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Virtual Tourism and Its Potential for Tourism Development in Sub-Saharan Africa

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INTRODUCTION

The rapid growth of ICT (Information and Communications Technology) has resulted in the development of innovative tools that could extend new opportunities for tourism destination marketers and potential tourists. The ICT-based tools provide the option of expanding the tourism product and tourism experience into the realm of Virtual Tourism (VT). VT has been defined as an ICT-based tool that can facilitate potential tourists' experiencing tourism attractions via the medium of Virtual Reality (VR) without visiting these tourist destinations. Since the tourism product is intangible and therefore cannot be pretested by the potential tourist before purchase, VT makes it possible to have a sense of the experience through immersion in VR. This chapter focuses on how the phenomenon of VT could be explored to realize its full potential, particularly by Sub-Saharan African countries. The chapter is divided into six sections. The first section reviews the literature on the concept of VR and also discusses VT in the context of VR. The section also examines the ICT components that support VR and consequently VT. The second section explains the reasons for the rise of VT and identifies some of the efforts and attempts (e.g. teleporter booths with 4D renditions of exotic destinations; virtual walks through historical sites) that have been made to develop VT as a part of the tourism industry. The third section, examines some tourist attractions that could be marketed in the form of VT in Sub-Saharan Africa (SSA) to add value to the sub-region's existing physical tourist attractions. The section also identifies potential Sub-Saharan African VT markets. The fourth section identifies problems and provides suggestions to address problems that might scuttle these efforts at VT development. The fifth section recommends some areas for future research in VT and the sixth and final section provides some concluding remarks.

BACKGROUND

VT is an ICT-based tool that involves participant immersion and interaction (via visual graphics, sound, etc.) with the culture, history or other aspects of a tourist destination without physically traveling there (Ali & Frew, 2014). Sussman & Vanhegan (2000) indicated that VT is a convergence of human and computer interfaces to establish a 3D illusion of virtual (nonphysical) travel experiences. VT is also referred to as simply cybertourism (Prideaux, 2002). There are many technology-based activities assumed to belong to the realm of VT (e.g. panoramic photographs of a location). One of the fundamental characteristics of a VT experience is the level of interactivity by the person within the virtual environment. Creating a more realistic human experience within the

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realm of VT requires a technological framework that allows the user to establish a presence in a virtual environment. This framework is known as VR.

VR is "a medium composed of interactive computer simulations that sense the participant's position and actions and replace or augment the feedback to one or more senses, giving the feeling of being mentally immersed or present in the simulation (a virtual world)" (Sherman & Craig, 2003, p. 13). Pinho (as cited in Piovasan, Passerino & Pereira, 2012, p. 296) suggests that the essence of VR is captured by three fundamental purposes: immersion, interaction and involvement. Immersion refers to the degree to which the person is disengaged from the real world and perceives a connection to a virtual world synthesized by computer technology. The term interaction connotes the user's ability to alter or reshape components of, or objects within a virtual environment. Involvement means that the user can navigate the virtual space (either actively or passively) to the degree desired.

In order for a VR application to meet its purposes and function properly, a VR system must be in place. A VR system consists of hardware—a computer/VR engine connected with input and output devices, e.g. keyboard, mouse, a helmet or head mounted display (HMD); software (application software and databases saturated with useful information)(Sherman & Craig, 2003). The market value of VR technology is projected to increase from $980.4 million in 2014 to approximately $1.66 billion by the year 2020 (MarketsandMarkets, 2015). According to IHS Technology, the demand for VR products will increase and approximately 7 million VR headsets will be purchased by consumers by the end of 2016 (Graham, 2016).

VR systems are classified by their technological sophistication, level of immersion in the virtual world and come in four varieties: 1) non-immersive systems include simple electronic 3D simulations viewed through a portal and displayed by a computer monitor and manipulated by standard input devices (e.g. mouse, keyboard). 2) semi-immersive systems (or augmented reality systems) combine digital images of virtual environments displayed in devices (e.g. HMDs) together with objects from the real world. 3) projected systems-involves the creation of a physical space outfitted with display screens, video projectors and one or more users wearing input devices such as stereo glasses or haptic gloves. The computer-generated graphics displayed on the screens update or refresh in response to the user's body movements as captured by the tracking devices imbedded in the glasses or gloves. An example of this would be Cave Automatic Virtual Environment (CAVE), a specific kind of multiple projection room that allows one or more users to experience virtual worlds without being fully immersed. 4) complete immersion systems rely on HMDs, tracking devices and haptic gloves to send feedback to the display system (Blackledge, Barrett, & Coyle, 2011). Some of the other terms used in place of VR include: virtual environment, artificial reality, virtual worlds, and artificial worlds (Bamodu & Ye, 2013).

Another closely related term vital to understanding VR is telepresence. Telepresence is the extent to which an individual feels present in a computer-generated, multi-sensory environment and possesses the capacity to remotely interact with or manipulate the form/content of the environment in some way (Steuer, 1993). Telepresence makes possible the use of remotely-operated devices such as robots, vehicles and drones that perform jobs in high-risk areas such as nuclear plants, law enforcement, military operations, and space exploration, etc. (Sofge, 2015). The telepresence concept has many applications including utility for VT.

Within the tourism industry, VR systems apply in several general areas such as planning and management, marketing, entertainment, education, accessibility and heritage preservation (Gutentag, 2010). The next section examines some of the reasons for the spread of VT.

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