Chapter 35
Transformation of Service Sectors Through Augmented Reality (AR) and Virtual Reality (VR)

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ABSTRACT

Human interactions with actual and virtual environments are changing as a result of recent advancements in technology like Augmented Reality (AR) and Virtual Reality (VR). The sectors like retail, eCommerce, transport, tourism, real estate, healthcare, education, interior design, customer relationship management, etc. uses this innovative and adaptive technology. The aim of this chapter is to highlight the transformation of different service sectors through the use of Augmented Reality (AR) and Virtual Reality (VR) and also to see the recent innovations in this field. It was found that, AR and VR have an impact on various service sectors like retail and eCommerce in the form of virtual testing of products, tourism sector through 360-degree virtual tour, real estate sector through tour of the surrounding without being physically present, healthcare through physicians treating the patient virtually, education in the form of virtual classrooms, etc.

1. INTRODUCTION

The world is ever changing and companies who don't go with the changing environment will find it difficult to stay in business. Digital business optimization is crucial for companies now as compared to the past. Global business experience demonstrates that the majority of utility firms that used AR/VR technologies saw significant growth in their operations. Human interactions with actual and virtual environments are changing as a result of recent advancements in technology. This chapter is important because it demonstrates how AR and VR are transforming entire industries in ways that go beyond basic amusement. Employee training is becoming more efficient and cost-effective because of the usage of virtual reality (VR) to mimic real-world scenarios. These technologies

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are revolutionizing training and development. Furthermore, by offering real-time data, augmented reality (AR) is being used by sectors like manufacturing and logistics to aid in decision-making.

Augmented Reality (AR) and Virtual Reality (VR) are anticipated to have a big impact on several industries. Earlier the entertainment sector used this technology but now other sectors like retail, eCommerce, transport, tourism, real estate, healthcare, education, interior design, customer relationship management, etc. use this innovative and adaptive technology. The main objective of this research is to examine how AR and VR are transforming the service sector. The second goal is to identify the most recent developments in these areas. This study will also look at the challenges these technologies face, like high implementation costs and a lack of technical expertise in some regions.

Through the real-time overlay of computer-generated 3D objects, augmented reality is an interactive experience that improves the physical world. Although virtual reality (VR) and augmented reality are sometimes used interchangeably, they are not the same. For example, Augmented Reality incorporates digital features to improve the real world but Virtual Reality is a self-contained computer environment that is entirely independent from the real-world setting. In addition to being used to advance numerous business domains, augmented reality also holds the potential to revolutionize field service workers' methods of operation. Since, the release of a particular incredibly popular mobile game called Pokemon Go, which features a group of well-known Japanese cartoon monsters, augmented reality (AR) technology has been steadily gaining popularity. Kiefer and Chauvelier (2020). In addition, businesses and individuals are looking into how the immersive virtual environment known as the metaverse may be used for entertainment, social interaction, and workplaces. This technology is predicted to be the next big thing in virtual and augmented reality.

In terms of their usefulness and practical use, AR, VR and MR are relatively new technologies. Many businesses, particularly small and medium-sized ones, lack the technological know-how and appropriate SDK/software to create AR and MR apps. There are service providers in Singapore, India and other nations who can create any kind of application including AR/MR training for these kinds of businesses. In the aerospace industry, augmented reality (AR) is being used more and more for maintenance and repair tasks. This is because it enables professionals to view complex assemblies and parts directly at the work site. This reduces errors and downtime, which boosts operational efficiency.

In the field of augmented reality (AR), computer-generated virtual pictures are seamlessly superimposed over the actual environment, aligned with real-world items and allowing real-time viewing and interaction (Azuma, 1997). Over the past couple of decades, augmented reality (AR) has advanced quickly from research labs to broad consumer device availability. AR is transforming the way that medical operations are carried out.

These days, augmented reality is being applied in many different fields, including education ((Furio et al., 2013; Fonseca et al., 2014a; Ibanez et al., 2014), Engineering (Henderson and Feiner, 2009; Henderson and Feiner, 2011; Irizarry et al., 2013), Entertainment (Dow et al., 2007; Haugstvedt and Krogstie, 2012; Vazquez-Alvarez et al., 2012). However, difficulties with AR's usability and user experience still need to be resolved before it can be generally adopted by end consumers.

Although the early uses of this cutting-edge technology were mostly focused on games and novelty items, augmented reality is also finding its way into many other areas of the economy. Augmented reality is enabling companies to provide their clients with distinctive and creative experiences in a variety of industries, including retail and hospitality. The field service sector is the next to gain from this new technology.

2. REVIEW OF LITERATURE

Dey et al. (2018) in their study reported the nine major areas in which AR technology is being used are remote collaboration, education, gaming and entertainment, industrial applications, medical, navigation and driving, perception and travel and exploration. Rankohi and Waugh (2013) observed that despite an increase in use over