Current state of adoption of technology in visitor information centres in Gauteng, South Africa

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Abstract

Globally, Visitor Information Centres (VICs) are increasingly being recognised as touchpoints contributing to the success of tourism destinations. Recent developments in cutting-edge information and communication technologies (ICTs) provide immense opportunities for destination marketing organisations, particularly VICs mandated with dispensing timely, accurate and reliable information. Despite documented contribution of these ICTs in 'Global North' countries, there is a deficit in 'Global South' countries insofar as the adoption and usage of technology is concerned. This is evident in South Africa. This paper stems from exploratory research into VICs in Gauteng province, which is the economic powerhouse of South Africa. The main aim of the paper is to report on the level of adoption and usage of ICTs in VICs in the Gauteng province of South Africa. An exploratory survey design was used with 25 VIC staff respondents. The survey aimed to expose the level of adoption and usage, the most effective ICTs, training in ICTs and ICTs desired for future use. The results indicate that the adoption and usage of ICTs in Gauteng are still in the embryonic stages and trail behind the latest trends in ICT developments in tourism. Staff are aware of the benefits of newer ICTs such as social media platforms and interactive websites, and would like to use these in future. However, training on current ICTs is lacking.

Key words: destination, ICTs, social media, Visitor Information Centres (VICs), technology adoption.

1. Introduction

Visitor information centres (VICs) have long been part of the tourism landscape despite the considerable changes in their form and structure over time (Lebski, 2020). Several destinations, from developing and developed countries alike, embrace the VIC concept with considerable enthusiasm due to its contribution, both socially and economically. For example, across Australia, Canada and New Zealand, a visit to a VIC can significantly increase visitor expenditure, and VICs further boost the local economy by stocking local products and employing local staff and volunteers. In addition, quality service results in better experiences, longer stays, repeat visits and positive word-of-mouth recommendation (Alberta Government, 2017; Lebski, 2020; McIlrath & Gordon, 2015; Tourism Research Australia, 2016).

Ho, Lin and Chen (2012) and Lebski (2020) note that tourism is an information-intensive industry and VICs are critical information touchpoints for the visitor. Research has identified five important benchmarks for the success of VICs, namely: prominent location providing a sense of welcome; flexible spaces providing visitors with the reason to visit; visitor-aligned functionality free of confusion and congestion; well-trained knowledgeable customer service providing authoritative, unbiased quality information; and innovative technology that complements staff advice and is integrated across all platforms, user-friendly and simple to update and maintain (DiPietro, Wang, Rompf & Severt, 2007; Lebski, 2020).

ICTs have come to the fore due to their exponential growth as the new normal in business strategy (Ammirato, Felicetti, Gala, Raso & Cozza, 2018, Usakli, Koc & Sonmez, 2017). In view of the global COVID-19 pandemic, ICTs have become even more significant and necessary. The use of ICTs and social media in dispensing accurate and up-to-date information are the 'new normal' and have dramatically influenced and changed how tourism and hospitality produce, market and deliver their products (Lyu & Lee, 2015; Tichaawa, Mhlanga & Sicwebu, 2017). The use of these ICT platforms, however, requires knowledge of the latest trends in the market.

Existing scholarship has focused on the contribution of technology in VICs (Deery, Jago, Mistilis, D'ambra, Richards & Carson, 2007; Draper, 2016; Lyu & Lee, 2015; Lyu & Hwang, 2015; Tena & Raquel, 2014; Pearce, 2004; Ballantyne, Hughes & Ritchie, 2009; Mistilis & Gretzel, 2014; Tourism Research Australia, 2016). Most of these studies agree that ICTs provide a range of opportunities for those operating VICs. However, most of these studies focus on Global North

countries, which are developed and have stronger economies. There is currently a deficit of scholarship on countries in the Global South, particularly in Africa, regarding how they have embraced technology in VICs to produce, market and distribute tourism products (Esselaar & Miller, 2001; Mxunyelwa, 2019; Tichaawa *et al.*, 2017; Usakli *et al.*, 2017). Mxunyelwa (2019) notes that publicly there is limited reliable information available about ICTs in South Africa. The amount of research on the adoption and usage of ICTs is limited in developing countries, in contrast to findings from developed countries. These findings cannot be transferred in their entirety to developing countries, as these countries operate in a very different context.

Moreover, several of these studies are consumer centric, suggesting that travellers' use of ICTs, particularly social media, has been studied from a demand-side perspective as compared to the supply side. Less attention has been given to those involved in funding and operating these VICs such as managers, staff and owners (Fallon & Kriwoken, 2003; Smith & Holmes, 2012; Zehrer, Muskat & Muskat, 2014; Usakli *et al.*, 2017). Bedard, Louillet, Verner and Joly (2008) as well as Zehrer *et al.* (2014) are of the opinion that before organisations strive to meet visitors' demands, VICs need to conduct an introspective search and enhance their internal capabilities. More knowledge is required on how VICs have adopted and used ICTs to engage with potential visitors - from a staff and management perspective.

This study partially addresses the abovementioned research gaps by reporting on the level of adoption and usage of ICTs by the staff and management of VICs in the Gauteng province of South Africa. Global North economies tend to be forging ahead with the adoption of ICTs whereas Global South economies are at times experiencing challenges to keep pace with the emerging technologies. The paper seeks to explore the current situation and compare it to established economies.

The paper commences with a review of literature on the interrelationship between ICTs and tourism, and proceeds to destination marketing and ICTs. The methodology applied is explained, followed by the results and discussion of the findings. In the conclusion, the main findings are highlighted. Opportunities for future research are noted, and suggestions are made about the way forward for Gauteng VICs.

2. Literature review: overview of ICTs and its importance to VICs

The literature commences by discussing the relationship between ICTs and tourism, followed by a section on destination marketing and ICTs.

2.1 The interrelationship of information and communication technologies (ICTs) and tourism

The strict definition of ICT encounters some difficulties, due to a wide range of platforms falling under it. In the available literature, ICT broadly refers to multiple communication technologies to include the Internet and smartphone applications creating a more competitive market. These ICTs are inextricably linked to tourism and accelerate the development of this sector of the economy (Camilleri & Neuhofer, 2017; Swart, 2016). Tena and Raquel (2014) and Tichaawa *et al.* (2017) state that the rapid development of ICTs is a boon for the tourism sector and a fundamental part of a contemporary tourism businesses in both developed and increasingly in developing contexts.

Existing literature focusing on the benefits of ICTs in tourism is manifold. Major contributions touted for the tourism industry are: movement of the global rich to international markets of lesser known or unknown destinations; reduction in operating costs; easy accessibility to information in real time; heightened customer satisfaction levels; improved business performance; improved company image; increased competitive advantage; and quality and flexibility in service delivery (Mxunyelwa, 2019; Perakakis, Trihas Venitourakis, Mastorakis & Kopanakis, 2017). ICTs therefore provide the tourism industry with opportunities to provide wider, deeper and more customised offerings to a pool of potential visitors at affordable costs (Buhalis & Sinarta, 2019; De Waal, 2015; Diaz, Consuegra & Estaban, 2015; Neuhofer, Buhalis & Ladkin, 2015; Wang & Xiang, 2012). Despite the aforementioned benefits, there are concerns among other researchers that ICTs will take over people's jobs particularly in the VIC sector, resulting in co-destruction and lack of customer service (Arana, Leon, Carballo & Gil, 2015; Lyu & Lee, 2015). Sigala (2009) provides a convincing argument that ICTs strengthen industry strategy and operations. To this end, many city destination organisations, nowadays, have incorporated social networking features into their business model and strategy in order to further enhance communication with customers and benefit from the electronic word-of mouth (Neuhofer, 2016; Munar, 2012).

In light of the above, recent research has shown that VICs are embracing ICTs to effectively meet their visitors' information demands (Connell & Reynolds, 1999; Di Pietro *et al.*, 2007; Deery *et*

al., 2007; Lyu & Lee, 2015; Lebski, 2020; Tourism & Events Queensland, 2013). For example, VICs in the United States of America (USA), Canada, Australia and New Zealand, which are considered as having some of the best practices in the management and operation of VICs, have widely embraced ICTs along with face-to-face contact (De Ascaniis, Mistilis & Gretzel, 2012; Tourism Research Australia 2014, 2015, 2016; Tourism & Events Queensland, 2013).

Tichaawa *et al.* (2017) assert that countries without ICT infrastructures are unlikely to keep pace with other countries or destinations with significant ICT infrastructure. It is therefore imperative for VICs in developing countries to vigorously embrace ICTs in order to attract the techno-savvy modern visitor and to compete globally. However, it should be noted that Africa and South Africa (as the focus of this paper) are lagging behind in the use of ICTs. Tourism businesses in these countries tend to use ICTs less than those in developed countries (Tichaawa *et al.*, 2017).

2.2 Destination marketing and ICTs

One of the responsibilities of VICs is destination promotion and marketing at a local level regardless of the size, structure and type of the VIC (Ballantyne *et al.*, 2009; Cox & Wray, 2011; Pearce, 2004). In this regard, the marketing and promotion of the destination to potential visitors are vital. However, there are varied ways, opinions and tactics that can be employed (Pike, 2004). Research emphasises social media as one of the most important and effective ways for VICs to enhance competitiveness. Lee and Wicks (2010) assert that there is general consensus that social media can play a vital role in the marketing and promotion of tourism destinations. The main type of social media sites which can be used by destination management organisations include Facebook, Twitter and Tumblr.

To inform and guide the adoption and use of ICTs in services industries, Bedard *et al.* (2008) developed a model and coined it 'The pyramid of adaptation to new technologies in services'. The model is depicted by a pyramid, which captures the pertinent dimensions when adopting new technologies. Three fundamental aspects of the model are training, use and acquisition. This pyramid is depicted in Figure 1 below.



Figure 1: The pyramid of adaptation to new technologies in services (Bedard et al., 2008)

In Figure 1, training in ICTs is placed at the top in order to highlight its strategic importance in knowledge-based firms. It therefore occupies a central role in companies aiming to be effective in the dissemination of information. Training encompasses the activities of sensitisation, observation and diffusion of knowledge related to ICTs (Bedard *et al.*, 2008; Sayira, 2015; Wessels, 2014).

The use and acquisition of new ICTs are at the base of the triangle. Arrows are provided to illustrate the relationship between the three aspects. Acquisition relates to the buying of ICTs, the extent of which is controlled by the available budget. The pyramid is framed by four words - partnership, group, alliance and consortium - each expressing the associative structure. These illustrate the general trend for companies to join forces in order to better face the challenge of the new economy. In line with the growing importance of ICTs in tourism consumption, the research on which the study is based focuses on the current situation of the adoption and usage of ICTs in Gauteng VICs.

3. Methodology

This research is exploratory in the sense that it searches for new insights into VICs in Gauteng and aims to assess the phenomena in a novel way, in this case via the supply side (Saunders, Lewis & Thornhill, 2007).

The study sites are the VICs in Gauteng province. VICs are very important in cities, being advisors of the territory once the visitor has arrived in the city (Tena & Raquel, 2014; Tourism Research

Australia, 2015). Gauteng province is the most urbanised and fastest paced economic powerhouse in South Africa and was therefore ideal for this research (Gauteng Tourism Authority, 2011; National Department of Tourism, 2015). Gauteng is one of the most visited provinces for both local and international tourists, and it is the main regional hub en route to other destinations (Madondo, 2016:18). The province has an excellent framework of versatile tourism services, ranging from urban nightlife, upmarket shopping malls, historical and cultural sites, outdoor landscapes, and upmarket conference facilities for business tourists. Of the 11 VICs in Gauteng, eight participated, namely Wonderboom, Church Square, Emfuleni, Benoni, Hatfield, OR Tambo, Zinikele and Mogale (see Figure 2).



Figure 2: VICs in Gauteng province

Survey research involves eliciting responses to direct questions, which are usually structured in the form of a questionnaire given to respondents (Finn & Elliot, 2000). The survey was aimed at VIC staff and was self-designed using existing literature, giving the study a theoretical grounding (Cooper & Schindler, 2011). The survey used open-ended questions (inviting open comments from the respondents) and closed questions (which comprised a range of different formats including the use of Likert scales) about the most important functions of Gauteng VICs. This paper, however, focuses on only one section of the survey, namely that of technology uptake and usage.

A pilot test was conducted with the National Department of Tourism's Tourism Services Manager followed by the National Department of Tourism's National Director of Research and Development. The effectiveness of the survey's wording and design were sharpened at this point. The final draft was sent to a panel of experts in the field of tourism management (a professor, a senior lecturer and a statistician), and their feedback was incorporated. This improved the reliability and the validity of the research instrument.

The researcher adopted snowball sampling for VIC staff who were in contact with visitors in Gauteng VICs. To be part of the survey, staff had to be employees at the VIC, either permanently or as volunteers, and in contact with visitors. Data were collected from October 2017 to January 2018. Surveys were dropped off at each VIC and later collected. A total of 35 VIC staff were employed in the eight VICs that formed part of this research. Of these, 25 staff members participated in the survey.

Quantitative data were analysed using the SPSS. The analysis used descriptive measures, such as frequencies, percentages and cross-tabulations. Qualitative data were analysed using thematic content analysis (TCA), which is widely accepted in qualitative studies for its flexibility (Smith & Holmes, 2012; Srivastava & Thomson, 2009; Vaismoradi, Jones, Turunen & Snelgrove, 2016). Inductive coding was used, with a focus on the words, phrases, context, frequency and specificity of the comments.

4. Findings from the Gauteng VIC staff

In this section, the demographics of the respondents are provided, followed by the results of the questions in the surveys that relate to ICTs.

Regarding the **demographics of the respondents**, a total of 25 staff members from the eight participating VICs formed part of this study. Eleven were male and 14 were female. The majority fell within the age group 21 to 63 years, with most participants being millennials below the age of 34. The level of education ranged from having matric to holding a degree.

According to the pyramid by Bedard *et al.* (2008), the use of ICTs is an important component in adapting to new technologies in services such as VICs. To determine the **level of adoption and usage of ICTs among VIC staff**, staff members were provided with a list of the various ICT and social media platforms and indicated which ones they were using. Table 1 indicates the results.

ICT resource/ method	Frequency (25)	Percentage (%)
A VIC website	11	44
A provincial website	11	44
An on-site electronic website	6	24
An off-site electronic website	3	12
E-mail lists	16	64
Social media: Twitter	6	24
Facebook	21	84
TripAdvisor	4	16
Instagram	6	24
Local radio	1	4
Local magazine	1	4
Electronic brochures	1	4
Can online users make bookings via the website?		
Yes	1	4.2
No	23	95.8
Missing	1	
Who provides your online service to the Internet?		
Server on site	4	18.2
Do not know	18	81.8
Other, specify		
Missing	3	
How often is the website information updated?		
Never	3	12.5

Table 1: Web and ICT usage in Gauteng VICs (n = 25)

Daily	-	-
Weekly	-	-
Monthly	1	4.2
Annually	1	4.2
Irregular basis	2	8.3
Do not know	17	68
Missing	1	4.2

The answers to the question of the level of adoption and usage of ICTs among VIC staff indicate that almost all the VICs have adopted some sort of ICTs in their operations. The general picture emerging from these surveys is that ICTs are imperative for a region's competitiveness; and they have been adopted at different magnitudes. Focusing on the ICT platforms, the most widely used technological platform is social media, particularly the Facebook platform, with a usage rate of 84%. Twitter and Instagram are not extensively used, with a usage rate of 24%; and TripAdvisor is used by only 16%. It appears that Gauteng VICs do not provide adequate social-media platforms on which staff may interact with potential visitors to the region. It is evident that Gauteng VICs are not responsive to current trends. E-mail lists have a usage rate of 64%. The next most frequently used technological platform, to help serve customers, are the websites. Table 1 indicates that both provincial and VIC websites are also used, with a usage rate of just below half (44%).

Further analysis on the platforms at the staff's disposal to assist visitors shows that the majority of Gauteng VICs do not have dedicated VIC websites; and their online presence is mainly through their local government websites and provincial government websites. Of these two, the highest online presence was through the local government websites, perhaps because the majority of the participating VICs fall under the jurisdiction of the local government. However, the websites do not have a booking functionality, as evidenced by the fact that 96% of respondents reported that customers cannot make online bookings via the websites.

Staff were also asked an open-ended question about **which ICTs were most effective and why**. Firstly, the frequencies relating to the most effective ICTs are presented, followed by the reasons why they are considered to be most effective. Figure 3 presents the most effective ICT platforms.



Figure 3: The most effective ICT platforms in use in Gauteng VICs (n = 25)

Facebook (44%) is regarded as the most effective followed by interactive websites (32%). E-mail and social media each recorded 16% while Twitter and electronic brochures recorded the least (4% each). While the majority of the staff acknowledge the importance of social media, its use among the staff is not pervasive. Therefore, in the context of Gauteng VICs, although Facebook is well utilised, the use of wider social media options appears to be under-utilised as a means to collaborate with both real and potential visitors.

Regarding the reasons for their choice of a particular platform as being the most effective, the recurring themes that emerged are accessibility (e.g. "... *Facebook is where people access information faster and more easily*"); convenience (e.g. [The website and social media are] "*user-friendly, and visitors can use them wherever*"); user friendliness and cost effectiveness (e.g. [social media] "*can reach a lot of people at once*") and modernity (judging from the responses, the staff understand that ICTs and social media platforms are important in the operation of VICs). These corroborate the advantages of using ICTs in tourism (Mxunyelwa, 2019; Perakakis *et al.*, 2017). However, while the VIC staff showed an understanding of the importance of the newer technologies, adoption of these is not high.

The Bedard *et al.* (2008) triangle highlights training as fundamental in adapting to new technologies. Jorgensen (2011) agrees and argues that ICTs, particularly social media, should be managed by skilled or trained personnel. Staff were therefore asked whether their respective VICs had provided them with sufficient training in respect of the use of technology. Figure 4 indicates the responses. Almost three quarters (68%) did not receive training in ICTs. It thus

appears that Gauteng VIC management have not extensively trained staff to ensure an optimal presence on these sites.



Figure 4: Sufficiency of training in the use of technology

Staff were further asked to indicate **ICT platform in use and duration of use** at their various VICs. A longer time of use of a technological platform denotes experience; while the number of applications denotes sophistication. Figure 5 presents the findings.



Figure 5: ICT platform in use and duration of use

Gauteng VIC staff are aware of the various social media platforms that are available. What is clear from these statistics is that the older technology of e-mail lists has been used within the VICs for over four years. It emerged that websites have been used by several VICs for three to four years. Interestingly, the social media platforms, which the VICs claim to have used (except for Facebook), have been recently adopted by several VICs only in the past one to two years; and evidently some VICs have not yet embraced these platforms, and several staff do not know if these ICTs are in use. This confirms the fact that VICs have been slow to adopt recent ICTs, which can assist in the dissemination of tourism information. By and large, Gauteng VICs are relatively late adopters of technology. This represents a lost opportunity in respect of engaging with visitors and the effective dissemination of tourism information. The adoption of these technologies would require significant investment in the beginning. This does not only benefit the VICs, but also the destination as a whole. Therefore, VIC management are challenged to adopt various social media sites, which they could use to interact with potential visitors throughout the travel process.

The previous sections profiled ICT platforms in use in Gauteng VICs and the duration for which they have been in use. Staff were also asked to **list the technologies they think their VIC should consider in future.** Table 2 presents these ICT platforms. A response rate of 84% was obtained in this part of the question. Most of these responses indicate that VIC staff are keen to adopt a range of technologies in their VICs. A significant number identify some of the technologies which were already identified in the previous sections of the survey. These include social media platforms and websites. More than half of the respondents identify social media platforms. While some list social media as a broader term, several participants mention specific social media platforms which include Facebook, TripAdvisor, Twitter and Instagram. A sizeable figure state the need for VIC websites which are interactive, where they could seal some business deals online. The other less-mentioned platforms which were not previously identified are iPads/tablets and plasma screens. Literature states that the former is being superseded by mobile smartphones that have Internet capabilities.

ICTs to be considered in the future	Frequency (25)
Interactive VIC websites	8
Social media	5
iPads/tablets	3
Twitter	3
Instagram	3
Plasma screens	2
TripAdvisor	2
Touch-screens	2
Facebook	1
Videos	1
E-mail	1
On-site electronic website	1
Wi-Fi	1
VIC app	1

Table 2: ICTs to be considered by Gauteng VICs in the future (n = 25)

Results indicate that respondents differ in terms of the emphasis they place on certain platforms; and that all of the ICT platforms are still important. In particular, the findings confirm the results from previous studies that the various ICT platforms are important and can be used in all the trip phases (pre-trip, in destination, post-trip). This concurs with extensive literature from well-developed destinations, such as Canada, Australia and New Zealand (Arana *et al.*, 2015; Deery *et al.*, 2007; Draper, 2016; De Ascaniis *et al.*, 2012; Intervistas, 2010).

As depicted in the Table 2, Wi-Fi was only mentioned by one staff respondent as a means of making tourism information accessible to the public. This respondent is of the opinion that making

Wi-Fi accessible in the VIC area could improve service to the travelling public, as well as patronage to the VICs themselves. A review of examples and best practices from developed countries shows that VICs are providing free Wi-Fi not only to improve accessibility, but also to encourage patronage by both tourists and the local community.

The other less-mentioned platform is the VIC application, better known as an 'app'. One respondent justified the introduction of a VIC app, which may assist individuals to access information, make purchases and share their experiences anytime and anywhere. Leading research has found that tourism operators and organisations are developing destination apps to enhance the tourism experience in the destination. However, it is acknowledged that the use of the destination application is still in its infancy (Lu, Mao, Wang & Hu, 2015).

Two respondents mentioned touch-screens, which could assist with the self-help function when the office is closed. Existing literature has underscored this platform as being very important in the dissemination of tourism information. Connell and Reynolds (1999) and Deery *et al.* (2007) state that touch-screens are a desirable channel to provide information after hours. These are best used in secure places such as airports.

5. Discussion

This research has shown that ICTs are imperative for a region's competitiveness. Regarding the level of adoption and usage of ICTs among VIC staff, evidence from this research is that ICTs have not been widely adopted and their use is still limited. However, almost all the VICs have adopted some form of ICT in their operations and they have been adopted at different magnitudes. There are extensive adoption and use of traditional ICTs such as e-mail and websites, which are not interactive. The study reveals that traditional platforms such as e-mail are by far the most used by staff to serve visitors. The websites do not have online booking capabilities - tourists can use them to obtain information on points of interest, but they cannot access them via smartphones during their experience phase. The majority of Gauteng VICs do not have dedicated VIC websites; and their online presence is mainly through their local government websites and provincial government websites. Of these two, the highest online presence is through the local government websites, perhaps because the majority of the participating VICs fall under the jurisdiction of the local government.

The most widely used social media platform is Facebook. Twitter and Instagram are not extensively used, with TripAdvisor even less used. It appears that Gauteng VICs are not providing adequate social-media platforms on which staff may interact with potential visitors to the region. However, staff are aware of the value and benefits of more modern ICTs, and they mention a range of ICTs that they would like to use in future. Of these 'future' ICTs, interactive websites and various types of social media emerged strongly.

Recent literature on VICs is directing efforts towards ICTs, particularly social media, as one of the most influential platforms. This presents a challenge to management to improve and increase the adoption and extensive use of ICT-based platforms. Results clearly indicate that staff are not well trained with respect to using ICTs. Management should address this in order to derive maximum benefit for both visitors and staff.

ICTs are taking precedence as an essential element in the destination marketing and promotional strategy. Destinations which do not adopt ICTs, particularly social media, will not gain competitive advantage. This research confirms that while VICs in Gauteng are in the preliminary stages of ICT adoption and usage, they are not responding sufficiently to current market trends. In terms of social media, it appears that Gauteng VICs are late adopters, hesitant to embrace these technologies.

The effective adoption and usage of ICTs require clear understanding, expertise and strategy. It appears that VICs in Gauteng do not have experts who can ensure this presence and are therefore sticking to well-known traditional models of marketing. Existing scholarship has underscored the adoption and use of ICTs in VICs for competitiveness, profitability, global market reach and cost reduction, as required by the modern global economy. VICs need to rethink this current strategy and adopt a substantial course of action in order to fully exploit the potential of ICTs going into the future.

6. Conclusion

The paper aimed to report on the level of adoption and usage of ICTs in VICs in the Gauteng province of South Africa. This was done to partially address the research gap in technology adoption in the Global South, and to address the matter from the perspective of supply (VIC staff), as most research in this context has focused on demand (the tourists/VIC users). The literature review revealed the rapid developments in ICTs, the benefits of utilising ICTs and the need for its

adoption to remain globally competitive. The survey methodology among VIC staff was then explained.

The findings reveal that the ICT adoption level and usage in Gauteng VICs are not in line with recent technological and marketing developments in the tourism industry. Despite the importance of keeping up with technological developments, the analysis highlight that the majority of the VICs use mainly traditional platforms, which lack interactivity, to serve customers. The low levels of technology adoption in Gauteng VICs are confirmed by Tichaawa *et al.* (2019) and Mxunyelwa (2019), not only at provincial levels but also nationally. Moreover, training on the ICTs being used seems to be lacking. The results show that social media usage among Gauteng VICs is limited, but an understanding and appreciation of how these can be used to promote Gauteng is emerging. To this end, Gauteng VICs are considered 'late adopters'. Though this research focused on Gauteng, VICs from other provinces can apply this research to improve their ICT strategies to enable their destinations to compete globally.

Future research could incorporate other relevant stakeholders such as VIC management at district, provincial and national levels to provide a holistic picture of ICT adoption and usage. Going forward, studies could also focus on other provinces with different product offerings and the economic potential to establish trends, such as the Western Cape province, which is a world-renowned tourism destination.

A gap thus exists between theory and practice. The findings from this paper provide an opportunity for management to self-examine current use, acquisition and training requirements (Bedard *et al.*, 2008) and to embark on a holistic strategy that embraces the opportunities ICTs provide. While traditional marketing and promotional channels may not be completely replaced within the VICs, they need to be complemented to create positive effects for the destination. Management should continuously improve on the current ICT infrastructure for optimal benefits to the industry and the destination as a whole. To this end, VIC management should vigorously incorporate and use various ICTs as part of their strategy to gain competitive advantage in the global tourism marketplace, so as not to be left behind. A consolidated approach to ICT adoption could enable VICs to transform their regions into contemporary smart destinations.

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