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**An investigation into suitable technology that can be adopted in a destination management organisation situated in KZN South Africa**

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**ABSTRACT**

ICT assists many organisations in every major sector to obtain goals and targets that would not be possible if such technology did not exist. Globalisation and internet technologies have led to increases in economic growth and the emergence of global competition. The exponential increase in ICT has led to abundant choices for both consumers and organisations alike. To attract the consumer to a destination such as KwaZulu-Natal, Destination Management Organisations need to ensure ICT is used strategically in the promotion of tourism. This quantitative study uncovered what the consumer preferences were in ICT when experiencing the four phases of tourism. Literature revealed what the applicable ICT was in the tourism industry. Based on the findings of the literature review, a survey was deployed by input from tourism experts, tourism ICT providers and consumers of tourism products and services. The findings that emerged from this study revealed that the popular ICT utilised by consumers within the context of tourism were destination management websites, online reservation systems, tourism mobile applications, social media platforms and virtual reality ICT. Recommendations included where investments should be made that could bring in the best possible returns.

**Keywords:** ICT; management; tourism.

**INTRODUCTION**

Information and Communication Technology (ICT) today has become a key disruptor influencing the way many organisations conduct their business. Utilizing technology as an enabler in business can provide organisations with the competitive advantage they seek. In addition, from empirical studies, it has been shown that the use of different ICT has a number of effects on the level of competition resulting in an increase in productivity (Ukpabi & Karjaluoto, 2016).

Tourism KwaZulu-Natal (TKZN) has adopted this approach and want to utilise the various ICT to assist the entity in delivering on its mandate. The technology portfolio comprises of both hardware and software platforms. This includes everything from virtual reality technology, mobile devices and advanced business information systems. This paradigm shift from ICT a few years back to ICT today has greatly influenced consumer behaviour. Traditionally if an item was not in the shop it would not sell, similarly today if a product is not available online the chances of it being sold is much less.

Organisations have strategically positioned ICT to collect, store and interact with customers based on their personal preferences. At present, there is an explosion of ICT which creates abundant choice. In addition, government entities are experiencing major budget cuts hence trying to balance cost versus returns in an emerging economy is another key challenge faced by KwaZulu-Natal

Tourism. This research will establish what and how suitable ICT can be used to promote the province of KwaZulu-Natal (KZN) both locally and globally.

### **1.1 Background to the problem**

Tourism KZN was established in 1996. The responsibility of this entity is to market the province of KZN globally. This involves a number of activities including tourism research, tourism development, tourism marketing and promotion. All funding is provided by the Department of Economic Development, Tourism and Environmental Affairs through a grant allocation. According to the vision, as stated in the TKZN Strategy, The province of KZN would like to be globally renowned as Africa's top beach destination with a unique blend of wildlife, scenic and heritage experiences for all visitors (Tourism KwaZulu-Natal, 2013). The promotion of tourism far extends the boundaries of the province of KwaZulu-Natal. Globalisation, together with ICT, has created a boundaryless network of opportunities with competitors competing for similar products and services. This is why innovative ways are required to attract the consumer to purchase your product or service over others. One such innovative way is to deploy ICT, which according to the production possibilities curve, will allow organisations to archive targets that were not achievable under normal operating conditions (Schiller, Hill & Wall, 2013).

According to the study by Buhalis and O'Connor (2015), for ICT to be used strategically, you require innovative management to constantly assess developments and adopt suitable ICT solutions in order to maximize organisational competitiveness. However, ICT has to be matched with the business requirements and investment should aim to provide the best returns.

Technology, through the use of the internet platform, has broken down the walls between the advanced markets compared to the emerging markets like KwaZulu-Natal. In an attempt to create efficiencies, many technologies have emerged globally. This has introduced another challenge in the sense of what technologies to use and how to utilise them in support of the organisation.

### **1.2 Problem statement**

Destination management organisations such as Tourism KZN compete on a global scale to attract tourism consumers. Consumers of tourism are situated across the globe, thus innovative methods such as using ICT is needed to connect with them. Today ICT has become a major disruptor in the way many organisations do business. This exponential growth in the ICT sector has created abundant choices for both consumers and businesses. Some ICT platforms are said to be more successful than others due to the number of consumers that consume a particular ICT when compared to others. Due to factors like the abundant choice in ICT, global competitiveness, and using ICT strategically, the entity is unsure as to what ICT they should invest in that will bring in the best returns given the budget constraints entities are faced with. Knowing what ICT and how to use it in support of the organisation's mandate as defined in the Tourism Master Plan is most important, hence giving rise to and purpose for this research.

### **1.3 Aim of the study**

The aim of this study is to determine technologies that can be adopted by TKZN to support the organisation in delivering on its mandate. The preferred approach will be to engage the actual consumer by means of a questionnaire. In addition to this, engagement with various literature like the Tourism Master Plan, the TKZN strategy, the organisation's annual performance plan, and

other related sources of information. The results of this research will be presented back to the executive management of the organisation which can then be used to plot the way forward.

#### **1.4 Objectives of the study**

- To determine what ICT is applicable to the tourism sector in KZN.
- To understand what are the consumer preferences when utilising ICT.
- To make recommendations to the TKZN executive management.

#### **1.5 Significance of the study**

The tourism industry is growing at a rapid rate. Subsequently, technological advances have helped shape the ways in which the tourism industry operates today (Schuckert, Liu & Law, 2014). An example of one such ICT is the emergence of Web 2.0 which redefined consumer's adoption of tourism (Ukpabi & Karjaluoto, 2016).

Today ICT platforms such as social networks, websites, blogs, mobile applications and many more dominate every industry. One can say there is an information overload of sorts when combining ICT hardware, software and information, giving rise to digital information platforms. With abundant choices, consumers' preferences determine what platforms organisations should be investing in. Consumers ultimately have the power to make ICT popular or become a white elephant. A consumer of tourism is a tourist. This study will contribute to the existing published literature as it will provide insights in order for marketing and destination management organisations to formulate their ICT roadmaps. The significance of this study is to determine what ICT's can be used by TKZN in the promotion of the province of KZN to the world. This study will result in destination management organisations (DMO's) having the information they need to make ICT investments. The recommendations of this research can be applied to any destination management organisation globally.

### **LITERATURE REVIEW**

Tourists are the consumers in the tourism sector. Tourists play an equally important role in the use of ICT. At a high level, the consumer interacts with four distinct phases in the tourism sector. These are holiday planning, booking a holiday, experiencing a destination, and post-holiday experience sharing. This study incorporates these phases and what ICT is utilised by consumers that engage with the various phases.

#### **2.1 The tourism sector**

According to Belias, Velissariou, Koustelios and Varsanis (2017), tourism is a social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business purposes. A visitor is a traveller taking a trip to a destination outside his/her usual environment, for less than a year, for any purpose (business, leisure or other personal purposes) other than to be employed by a resident entity in the country or place visited. A visitor is classified as a tourist (or overnight visitor), if his/her trip includes an overnight stay, or as a same-day visitor (or excursionist) otherwise (UNWTO, 2014).

The tourism sector in South Africa is a key economic driver for job creation. There has been a 13% growth in tourist arrivals for 2016 and as a result, the tourism sector was allocated four

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hundred and ninety-four million in 2017 for further development (Brophy, 2017). There are three classifications of travel. These can be explained as internal travel, where the traveller travels within a province. National travel is when the traveller travels within a country and finally, international travel is when a traveller travels from one country to another country. Over the past decade, the travel and tourism sector has emerged into one of the most important sectors worth developing (Werthner & Klein, 2012). As with other sectors, the tourism sector includes supply and demand. The demand is created by the tourist, consumer or otherwise known as the traveller (Neuhofer, Buhalis & Ladkin, 2013:342). According to South African Tourism and Tourism KZN, the supply side in the tourism sector in South Africa consists of the following (Tourism KZN, 2017):

- Tourism products. An example of this is accommodation, restaurants, museums, conference venues and experiences to name a few.
- Tour operators who facilitate tourism experiences.
- Travel agents who sell tourism experiences via holiday packages.
- Tourism information offices who provide the consumer with destination information.
- ICT such as computerised reservation systems, global distribution systems, and many others that provide digital or electronic versions of the above product and services.

The traveller is the consumer of tourism products and services. According to Neuhofer, Buhalis and Ladkin (2013:341-342) consumers are attracted to a destination based on the variety of experiences it has to offer. An experience is what DMO's promote in order to attract a tourist. Experiences with tourism products and services are shared in the form of photos, videos, comments and destination reviews which are easily accessed by others. Furthermore, the market penetration of mobile technology (Shaikh & Karjaluoto, 2016) also influenced the adoption of tourism products and services. This sharing of digital content is all made possible today because consumers are aggressively utilizing ICT platforms.

## 2.2 ICT overview

ICT is referred to as Information Technology (IT). IT has dramatically transformed travel and tourism (Xiang, Magnini & Fesenmaier, 2014). The adoption of ICT is based on a consumer's preference. Organisations that wish to utilise ICT must invest in the ones that bring in the best returns. This study will only focus on ICT that supports the promotion of a destination in the following layers:

- Layer A – ICT is utilised by tourists or consumers.
- Layer B - Is the access and presentation layer. This ICT layer represents how a consumer or a traveller will access the systems, content and data that DMO's want to share with their consumers. An example of this is mobile access, desktop, or laptop access, via a client-server application, thin client web browser access, virtual reality and so forth. Information has to be presented in various forms to cater for the different market segments.
- Layer C – Is the application layer. These refer to the set of applications that the DMO needs to implement in order to support the marketing of the destination. Consumers get access to these applications via the various options that can be defined in Layer B. An example of this is a customer relationship management system that can be used to manage tourism stakeholder relationships.

- Layer D – The data layer refers to the many such data stores, also referred to as databases that store the information that is needed to market a destination. These databases often store customer details and preferences in the case of a CRM system.
- Layer E – The integration layer. This layer is responsible for getting the various ICT to share data so that the consumer is able to get complete information.
- Layer F – The infrastructure layer is the actual hardware that is needed in the support of marketing the destination.
- Layer G – The security layer ensures that security is built into the various layers.
- Layer H – Operations ensure that at any given time mechanisms are in place to ensure all layers are functional thereby being able to provide consumers with the relevant tourism information.

The role of the consumer or the tourist will now be examined.

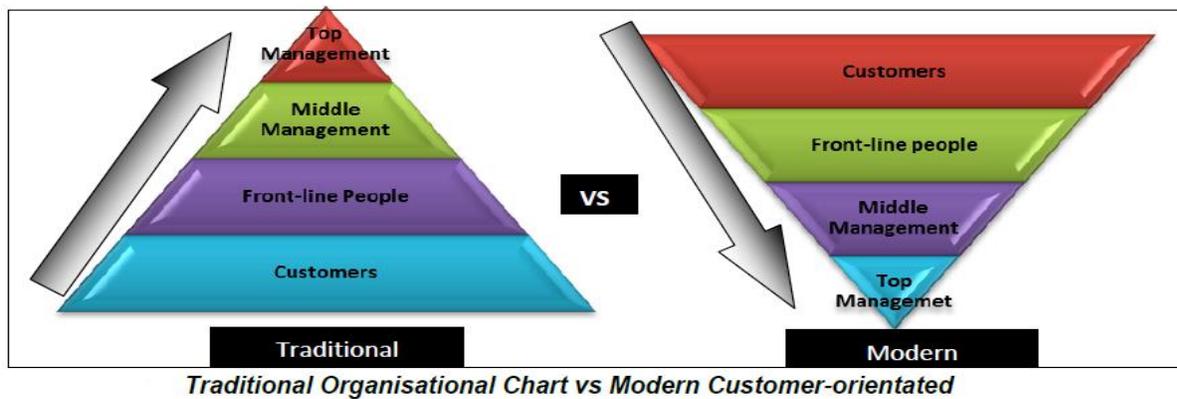
### 2.3 The role of the tourist

The tourist consumes tourism products and services in search of tourism experiences. According to Neuhofer (2016) an experience is associated with an emotion and the way it makes an individual feel. Connecting the tourist to an experience is vital for a destination management organisation.

Organisations today compete in a highly competitive business environment. In order to sustain a competitive advantage, organisations adopt a holistic marketing philosophy based on strong customer relationships. In particular, focus needs to be given to building customer value, satisfaction and loyalty, maximising customer lifetime value and cultivating customer relationships (Kotler & Keller, 2012:144-169).

Kotler and Keller (2016:150) advise that the modern consumer-orientated organisations place the consumer at the top as opposed to the traditional models where the top management of an organisation was placed at the top and dictated what options were available to a consumer. Today consumers expect organisations to listen to them and then respond to their specific needs. A predefined holiday package has become a thing of the past. This is illustrated in Figure 1.

**Figure 1: Organisational chart**



Source: Kotler and Keller (2016: 150)



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In the case of consumer market segmentation, ICT is used to reach consumers around the world. Using such ICT will allow organisations to achieve targets that were not achievable under normal operating conditions as per the production possibilities curve (Schiller, Hill & Wall, 2013). ICT appeals to people of various age groups and to people of different personalities. ICT can create responses to goods and services that normally would not be present.

The tourism lifecycle has four phases. All four phases include consumers. To support these phases ICT is introduced in all four phases. Hence ICT can be utilised in Holiday Planning, Booking a holiday, While on holiday, and Sharing a holiday experience. To ensure consumers have access to destination information it has to be accessible via various channels or platforms.

#### **2.4 ICT information access and presentation**

According to Xiang, et al., (2014) ICT used for travel planning is widely adopted and saturated. This indicates that consumers actively use the ICT platforms for planning a trip or holiday. Obstacles that have been frequently cited and studied in literature such as lack of trust and credibility, poor usability, and lack of personalised services in online communication, seem to have been overcome by various improvements in website design, security measures, as well as increasingly “smart” systems that can accurately gauge consumers’ needs and preferences (Gretzel, 2011).

ICT such as social media, virtual tourism, and other new technologies that promote tourism, has become the current trend. According to a study by Neuhofer, Buhalis and Ladkin (2015), smart technologies create personalised tourism experiences. Recently emerged mobile solutions, such as location-based services (Neuhofer, Buhalis & Ladkin, 2012), context-based services, and augmented reality applications (Yovcheva, Buhalis & Gatzidis, 2013), have been increasing to assist tourists with navigating, finding locations, retrieving information, and making bookings and reservations. Smart technologies should align with the concept of customer empowerment to add value and generate sales.

Based on the consumer’s requirements DMO’s are then forced to ensure that the access and presentation layer includes a variety of platforms. This translates to information being accessible via the following as explained by Kotler and Keller, (2016):

- Mobile – Information presented in this format will be utilised by consumers that utilise mobile devices.
- Web browsers – Information presented in this format will cater for the demand for numerous consumer ICT devices including a web browser in the operating system. Information accessed via a web browser must be responsive. An example of such ICT devices is a laptop, desktop and various smart devices. Ku and Chen (2015) have stated that websites enhance tourism search and these platforms encourage a quick decision in travel planning.
- Virtual and augmented reality ICT – Information presented in this format is geared to enticing a consumer with a tourism experience. This ICT supports the marketing of a destination using visual ICT. To support the destination attributes virtual ICT can be utilised (Ukpabi & Karjaluo, 2016).

Information presented in the various platforms all connect back to various applications that support the DMO in marketing the destination.

## 2.5 Tourism software applications

The term software applications found its roots in the term software which means a set of electronic instructions that work in synchronisation with the hardware they installed on. There are two types of software, systems software and applications software. System software is the operating system that interfaces with the hardware and is not included as part of this study. Application software is utilised by users or consumers to perform various functions (Bourgeois, 2014:6). Application software exists in all sectors to support various business functions, the tourism sector included.

Tourism applications can be mapped to layer C in figure 1. There have been numerous studies on specific ICT in the tourism sector. However, there are very few studies that take an umbrella approach and include a variety of ICT that support a DMO in marketing the destination. The summary of such studies falls into the categories below which were included as part of this study:

- Customer relationship management application systems
- Destination management websites
- Travel reservation application systems
- Social media platforms
- Tourism mobile applications
- Virtual and augmented reality

In addition, insights have been drawn from studies in other sectors and applied to the tourism sector. According to Kotler and Keller (2016), ICT used for marketing and promotional such as sending tailor-made communication to consumers incorporating the interest of the consumer, the ability to track and trace the online consumer, strategically place advertising like banners and adverts to attract the target market segment and using search engine optimisation (SEO) is just a few advantages of using ICT. SEO is online advertising using keywords that are typed into a search engine.

The disadvantages of online digital applications can be associated with losing a percentage of control over the application or message should the platform get hacked. The possibility of false positive statistics created by automated bot-net software, as opposed to the actual consumer statistics and lastly online applications like DMO websites require large amounts of investment to retain a ranking in popular search engines.

### 2.5.1 Destination management websites

Destination management websites existed from as far back as the 2000s with highly interactive features like reservation systems, virtual tours and so forth (Xiang et al., 2014). Websites are understood to be a marketing tool for many organisations. Internet ICT has grown to become popular due to the billions of websites that exist on this platform. Today DMO websites can do much more. The site can help people do research, chat with experts, read customer reviews, watch videos, buy things, track orders - and much, much more. Hindrances that have been frequently cited and studied in previous literature such as lack of trust, credibility, inadequate user design, and lack of personalisation, seem to have been overcome by improvements in various ICT. DMO's have positioned tourism websites as a central point for tourism information and attractions (Chung, Lee & Koo, 2015). The Internet ICT, which is a combination of various technologies like online travel agency websites, tourism supplier sites, search engines like Google and Bing, and

destination management websites, is the most frequently used in gathering information during the planning stage (Xiang, et al., 2015).

Destination management websites should offer interactive content like a video that takes tourists through a destination experience and allows itinerary personalisation like an online trip planner with customizable maps, price ranges and activities (Neuhofer, Buhalis & Ladkin, 2015).

According to Kotler and Keller (2016: 639), websites should incorporate and express their purpose, history, products, and vision with a look and feel that is extremely attractive and easy to use thereby encouraging consumers to return. The 7C's should be incorporated. Special attention should be given to the following:

Table 1 – Seven Key Design Elements of an Effective website

Context	Layout and design
Content	Text, pictures, sound, and video
Community	How the site enables user-to-user communication
Customization	Sites's ability to tailor itself to different users or to allow users to personalize the site
Communication	How the site enables user-to-user, user-to-site, or two-way communication
Connection	Degree that the site is linked to other sites
Commerce	Sites's capabilities to enable commercial transactions

**Source:** Kotler and Keller (2016)

Multilingual accessibility is significantly important. Information should be available in as many languages as possible and to overcome language barriers when dealing with travellers of diverse backgrounds (Chhatwani, Gada, Ganji, Pathirapandi, & Tikku, 2013).

Kotler and Keller (2016) take it further and recommend:

- The layout and design must allow for the website to download and display the content as fast as possible. If the site takes too long to display on the consumer's device, the consumer may move to another website. This can become a lost opportunity for a DMO. Special attention should be made to consumer devices as consumers today have many devices and expect a good experience on all their devices when accessing the same content.
- The homepage of a website must be easy to understand and have an attractive design to ensure that the consumer is engaged.
- The website must be responsive which ensures the content is placed well when viewed from all types of devices.
- The navigation on the website should encourage a process of finding information in the shortest amount of time.

### 2.5.2 Travel reservation systems

According to Neuhofer, Buhalis, and Ladkin (2015), today e-commerce can be found in every industry, the tourism industry is no exception. In most cases, e-commerce functionality is integrated into destination management organisations websites in an attempt to create a complete experience for the consumer. This translates to holiday planning and booking where tourism

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holiday packages are linked to routes which are then linked to experiences and various tourism products. Some of the top travel sites that offer e-commerce in tourism are: Expedia, Preview Travel, Travelocity, Hotels.com, Bookings.com, WAYN.com, travel ground.com and many others.

According to Wen (2012) the quality of the website influenced a consumer's decision to use the online booking functionality. An example of a well-designed travel reservation system is the Expedia Tourism online booking platform which has a global presence. The platform has 200 plus online travel booking websites, 150 mobile websites and 43% of the revenue is from global countries. In terms of supply and demand, the organisation supplies through the platform of three hundred and eighty-five thousand properties, five hundred plus airlines, twenty-five thousand plus tourism activities, and various car rentals and ship cruise experiences. The return on investment is eighty-one billion rands in online bookings.

Kotler and Keller (2016:171) advise that the online reservation system, TripAdvisor has become the largest travel reservation website. There are more than 280 million unique visitors monthly and many millions of people view their content on 500 other sites.

The study by Schuckert, Xianwei and Law (2015) confirms that DMO's must include some form of online booking functionality as "71% of independent travel related bookings are done online, while 36% of all package tours are booked online". This functionality can be incorporated into the DMO's website creating a single place to plan and book a holiday for the consumer.

### *2.5.3 Customer relationship management systems*

DMO's must understand the consumer needs and create products and services to identify with those needs. However, customers differ, hence the market is divided into segments that have similar characteristics and behaviours, which are manageable and meaningful (Jooste, Strydom, Berndt & Du Plessis, 2012:127). Kotler and Keller (2012:236) confirm that a market segment consists of a group of customers who share a similar set of needs and wants. McDonald (2013) has pointed out that depending on whose research you read, the years defining the age groups may vary a bit, and suggests the following guideline:

- Matures (Greatest) – Born before 1945
- Baby Boomers – Born between 1946 – 1964
- Gen X – Born between 1965 -1981
- Gen Y (Millennials) – Born between 1982 – 2004
- Gen Z 2005 – Present

Today organisations are utilising information about consumers to enact precision marketing designed to build long-term relationships. According to Khodakarami and Chan (2013), customer knowledge depends on an organisation's ability to capture, convert and combine consumer requirements from various sources. Customer relationship management is the process of carefully managing detailed information about one's customers and customer touch points to maximize loyalty. For a DMO the touch points are the destination activities, products, consumer experiences and so forth.

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CRM software applications are one component of ICT that can support the organisation in managing such information. According to Maoz and Manusama (2016), the common capabilities of modern CRM systems applied in tourism include:

- Tourism stakeholder management
- Knowledge management
- Real-time decision support
- Support for collaborative online communities
- Integrated email, chat, and collaboration tools
- Multisource search optimisation and authoring
- Social media engagement and community monitoring
- Full support of customers using mobile devices (such as support for mobile messaging, chat and content)
- Support of video libraries and video chat with customers using the Web and mobile devices
- Tourism stakeholder feedback management
- Predictive customer analytics
- Offer management/sales capability
- Virtual customer assistant/proactive smart agent capability

DMO's compete both globally and locally in trying to increase the number of visitors to a destination. To attract consumers DMO's need to be aware of the various preferences a consumer has. Consumers plan a holiday by searching for information using various channels. DMO's need to be able to associate a consumer with the information they seek. Khodakarami & Chan (2013:29) go further and state that CRM Systems are used to gather and integrate customer knowledge and by doing so create new knowledge.

#### *2.5.4 Social media*

Social media is a form of ICT that is used by consumers to share images, text, video and audio information with other consumers and organisations, and vice versa (Kotler & Keller, 2016:642). Social media is commonly referred to as a platform for digital marketing. According to Hays, Page and Buhalis (2013) social media is one of the ICT's currently utilised by some DMO's to promote a destination.

The three main ICT platforms for social media according to Kotler and Keller (2016) are online communities and forums, blogs, social networks such as Facebook, Twitter, and YouTube. Owyang (2017), states that online communities and forums are like social mixers. Communication on this platform is many to many and everyone is seen as equals. The online communities and forums are segmented based on topics of interest and not by the relationship of the people that comment. Blogs, on the other hand, is likened to a person giving a keynote speech. One-person communicates the actual message. Input takes the form of questions and comments. Social networks are driven by people that share a common relationship or interests rather than just the topic.

#### *2.5.5 Online communities, forums and blogs*

These ICT platforms allow abundant dissemination of information via blogs, forums, communities, and specific websites (Mauri & Minazzi, 2013). These online platforms are important sources of information for both DMO's and consumers as products and services are evaluated by other consumers ( Lee & Cranage, 2014).

Such discussions include all four phases of the tourism lifecycle. Online travel communities, blogs and forums are also known as digital platforms and electronic word of mouth (EWOM) that allow travellers to share their opinions and experiences about different destinations to help other potential travellers with destination choice and route planning (González-Rodríguez, Martínez-Torres & Toral, 2016). Ladhari and Michaud (2015) confirm that electronic word of mouth is well established in the field of information retrieval and purchasing decisions, particularly in the tourism sector.

Online travel communities provide information not only about the post-visit of a destination, but also about the quality of the online information provided, helping others to trust that information and consequently to build the pre-visit destination image. The quality of the information found on online communities is guaranteed by the peer evaluation in terms of various ratings that other members use to rate the truthfulness and helpfulness of the information provided (Zheng, Zhao & Stylianou, 2012).

#### *2.5.6 Tourism mobile applications*

Today smartphones and tablets are everywhere. The ability for marketing departments within DMO's to personalise audio and visual content based on the market segments and other consumer behaviour characteristics makes mobile ICT an obvious choice for marketing and promotion. According to Wang, Xiang and Fesenmaier (2014), mobile devices have evolved into smart devices which are fully functional computers. These smart ICT devices come in various sizes and include powerful and efficient processors, modern operating systems like Android, IOS and Windows mobile. In addition, these smart ICT devices include various methods of connectivity, have user-friendly interfaces and accommodate a variety of smart applications that are installed based on consumer preferences.

The study conducted by Wang, Xiang and Fesenmaier (2014) indicates that the motivation for travellers to use mobile ICT is as follows: Plan a trip, navigation, things to do at a destination, food choices, accommodation search and bookings, safety information and the need to be always connected to information. Some DMO's are already taking advantage of mobile ICT's. One such study to highlight this is the study conducted by Panahi, Woods and Thwaites (2013) where a location-based mobile tourism application was developed. The mobile application operated on the Apple IOS platform and displayed cultural tourism attractions in Kuala Lumpur, the capital of Malaysia. The application used the current location of the traveller and was able to display and recommend attractions in the area.

Within the context of supply and demand, Mobile applications can incorporate the supply of tourism products. An example of such is the "Awesome South Africa" mobile application. In the review, Pillay (2015) has stated that the tourism application incorporates both tourism products and local small to medium enterprises advertising their offerings. The app used location-based

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functionality to recommend a local business that can be utilised by the traveller. This provides local businesses with an opportunity to generate income thus adding to the South African economy.

#### *2.5.7 Virtual and augmented reality*

Virtual reality thus far has contributed in a variety of contexts such as enhancing video games, architecture projects and within tourism, but the application of such ICT is so vast that we find the presence of this ICT in different forms of entertainment, education and to other sectors which enable living experiences with relevance (Guerra, Pinto & Beato, 2015).

Virtual reality technology is a form of ICT that take on a tangible form allowing consumers to immerse themselves in a digital world encompassing a variety of destination experiences. According to Han, Jung and Gibson (2014), augmented reality is an enhancement of the real environment by ICT generated content. Kotler and Keller (2016:468) have stated that virtual reality can be used to market a product or services and such ICT incorporates the use of a computer, sensory devices such as gloves or goggles to simulate a real experience.

According to the study by Neuhofer, Buhalis and Ladkin (2015), smart technologies like virtual reality need to be implemented to create personalised tourism experiences. Recently emerged augmented reality applications (Yovcheva et al. 2013) have been increasing to assist tourists with their holiday planning. ICT like virtual, augmented reality and other new technologies that promote tourism have become the current trend today even though still in its infant stages. Smart technologies in holiday planning should align with the concept of customer empowerment leading to a quick decision resulting in a holiday booking.

Coldwell (2014) advises that the future of tourism will incorporate virtual reality technology as a destination test drive mechanism where potential travellers will be able to use a variety of virtual reality ICT to experience tourism products like visiting a room in a hotel that you interested in booking as part of holiday planning, or comparing experiences between destinations in making a holiday decision. The globally renowned popular hotel group Marriott Hotels has over five hundred hotels in more than fifty countries around the world. Marriott Hotels is one such example of a tourism organisation that has used ICT to gain a competitive edge. Marriot International Inc. (2015) has indicated that the hotel group has implemented two key ICT virtual reality projects. A “Vroom Service” where consumers can rent a virtual reality headset and partake in virtual reality experiences right from their room and the second ICT disruptor being a virtual travel content platform called “VR Postcards”. VR Postcards includes travel stories that travellers experience in 360 3D via a virtual reality headset. The traveller is taken on a journey to a unique destination. The traveller becomes part of the experience which is one of the benefits of using such ICT in tourism.

## **RESEARCH METHODOLOGY**

This research used the quantitative approach to understand what ICT is best suited for a destination management organisation. Both descriptive and inferential statistics will be utilised. According to Saunders, Lewis and Thornhill (2016: 175), descriptive research is used to gain an accurate profile of events, persons or situations. Inferential statistics make inferences about populations using data

drawn from the population (Saunders, *et al.*, 2016: 728). This study will utilise a survey research strategy and be cross-sectional in nature.

### **3.1 Target population**

Consumers of tourism are situated around the globe. It is not practical to get a response from all consumers hence a target population has been created. According to Saunders, *et al.*, (2016: 275), the researcher may redefine the population as something more manageable. This subset of the population is referred to as the target population. The target population includes employees from Tourism KwaZulu-Natal, employees from South Africa Tourism, tourism business operators in South Africa and abroad, tourism ICT solution providers and general consumers from a variety of professions. The target population are all consumers of tourism at some point in life.

For this study, the researcher used simple random probability sampling. This ensured that all stakeholders are given an equal opportunity of taking part in this study as opposed to just stakeholders from the tourism sector. The research instrument to obtain the data is an online survey. The survey instrument will target a minimum sample of one hundred responses for this study.

### **3.2 Pilot study**

Ten candidates were selected by convenience sampling from the target population to partake in the pilot study.

### **3.3 Validity and reliability**

Face validity was utilised in the pilot study. The participant was able to understand the questions as they are depicted. This was done for both understanding the questions and analysing the results including having a discussion with participants from the pilot study to confirm the understanding of such questions. This ensured that both the researcher and the participant's understanding of such questions were synchronized.

Parallel forms of reliability were tested. The researcher changed the order of the questions and included alternate section titles. The original questionnaire was administered first and then the alternate questionnaire. This was then given to the pilot study participants. It was noted that the results were 99% accurate. Test-retest reliability was tested during the pilot study. The researcher on two occasions administered the same questionnaire to the same participants. The results were identical.

### **3.4 Limitations of the study**

According to Saunders, *et al.*, (2016:642), virtually all research has its limitations. Examples of such limitations may include the size of the sample, the restriction to one geographical area of an organisation, and so forth. This depends on the study being conducted.

There were a number of factors that limited this research study. One limitation was the length and timeframe for the dissertation resulting in the findings being determined with a limited database and resources. The second limitation was the scope of the study. The study excluded ICT data structures that can be adopted in a DMO. Additional time and resources will be needed to conduct this study. The third limitation included the geographic scope. Ideally, such a study should attempt to receive input from all major global countries. However, due to time and resources, only a few

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global countries participated such as the United Kingdom, India and Portugal. An improved insight would have been obtained had the study been extended in time and length. A broader range of organisations in different areas of tourism could have participated and contributed to understanding consumer ICT in the tourism sector.

### **3.5 Elimination of bias**

The researcher remained objective and unbiased throughout this study. Evidence such as the following is in support of this:

- The questionnaire does not make reference to race in the questions put forth to the participant. The questions refer to “I”. The general information section obtains this information from the participant for the purposes of this study only.
- In the literature review, there is no evidence that suggests the study was biased against race, gender, language or other factors.

### **3.6 Ethical considerations**

According to Saunders, et al., (2016), a research design is formulated to minimise ethical concerns and avoid unethical practice. This section provides details on ethical considerations included in this study.

#### *3.6.1 Permission to conduct the study*

The research is being conducted on behalf of TKZN. To ensure that proper authorisation and permission was granted to conduct this study, a letter of authorisation was signed by the Chief Operations Officer at TKZN.

#### *3.6.2 Participants formal consent*

Participants must be informed of their rights and provide consent that will enable them to partake in the study (Saunders, et al., 2016). The letter does thank participants for consenting to participate and advises that participation is voluntary, hence no person is forced to comply with this process. In addition, no person was coerced to participate in this research study.

#### *3.6.3 Confidentiality and anonymity of participants*

According to Saunders, et al., (2016: 713) the researcher should take steps to ensure that the identities of the participants are protected. The name of the person is optional in this study and in cases where the works of other authors are utilised, the various publications are cited and acknowledged. The data that was collected as part of this survey was protected via identity management software hence to obtain the details of this research the correct username and password will need to be entered. This username and password is only known to the researcher and will not be shared under any circumstances. In addition, the backend data is stored in an encrypted format that is enabled on the Google drive platform.

#### *3.6.4 Ensure no harm comes to participants*

The researcher declares that the personal details of the participants are not mandatory. The participant may remain anonymous. Furthermore, they are free to opt out at any moment. The responses of the participants are treated with the highest confidentiality level and the data is protected.

## RESULTS

In this section, the results will be interpreted and further discussion will take place within the required context of a DMO. The discussion will be grouped into the four phases of tourism.

### 4.1 Holiday planning

Consumers or travellers use a variety of ICT when planning a holiday. This ICT may include travel and tourism websites, tourism reservation systems, search engines like Google and Bing, and destination management websites. According to Xiang et al. (2014) tourism websites are the most frequently used in gathering information during holiday planning. In this study participants were presented with a variety of ICT options when planning their holiday including tourism websites. It was found that when planning a holiday the participants preferred to utilise the following to find information ranked in order of choice. (Highest to lowest)

- Search engines – 97%
- Social media - 95%
- Tourism websites – 88%
- Travel agency – 73%
- Tourism mobile applications - 72%
- Tourism blogs – 71%

This clearly indicates that there has been a paradigm shift as search engines have overtaken tourism websites as being the most popular choice. Social media, on the other hand, is growing at an exponential rate with billions of consumers already actively using these platforms. Linked closely to search engines is tourism websites. Hence tourism websites must be search engine optimised and provide up-to-date information for this ICT platform to remain relevant and be found by search engines such as Google, Bing and so forth. The travel agency, tourism mobile applications and tourism blogs have ranked well. The role of the travel agency is still a popular choice even with so many ICT interventions in existence. The human factor could be linked to the performance of this indicator as all other indicators are technology driven. Both tourism mobile applications and blogs are growing platforms.

Within the various ICT platforms information is presented via different formats. According to Neuhofer (2016) an experience is associated with an emotion and the way it makes an individual feel. Content has a close link to emotion. The participants have rated the information formats they prefer as being (Highest to lowest):

- Digital destination pictures – 98%
- Online user reviews – 95%
- Destination videos – 90%
- Virtual reality – 80%
- Printed travel brochures – 79%

Participants in this study preferred the use of digital destination images or pictures to help them in the holiday planning stage. This is followed closely by actually reading what others have to say about the destination. In addition destination videos, virtual reality and printed travel brochures all create a certain emotion within a consumer or traveller. This is human behaviour. Humans often

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make decisions based on how something makes them feel. In the case of tourism content, if the feeling induced in a consumer is positive then this may lead to a holiday booking in the near future. Therefore, ICT content must be of a high quality.

#### **4.2 Holiday booking**

Today, ICT has made it possible to book a string of goods and services online, tourism included. This section obtained information about the participants' booking preferences. Today a consumer or traveller can book a holiday via online channels such as online reservation systems or through a travel agent. The participants have rated their preferences as follows: Online reservation system – 94% and Travel agent – 68%.

The traditional travel agent is still in existence as there are a variety of consumers or market segments. Some prefer the human interaction which ICT platforms omit. In this case, the travel agent will remain in existence until such time as those market segments are converted in the minds of the consumer. Travel agents have limited access to holiday options as opposed to online holiday packages where there are abundant choices of tourism providers, packages, routes and tourism products. ICT in the form of the online reservation system was the popular choice in booking a holiday.

#### **4.3 On holiday**

Travellers on holiday are in possession of various ICT devices. These devices include numerous functions. Such functionality can be exploited in the tourism sector. Examples of this can be described as electronic destination brochures, destination mobile applications, geo-location hardware that is able to locate your position and the positions of tourist attractions, mobile purchasing, virtual reality experiences and many others. In this section, the participants were asked what they bring along while they are on holiday for the purposes of getting additional information about the destination. Participants responded as per rankings below:

- Mobile device – 98%
- Printed travel brochures – 87%
- Tourist guide – 85%
- Tourist information office – 80%
- Laptop – 75%

When participants were asked about their preferences regarding a technology-enabled holiday destination where they are able to use their technology devices to interact with the destination ICT, 97% were favourable to this. DMO's need to ensure that the destination has suitable ICT platforms that are able to interact with consumer ICT devices such as smartphones, tablets and so forth.

#### **4.4 Post-holiday**

A DMO should utilise the same platforms that consumers or travellers use to share their experiences. To be effective a DMO needs to determine what these platforms are. The participants rated the following platforms when sharing their holiday experiences.

- Word of mouth – 97%
- Social media – 94%
- Tourism websites – 77%

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- Tourism mobile applications – 74%
  - Tourism blogs – 65%

In the ICT world family and friends, both local and global, exist on social networks such as Facebook, twitter and so forth. Tourism websites must allow travellers to provide feedback via the website including options for images, videos and other such traveller content to be uploaded and shared via the website platforms. Tourism mobile applications are growing at a rapid rate.

#### **4.5 General information**

This section gives insight into the participants who are the consumers of tourism or travellers and their preferences. In this study, 7% of the participants were 18-24 years old. 33% of the participants were inclusive of 25-34 years old. 37% of the participants were 35 – 44 years old. 17% of the participants came from ages 45 – 54 years old and 6% of the participants came from the ages of 55 – 64 years. There were no participants that came from ages greater than 64 years. All participants were employed making them a better candidate to afford a holiday. 100% of the participants owned or utilised a computer and a mobile device. 87% owned or utilised an IPAD / tablet and 65% owned or utilised a virtual reality headset. The ICT devices utilised by the participants is high hence DMO's must ensure that there is up-to-date tourism content available on these platforms. If the content is missing from these platforms then there is a possibility that a competitor may attract that market segment. Cross-tabulations revealed that 100% of participants from age group 18 – 24 years owned a virtual reality headset. This age group is the new generation and to attract them DMO's need to engage with them on platforms that they prefer to utilise. Participants prefer to use Apple and Microsoft Windows computers over other popular operating systems like Linux. This is important to note as it will determine what computer platforms the DMO should invest in. When it came to smartphones, Apple IOS and Android seemed to be much more popular than the Windows smartphone. Emerging economies such as South Africa need to invest in ICT platforms where the best returns can be obtained, this includes investment in mobile technologies.

### **CONCLUSIONS AND RECOMMENDATIONS**

The primary findings were obtained from the research questionnaire. To ensure that the questionnaire was in line with the human thinking process and not inundated with ICT platforms, systems, hardware and so forth the approach used was from a tourism perspective and not ICT. The questionnaire incorporated ICT from four distinct phases known as the tourism lifecycle (holiday planning, booking a holiday, on holiday, and finally post-holiday experience sharing).

#### **5.1 Holiday planning**

The holiday planning section provided the DMO with insight as to what ICT consumers or travellers utilise when planning a holiday. The statistics in this section have indicated that the top three platforms that consumers or travellers utilise when doing holiday planning are search engines, social media websites and tourism websites. On platforms like these the top three types of content that travellers or consumers consume to get information are destination pictures, online destination user reviews and destination videos. The top three platforms that the participants prefer

to use for itinerary planning are recommendations from family and friends followed by social media websites and finally travel and tourism websites.

### **5.2 Booking a holiday**

This section obtained information about the participants' booking preferences. DMO's can utilise this knowledge to provide enhancements to their current offerings or introduce a new offering that is based on consumer preferences. In this study, 94% of the participants preferred to use an online reservation system as opposed to only 61% of participants opting to use a travel agent.

### **5.3 On holiday**

This section of the study focused on the use of ICT while on holiday. Here the top three choices for obtaining information while on holiday were using a mobile device followed by using a printed brochure and finally using a tourist guide. 97% of participants preferred to use their ICT devices to interact with the destination as opposed to only 3% that did not favour this option. This shows clearly that travellers prefer to use their mobile ICT devices while on holiday. A DMO, therefore, may want to incorporate destination ICT platforms to interact with such devices.

### **5.4 Post-holiday experience sharing**

A DMO should utilise the same platforms that consumers or travellers use to share their experiences. The post-holiday experience sharing section determines what these platforms are. The top three channels that travellers or consumers used to share their holiday experiences were word-of-mouth, social media and tourism website feedback forms.

### **5.5 General information**

The consumers or travellers that took part in this study came from various backgrounds which included travellers, destination management organisation employees, tourism ICT providers and general consumers from different professions. All participants owned or utilised a computer system and a smartphone. 87% of the participants owned or utilised a tablet / IPAD. 65% of the participants owned or utilised a virtual reality headset. It was noted through cross-tabulations that 100% of the younger generation (18 to 24 years) owned or utilised all four devices, hence to attract this generation of consumers or travellers DMO's need to ensure that there is content available on these platforms.

Consumers often prefer to use more than one device inclusive of various operating systems. 90% of the participants preferred to use the Apple Mac with its OS X operating system. 95% of participants preferred to use the Microsoft Windows operating system. 30% of the participant's preferred to use the Linux operating system and 10% preferred the Google Chrome OS. This equips the DMO to determine what application platforms to invest in. 99% of the participants utilise their mobile devices throughout the day, hence this becomes a perfect platform to communicate with a potential traveller and existing travellers. In addition, 97% preferred the Apple IOS found in Apple iPhone's or iPads 90% preferred the Android which is made by Google and 57% preferred the Microsoft Windows mobile OS. Using this insight DMO's are able to invest in developing mobile applications in the popular platforms as opposed to all platforms which incur additional cost. The top three social networks used are Facebook, YouTube, and Instagram. Using the information presented in the general information section, DMO's are able to make decisions based on relevant data in support of such decisions or investments.

### 5.6 Recommendations

On the basis of this study, the following recommendations can be made to the TKZN executive management.

- Both supply and demand are critical for the tourism sector to flourish. Thus having relationships with both consumers and tourism organisations that provide products and services are mandatory. Being able to interact with these tourism stakeholders is vital for the promotion of KwaZulu-Natal. ICT such as CRM application systems supports this business process or function and will aid the organisation to store, track and report on engagement with tourism stakeholders. This includes marketing and promotions, complaints, compliments, general enquiries and so forth. Over a period of time, the CRM application system will provide the entity with suitable business intelligence that can be utilised to make business decisions for events such as the Tourism Indaba and other trade shows that showcase the province.
- Tourism information dissemination is critical for the DMO. Today this information dissemination must include ICT platforms in addition to the various other sources. ICT platforms that arose from the study include information that will need to be accessed on traditional desktops and laptop-based ICT, mobile devices such as smartphones and tablets, virtual and augmented reality ICT and web-based ICT such as websites and e-commerce web platforms. The DMO must ensure that all ICT investments that provide information dissemination are responsive to the various ICT platforms used in the marketing and promotion of the province.
- Closely linked to tourism information dissemination and forming a major component within ICT is the utilisation of software applications. In support of the marketing and promotion of the province the following inclusive of the CRM application system already discussed are favourable.
- Destination management websites – The DMO website proves to be a vital source of tourism information. DMO websites must include the social element by incorporating tourism blogs and, or tourism forums. This will encourage tourism stakeholder involvement. Tourism websites must have a solid support structure to ensure the information presented on such platforms are up to date and written in ways to attract the consumer. The DMO website must include tourism products and services inclusive of tourism routes, activities, shopping experiences and other such places of interest. A special focus should be the unique experiences found in a destination thus providing a competitive edge when marketing the destination. The study reveals that travellers prefer the one-stop-shop, hence a further ability to transact online is a definite requirement.
- Social media platforms – It became quite evident in this study that consumers prefer to utilise social media for planning a holiday, while on holiday and to share holiday experiences. Social media platforms have millions of active consumers already. Consumers rather make a holiday decision based on visual content such as destination images and videos then plain text. In addition, consumers value the opinions of other such travellers that have visited the destination as opposed to the generic marketing and promotional material. Creative content mixed with local lingo is vital in order to attract the various

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market segments. For this reason, it has become mandatory that DMO's dedicate time and resources in social media marketing and promotion. The top social media platforms have been presented earlier on and suitable investment should be made on these platforms.

- Tourism mobile applications – A consumer is associated with his / her own mobile device. In this study, it has been noted that mobile device ownership has overtaken the traditional computer system. In addition, consumers utilise this mobile ICT device at various times during the day making it a perfect tool for the promotion of a destination. In addition, these mobile devices are popular while on holiday as the ICT device incorporates location-based services. Location-based services allow the traveller to use ICT to experience the destination by finding various places of interest and so forth. These mobile ICT devices are manufactured with a camera and ability to record videos, hence tourism mobile applications should utilise this base functionality inclusive of sharing options within such tourism mobile applications. All information presented must be responsive to allow the consumer to have the best experience possible.
- Virtual reality ICT – Virtual reality is gaining momentum with a few tourism organisations that have already made investments into this platform. Consumers want experiences and virtual reality ICT is able to provide an almost real-like experience. Examples cited in this study include the use of virtual reality for decision making in terms of hotel room experience, destination experiences including heritage sites where a physical tour might not be possible and various others. Virtual reality ICT is able to induce emotion which can lead to consumers making a holiday booking. Various tourism experiences can be captured and showcased using virtual reality incorporating virtual reality on mobile ICT, using web ICT and utilising the high-end virtual reality headsets to provide the optimal experience. This platform is a favourable investment for the DMO.

### 5.7 Conclusion

The tourism industry exists because of the traveller. Many such countries promote tourism as they have realised the potential that this sector has to offer in terms of economic growth. It is critical that DMO's are able to understand their consumer's needs and at the same time create valuable relationships with tourism organisations that provide products and services. In essence, it is the supply and demand. ICT is needed to manage the relationships the DMO has with key stakeholders.

Due to the various market segments, personal preferences and global competition tourism information have to reach the entire world. ICT is one possible solution to these challenges. In addition, information must be presented in various formats and devices if the DMO wishes to attract a variety of consumers.

ICT is widely used by consumers for various functions, tourism included. However, with abundant ICT platforms that exist today, consumers decide on what ICT platforms to utilise. Like many other organisations, DMO's need to tap into these existing platforms and leverage of the millions of existing consumers rather than creating new platforms of similar functionality. An example is social media platforms that have millions of existing active users.

Using online internet-based platforms is another key area. However, there is evidence from this study that shows consumers use search engines to find content available online. Therefore, where

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possible, all digital online content should be search engine optimised and marketed. This will ensure that the content provided by the DMO is found by the consumer.

Consumers are attracted by ICT hence making mobile applications and virtual reality popular sources for promoting tourism-based experiences. The DMO website was cited to be a vital source of tourism information inclusive of the capability to transact.

The scope of this study included suitable ICT that can be utilised in the tourism sector in the promotion of the province of KwaZulu-Natal. Further research can be conducted in the use of search engine optimisation as digital content has to be search engine optimised allowing consumers to easily find these resources. In addition, the remainder of the ICT and consumer model can be explored in greater detail. The timeframe limitation warrants case for further research as input will need to be obtained from various other global countries which might yield additional results in the field of consumer ICT. ICT is a major disruptor and will continue to be so, hence ICT in support of tourism will be an ongoing study.

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