensitive. As trust is critical for sharing information, it is of paramount importance to address issues of trust in the framework. There is need to clearly show benefits that can be derived from information sharing so that stakeholders can opt for the idea. This theme then qualifies as a factor for the framework for information sharing.

Poor infrastructure

From the research it emerged that while there may be willingness to engage in information sharing, there were other critical issues that needed to be addressed. These are infrastructure issues raised by participants that pertain to accessibility of tourism facility not information. The issues under this theme are infrastructure and transport logistics. Participants felt these issues were critical since they can prohibit a destination from being attractive.

Table 8: Poor Infrastructure

Participant	Comment
G2	Tourists may find it difficult to access our facilities due to poor infrastructure
A1	There are serious logistics issues. No matter how easily information about a destination can be found, it is of no use if the destination is inaccessible.

As seen from the literature review, whole tourism development can be achieved through an amalgam of solutions among them, ICT based solutions. It is imperative for this study to consider such initiatives as they may indirectly be inhibiting information sharing. Infrastructure and logistics do contribute to the lack of collaborative information sharing. It may seem futile to focus on sharing information while the tourism facilities are inaccessible. Therefore such factors need to be incorporated in the framework.



Information sharing and collaboration challenges and the proposed solutions

While this study is taking an ICT based approach to solving the problem of lack of availability of information, it takes into cognisance that ICT alone does not provide solutions to a problem. ICT is a tool for accomplishing a task. Thus the proposed solutions are of two types; technical (ICT based) and micro level (central government). Table 9 below lists the solutions against the identified challenges.

Table 9: Proposed solutions for overcoming collaboration challenges

Challenge	Proposed Solution(s)	
	Technical Initiatives	Micro Level Initiatives
Fragmented Information	Online Platform Systems Integration Business Analytics	
Rivalry Among stakeholders	Systems Integration	Policy formulation for tourism mandatory information sharing and collaboration
Mistrust among stakeholders	Data Security (Data encryption, SSL)	ICT Policy for sharing data
Poor Infrastructure	ICT Infrastructure (networking and mobile and data communications)	Transport logistics Infrastructure

Factors for framework development

The themes discussed in the findings constitute the seven factors for the development of the proposed framework. These factors are critical for enhancing information sharing and collaboration in Zimbabwe. Detailed explanation of the factors shall be given in the next chapter. The factors are:

- Inadequate information sharing:** The current information sharing is inadequate to meet the diversified information needs
- Fragmented sharing methods:** Information sharing methods are inconvenient due to their fragmented nature. They are ineffective, requiring significant time and financial resources.
- Rivalry between regulators and operators:** Data integrity is highly exposed and vulnerable when being shared in the presence of hostility between regulators and operators.
- Mistrust among collaborators and providers:** The decision to participate in information sharing is propelled by the level of trust among participants.
- Poor infrastructure:** Accessibility of information and attractions depends on the underlying infrastructure that has been set up.
- Technological initiatives:** ICT based initiatives for the enhancement of information sharing
- Micro level initiatives:** Central government solicited initiatives for the enhancement of information sharing.

Framework Overview

According to Hevner et al. (2004), design science research in information systems must produce an artifact which is applicable in the appropriate environment. The artifact of this study is the proposed framework for enhancing information sharing and collaboration in Zimbabwe. This artefact is developed from the findings of the study and also borrowing concepts from cyber-security information sharing frameworks. It is intended to be applied in the tourism sector at any level for which collaboration is practical. The factors for the

framework listed in section 4 deducted from the research constitute the components that make up the framework. The components are ; rivalry between regulators and operators; mistrust between collaborators and operators; poor infrastructure; fragmented information needs; inadequate information needs, technological initiatives for mitigating challenges and micro level initiatives. The components have been categorised according to the impact they have on information sharing since they are interlinked with the causality effect. The categories are Information Sharing Challenges, effects of the challenges, mitigating

initiatives and the desired result. This implies that the challenges of rivalry between regulators and operators, mistrust between collaborators and operators, poor infrastructure and fragmented information needs are all contributing to inadequate information sharing. Ultimately, the application of ICT and or Micro Level initiatives improves collaboration thus enhancing information sharing. The categories and their subsequent components are: i) Information sharing challenges ii) Effects of challenges on information sharing and iii) Initiatives for mitigating the challenges.

Information sharing challenges

- **Fragmented information needs:** Tourism stakeholders (government, government institutions and tourism providers) have diversified information needs among themselves. As the study revealed, there is need for operational, executive, supply chain management and general information depending on the organization needing the information. The ultimate goal for all the stakeholders is the intention to give the tourist quality service and convenience during consumption of the tourism service. This can help to meet the tourists' need for a unified view of destination as well as providing a tourism experience as a whole package. Tourism stakeholders have turned to any available means for meeting their information needs which offer them minimum cost. It was seen that the traditional ways of sharing information through printed copies and social interactions through workshops, seminars and expos are quite dominant. ICT related methods have been limited to websites and social media due to the low costs of setting up. However the methods are failing to provide the convenience and effectiveness that they are intended to produce due to their fragmented nature. Information is scattered across platforms. They are ineffective, requiring significant time and financial resources to maintain. This can be noticed by outdated websites and lack of responses or delayed responses on enquiries by tourists and other stakeholders. In such a scenario, the motive to participate in collaborative information sharing is low even though the need to may be acknowledged by the stakeholders. An integrated online information sharing platform can alleviate the frustrations arising from diversification of information needs and information sharing methods. The system can be integrated with operators' own systems to provide real time information sharing. Stakeholders can provide information into the platform directly. When made accessible to the public, views, reviews and comments can be added for interactivity.

- **Rivalry between regulators and operators:** The study established that relations between regulators and operators are not conducive for information sharing. Operators are seeking to minimise operational costs and are looking at ways to evade any tariffs and taxes due from them. On the other hand, the government seeks to retain income from the operators for the services that they are proving. For the operators to comply, it was discovered, the government has resorted to mandatory sharing through regulations. Mandatory collaborative information sharing however is not producing satisfactory results. Data integrity is highly compromised when information is being shared in the presence of hostility between regulators and operators. By employing data security protocols such as SSL and data encryption, data shared through system integration can be guaranteed to be unhampered with.



- **Mistrust among Collaborators and Providers:** Trust is an essential part of sharing especially information that may be sensitive. While collaborators may decide to engage information sharing, this is held suspiciously by the providers who would be the sources of information. Daily business operations can be analysed to produce statistics for tourism planning and development. Through data analytics, forecasting and trend analysis can greatly contribute to tourism development. However, it was discovered providers are not willing to share information with the orchestrators or even among themselves. They are concerned that the information may be used by competitors to gain competitive advantage over them. Moreover, low confidence with the orchestrator's ability to utilise the information effectively is demotivating the operators to participate. On the other hand collaborators do not trust providers and argue that they are not cooperative. It is only when benefits start to accrue that they get involved. Since the decision to participate in information sharing is propelled by the level of trust among participants, it can be noted that the lack of adequate information sharing is also emanating from this issue. For trust to develop, it is imperative for the government to be consistent with policy and implementation. Policy formulation must involve extensive stakeholder involvement. It becomes easier for the operators to buy in the government initiatives that are introduced.
- **Poor Infrastructure:** Accessibility of information and attractions depends on the underlying infrastructure that has been set up. Operators in Zimbabwe bemoan collapsed infrastructure and inefficient transport and logistics. Information sharing initiatives tend to be in vain in such a scenario when tourism sites and facilities are not accessible. ICT infrastructure is also crucial to complement any systems integration and online platforms that can be developed for sharing information. A poor ICT infrastructure may result in the information sharing platforms not being utilized at all. Infrastructure is of crucial importance. The government can form private-public initiatives for the development infrastructure.

Effects of challenges in information sharing

- **Inadequate information sharing:** Due to the challenges mentioned above, the current information sharing is inadequate to meet the diversified information needs. It is only occurring mandatorily.
- **Orchestrators:** Collaboration orchestrators such as the government cannot provide unified information about the Zimbabwe destination. Socially interactive activities such as seminars, expos and conferences do make a difference but due to the costs of participation, not all key players are involved. Small to medium tourism enterprises and majority of local stakeholders get left behind. General information about these players needs to be made public and accessible to every potential tourist and bring growth in the sector.
- **Operators and providers:** These stakeholders need to give the tourist a whole product experience. The supply chain needs to be fully interlinked to allow for seamless flow of information between related providers of tourism experience. For instance transport, accommodation, communication, payment and attraction providers can be interlinked for the tourist information to flow through the chain seamlessly. By doing so, the tourism operators would have to engage mutually beneficial co-opetition as described in the literature review.



Regulators: Government institutions that are custodians of tourism facilities such as national parks and museums require operational information from operators and providers. Information provided is highly compromised with substantial financial and statistical implications. Inaccurate information implies inaccurate statistics which consequently results in poor planning.

Initiatives to mitigate challenges

- **Technological Initiatives:** ICT can play a significant role in changing the current information sharing in Zimbabwe tourism sector. It is a tool constantly evolving through continuous innovations. For full benefit, all ICT available needs to be adopted and applied. Application of ICT needs to be carried by using the right ICT for the task at hand in order to be effective. If ICT is not applied correctly, it may not yield the expected result resulting in frustration and lost time and finances.
- **Online Information Sharing Platform (OISP):** An information sharing platform as described in the literature review is critical in a collaborative network for sharing platform. Due to the internet, OISP can help reduce time required for sharing information. When made public, the system is accessible by anyone from anywhere across the globe. All tourism stakeholders including tourists are able to obtain unified general information about destinations. Moreover, it is easy to provide reviews and comments about any tourism experience through additional functionality that is usually not available on websites. Social media and websites can be incorporated as well by providing links to the websites and external portals such as Facebook, twitter, whatsapp, hangouts and others. Consequently this implies the OISP needs to be fully accessible across the diversity of communication devices to make information easily accessible.
- An OISP provides great convenience in managing information as all information is available at one source. This is practical especially when all the information is stored in one central repository. Tourism providers can have access to the repository through systems integration or they can feed data through the interface. Figure 2 provides a diagramed illustration of this.
- With data in one central repository, it is easy for destination promoters or orchestrators to provide accurate and timely executive information such as statistics and trend analysis figures. This information can be extracted through data analytics tools.

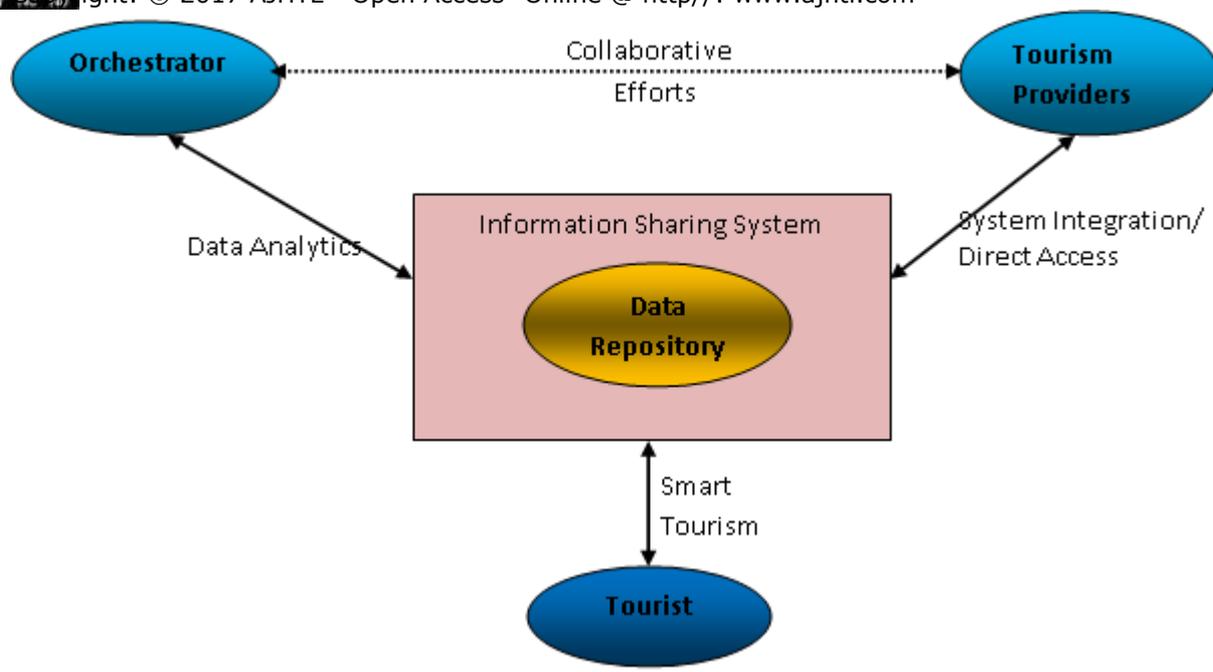


Figure 2: Collaborative Information Sharing Platform for tourism Source: Own Compilation

- **Systems Integration:** Direct information sharing between stakeholders can be greatly facilitated through systems integration. This applies for between regulators and operators as well as among operators themselves and allows data to be transferred in near real time across tourism organisations. Through technologies such as web services and Electronic Data Interchange (EDI), human interference is greatly reduced thus countering issues of data manipulation for misrepresentation. These technologies are platform independent so systems integration is relatively easy to implement and to maintain. Another importance of systems integration is the ability to provide tourism as a whole product in the tourism supply chain. When related organisations are integrated, tourists need not to provide their details for every service they consume. This improves the quality of service and efficiency of systems.
- **Data integrity and security.** Sharing data electronically especially over the internet has become very prone to manipulation. In order to establish trust reliable data security mechanisms need to be applied to systems integration and the OISP. Data transmitted needs to be encrypted and should be transmitted over secured protocols such as Secure Socket Layer (SSL). It is difficult for external intruders to break through systems and steal data for malicious intentions.
- **ICT Infrastructure:** Effective ICT relies on an efficient ICT infrastructure as its backbone. There is need for data communications to be reliable and stable across the nation for a collaborative network to be successful. This is imperative as information needs to be accessible anytime from anywhere. The current ICT infrastructure in Zimbabwe while improving, needs to be vitalised. Private public partnerships can help in ensuring this is accomplished.
- **Micro Level Initiatives:** These are central government solicited initiatives for the enhancement of information sharing. They include infrastructure establishment, policy formulation for collaboration with stakeholder consultation, consistency in policy implementation and ICT policy formulation. The central government needs to reestablish accessibility to tourism sites by reestablishing infrastructure such as roads, airlines. There is also need to promote infrastructure sharing given economic challenges that persist in the

nation. It is also imperative for government to formulate tourism and ICT policies that govern issues of sharing data.

- This should be accomplished through extensive stakeholder consultations. Stakeholder involvement is crucial for collaborations. It helps establish policy ownership and willingness to participate.

Proposed framework to enhance information sharing and collaboration in tourism

After taking into consideration the comments from reviewer, the final framework is presented in Figure 3 below. The current situation of inadequate information sharing can be applied micro level and ICT based initiatives to transform it to a more functional collaborative information sharing network. In this network can be seen collaboration, trust, co-opetition and improved infrastructure. This produces more adequate information sharing. Continued application of the micro level and ICT initiatives will continue to improve the information sharing in tourism. Braces at the bottom label the components that are above.

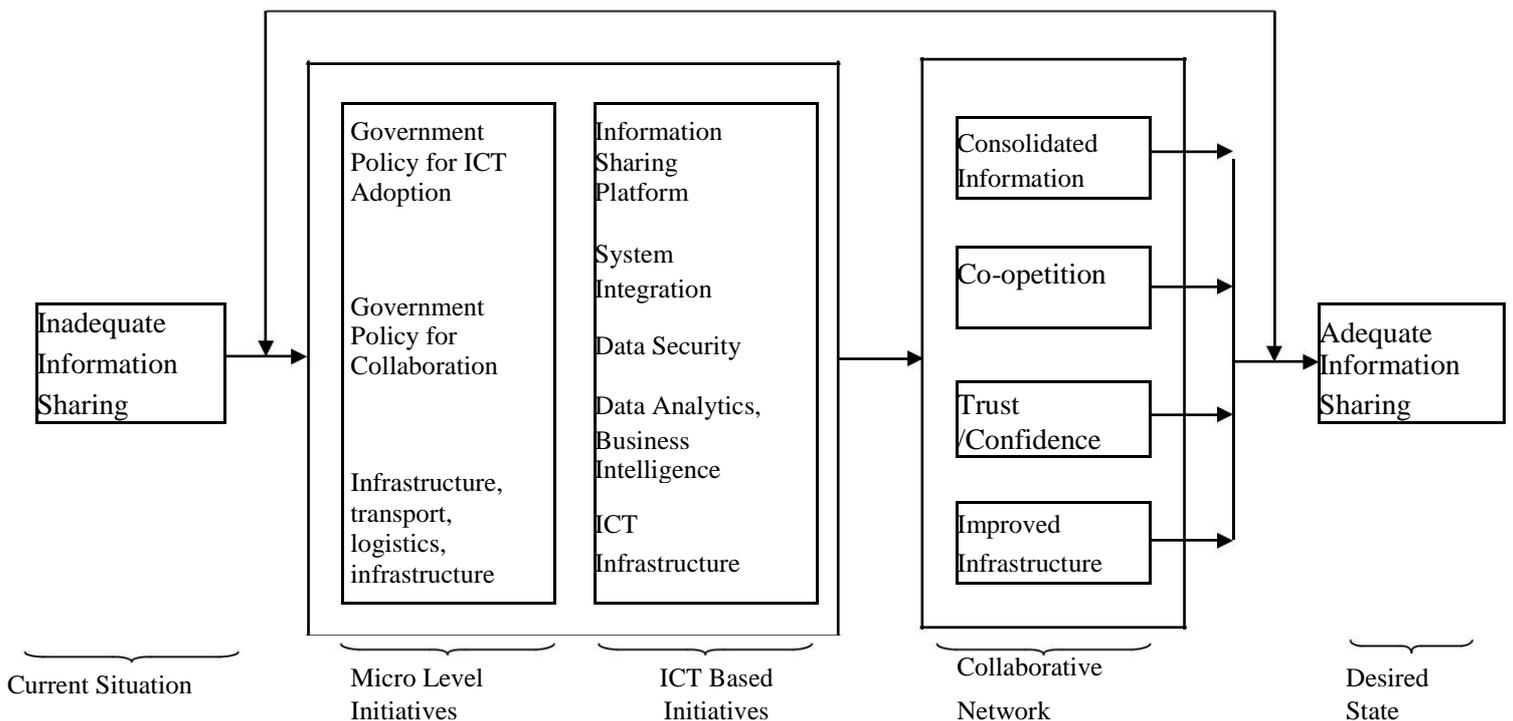


Figure 3: ICT Based framework for enhancing information sharing and collaboration

The discussion and presentation of the framework, forms the answer to the major research question. The study sought to establish how ICT can be used to enhance information sharing and collaboration. The key factors identified during analysis have been used to provide the answer. In the next section is a presentation of the evaluation step towards the proposed framework.

Conclusion

ICT is a versatile tool available and applicable in any situation to solve problems. In tourism the tool has become an integral part of the industry. It has been applied in different tourism domains with significant and revolutionary improvements in operations and service delivery in the industry. In the information sharing and collaboration domain, ICT's potential is vast. Tourism thrives on efficient flow of information. Collaborative sharing of tourism information



greatly enhances destination performance and attractiveness by increasing its visibility both locally and internationally. By harnessing the power of ICT, Zimbabwe's tourism sector can gain enormous vitality through collaborative information sharing. ICT makes it easy and almost effortless to coordinate collaborative activities through virtual organisations. Data centres or repositories become central to every stakeholder's information needs. It is imperative however to introduce and implement policies that make the environment conducive for the ICT tool to operate effectively. As the study showed, it is not easy to form organisational collaborations. There is need for tourism policies that ensure collaborations in critical domains such as sharing of information. Once the benefits of collaborating and sharing information begin to materialize, participation improves ultimately leading to development of the tourism industry. The study then developed a framework which aims at enhancing information sharing and collaboration in tourism in Zimbabwe. The framework helps to improve appreciation of ICT in tourism and enhance its adoption particularly in countries such as Zimbabwe with low ICT adoption rate.

Recommendations

This study recommends the adoption of the proposed framework by all tourism stakeholders in Zimbabwe. The framework offers strategies for resolving the lack of availability of tourism information by advocating for more information sharing and providing for ways of accessing information. Through online platforms, systems integration, mobile devices and social media the framework can help to make the tourism experience seamlessly convenient and worth it. Through data analytics and convenience of sharing data, the framework can help inspire operators and providers to collaborate. To implement the framework, it is recommended that destination promoters assume the role of orchestrator and facilitate collaborative information sharing. To make the orchestrator effective, government needs to formulate policies that govern tourism collaborations especially granting the orchestrator power to effect collaborations. The orchestrator then needs to consultatively design a public OISP that will help increase visibility of tourism facilities and their information.

Tourism providers and operators need to adopt ICT for tourism supply chain and integrate them in order to improve service for the tourist. Improved service helps encourage more business. Finally the study recommends that the central government improves road network, ICT infrastructure and transport logistics to enable tourism facilities to be accessible. Information availability is insignificant if the service cannot be enjoyed. The government can consultatively formulate policies that encourage ICT adoption, information sharing and collaboration among tourism providers and stakeholders. One such policy is infrastructure sharing.

Proposed future research initiatives

Future work can start by broadening the target population to include tourism providers in other regions of the country. This could help to provide more challenges being faced by tourism providers in sharing information collaboratively. After this the future work in this study can then involve quantitative methods of research to deal with scientifically proven variables raised from the factors for the framework.

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