

E-Marketing via Augmented Reality: A Case Study in the Tourism and Hospitality Industry

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Abstract—Marketing plays an extremely significant role in the success of any business. In hospitality and tourism industry, marketing is a key tool to introduce various destinations to the customers and attract them to visit a place or stay in a particular hotel. The forms of marketing have considerably evolved during the past decades owing to the enhancements in technology. *e-Marketing* is a recent product of this evolution that has revolutionized the world of marketing and has created a huge impact on different businesses and industries, including hospitality and tourism industry, from many aspects such as customer satisfaction and revenue growth. In recent years, *augmented reality* has been used as a tool to boost e-Marketing in many ways due to its unique features and capabilities. In this article, we discuss how augmented reality has revolutionized e-marketing in the context of hospitality and tourism industry. We further review the successful integration of augmented reality in e-marketing for hospitality and tourism industry with a few real life examples and use cases.



1 WHAT IS e-MARKETING?

MARKETING has been in existence for centuries since the humans started trading to cater human-centred demands. However, the form of marketing has transformed over periods of time. In recent decades, marketing has revamped from conventional to non-conventional and then online composition. All of these transformations are aimed at improving the effectiveness and efficiency of marketing.

Among different types of marketing strategies, *e-Marketing* is the one that has received the most attention recently due to a multitude of reasons. However, before we mention the reasons of e-Marketing's eminence, let's first define the e-Marketing terminology. *e-Marketing* in its simplest manner can be defined as electronic marketing aimed to apply both the techniques and principles of marketing through the use of electronic media and more often the Internet [1]. e-Marketing is the outcome of modern and developed communication systems, where the Internet is the key platform. e-Marketing is entirely technology focused and has replaced the centuries of old marketing principles and tactics. e-Marketing embraces newer routes for marketing communications that do not necessarily exist in the conventional marketing systems.

e-Marketing can play a vital role in the success of a business, product, or service. One of the main requirements for running a successful business, is to deeply understand the customers' needs, demands, preferences, responses, and attitudes towards a particular product or service. In marketing, the measurement of post-purchase consumer responses and behaviour is extremely significant for the businesses to enhance the quality of their products and/or services. These behaviors and responses can appear in many forms, such as feedbacks, replies, reactions, or comments. Since the interaction between product or service providers and consumers are fundamental in creating and maintaining functional relationships;

e-Marketing provides businesses, products, and services the opportunity to communicate and interact with their both existing and potential customers. By adopting e-marketing, businesses can ensure efficiency, the better return of investment, and enhanced profitability that lead to increased cost effectiveness. Furthermore, campaigns in e-Marketing boost online sales by attracting potential consumer bases and by minimizing negative risks.

In the context of tourism and hospitality industry, the interaction and communication with the consumers must be more focused due to the specific nature of this industry. We would like to emphasize that the tourism and hospitality industry is a service industry. To market any service industry, the first thing to consider is the uniqueness of all services along with the personalization and customization of services. Some of the unique characteristics of tourism and hospitality industry services that make its marketing methods distinct from other industries are perishability, inseparability, intangibility, heterogeneity, seasonality, agreeability, inconsistency, imitability, and inflexibility. Besides all these unique characteristics, the consumer-oriented nature of tourism and hospitality industry plays a significant role for choosing a right and effective marketing strategy for this industry. In many cases, e-Marketing has become an essential ingredient to an existing or potential business enterprise related to tourism and hospitality industry. Selecting an effective technology (for e-marketing) and proper use of it is a critical key to help tourism and hospitality activists achieving their objectives and goals.

2 AUGMENTED REALITY FOR e-MARKETING

The Boeing researcher Thomas Caudell coined the term augmented reality (AR) in 1990, when he invented the technology to help aircraft workers in assembling long bundles of wires for the new 777 jetliner as an alternative to the costly diagrams and marking

devices. Since then, the AR has gained more traction in recent years due to further advances in sensors, optics, computer vision, image processing, audio processing, and computing. From the computer science perspective, AR is a direct or indirect real-time (live) view of a physical/real environment whose elements are augmented or superimposed with computer-generated perceptual information potentially across a multitude of sensor modalities including but not limited to visual, auditory, and haptic, etc. Vivian Rosenthal, the founder of GoldRun, a New York City-based AR start-up, has defined AR as “Augmented Reality is a digital layer over the real world that you can’t see with the naked eye, but you can see with the camera on your smartphone or computer” [2].

The AR technology is a shift from the earlier technology version: virtual reality (VR). Both VR and AR are anticipated to be disruptive technologies with applications not only in entertainment but also in business and education [3]. AR differs from VR as VR is an artificial, computer-generated simulation that creates a virtual environment very similar to the real life and makes it difficult for users to recognize that the environment/experience is not real, whereas AR is a mixture of real life and VR. VR enables the users to interact with by wearing VR helmet or goggles. On the other hand, AR developers creates images and computer-generated enhancements in applications that enable the users to combine those with real life, and thus permits interaction with VR in real life. In AR, the augmentation techniques are often performed in real-time when integrating the digital information with the user’s environment.

Characteristically, AR technology is a reality simulation by computer-generated visuals where a user can experience a reality in a virtually created environment [4][5]. The AR brings two widely diverse dynamics: personal exclusivity perception and a sensory experience that is commonly multidimensional. AR has numerous applications in consumer electronics, entertainment, marketing and business. Hence, even without realising, almost all consumers are, more or less, familiar with the experience that AR can generate. The revenue generated from AR was 2.39 billion USD in 2016 and is projected to reach 120 billion USD in 2020 [6].

The use of AR technology in marketing is seemingly less expensive than conventional marketing approaches. Print-based advertising and marketing campaigns are relatively more expensive and require continuous investment of resources. On the other hand, AR as a computer-based technology is less expensive as it can be used in digital platforms or online. Although the development cost to setup AR-based marketing campaigns might be higher, the lifetime operating cost mostly remains stationary. This claim is evident from this statement of Rosenthal: “It honestly depends on the scope of the project, but AR campaigns can be as



Fig. 1: An augmented reality application in tourism.

inexpensive as \$5,000 and as high as \$100,000. That’s nothing compared to print, and in many ways it’s worth the risk in my eyes” [2].

3 AUGMENTED REALITY IN TOURISM AND HOSPITALITY INDUSTRY e-MARKETING

The main drive behind tourism and hospitality industry is the people that travel to different destinations for a variety of purposes, such as visiting the destination for recreational purposes, medical purposes, pilgrimage, meeting relatives, business purposes, and many more. Thus, tourism and hospitality industry provides substantial revenue for a country. However, the tourism in a particular country/place is often restricted by many reasons including consumers trust deficit of available tourism services, insufficient security measures, travel scams and frauds in tourism spots [7]. Hence, it is extremely vital for tourism and hospitality marketers to introduce and market a destination in the best possible way to attract the most number of travellers and to alleviate the tourists’ apprehensions regarding these destinations. In particular, tourism and hospitality marketers can leverage AR to mitigate the tourists’ concerns by various means, such as providing real-time travel assistance and augmented maps with markers and information regarding shops, grocery stores, tourist attractions, gas stations, hospitals, emergency help, banks, post offices, cafés, gyms, cinemas, etc., as illustrated in Fig. 1.

In tourism and hospitality industry, the AR provides significant advantages over conventional broadcast or print advertising in terms of application and usability. A basic feature of AR that warrants its integration in tourism destination marketing is its simplicity. The AR technology is viewed as simplistic, while having the ability to connect closely with target consumer bases. The content and features of a tourism destination can be viewed more congenially by superimposing a virtual environment with reality. For example, the St. Petersburg/Clearwater is augmented with an innovative AR technology application [8].

In tourism and hospitality industry, which solely relies on offering services, the word-of-mouth has a

special place. The word-of-mouth is directly related to expressing human feelings and emotions towards different experiences. The AR applications can bolster the emotional connection of tourists to destinations that in turn leads to repeated sales and business. The establishment of this connection between service providers and consumers is also supported by Rosenthal: "It's not just a matter of taking photos and sharing, which is what we're building. But what really matters to us is the ability to take photos with virtual characters, products and environments, which is where it will resonate most and develop that deep brand connection" [2].

According to Hassan and Shabani [9], tourism destination marketing or advertising based on AR applications can grab attention of particular tourism customers. In particular, one of the goals of AR in hospitality and tourism industry is to reach the millennials. The AR can be purposefully applied to create appeals and to attract younger demographic tourists that often have a common interest in innovative technology usage. Some of the AR applications that have enhanced the experience of consumers include interactive travel guides, social travel gamification, city tours, real-time navigation and direction, augmented hotel environment and room booking, interactive hotel rooms, augmented language translation, augmented access to dining and entertainment centres, participative destination management, augmented transportation, augmented services in restaurants, re-living historic places and events, augmented reality browsers incorporated in destinations, and finally museum interactivity. The increasing growth of social media connects consumers (including millennials) by making a network of like-minded people that allows further capitalization of innovative technologies such as AR.

The incorporation of AR in marketing and advertising campaigns can offer a variety of benefits to tourism destination marketers. The AR campaign offers close pertinence to target consumer bases that is relatively long lasting. The AR enables greater involvement of both marketers and consumers with brands by increasing their abilities to make positive sale and purchase decisions, respectively. The AR allows interactive consumption experiences prior, during, and post purchase stages to make memorable familiarities. Specifically, the ability of AR to offer personal and customized feelings to the target consumers plays a central role in the success of AR in hospitality and tourism industry. This customization allows wider interconnectivity and interactivity in both selling and purchasing process. Hence, the AR can create a bridge between the offered and purchased products and services.

Although AR is a revolutionizing technology for e-marketing with a variety of benefits, the integration of AR in tourism destination marketing is relatively a complex process [10]. The application of AR for tourism



Fig. 2: Augmented reality museum.

destination marketing needs expertise and resources. At an early stage, the demand for an AR application needs to be recognized and established. The hospitality and tourism marketers need to explain the added benefits that AR provides, such as combining real and virtual images in real-time and the ability to interact with virtual content. Oftentimes, it is better to consider AR as an addition to the existing marketing and advertising tools to make the most efficient use of the AR technology. In other words, the AR needs to be an added but not the only strategy to serve specific objectives. Since the AR technology is rather innovative and new, it is propitious to capitalize the maximum benefits in unique ways and pulling it off effectively.

4 USE CASES AND EXAMPLES

There are many use cases of AR in tourism and hospitality industry, however, below are several selected examples that successfully incorporate AR in business marketing and have resulted in both increased profitability and customer satisfaction:

Augmented Reality Museum: The augmented reality museum is a strategy employed by some museums to superimpose the virtual world over the real world to provide visitors with a vivid view and understanding of the origins, history, and details of various exhibits and artifacts. The AR museums integrate and/or blend digital information with live video or the user's environment in real-time using special 3D AR software programs [11]. Fig. 2 illustrates the usage of AR in an AR museum.

Inamo Restaurant in London: The Inamo restaurant is identified as the world's very first extraordinary restaurant that offers a dining experience with a unique combination of the Far Eastern feeling in the Western locale. The virtual environment furnished by the branded E-Table™, chef camera, puzzles, Battleships game, information browsing on the local areas, and even booking a taxi are all relatively new in the hospitality industry not only in London but also in the world. In Inamo, customers can order food and drinks by using AR technology-enabled menus placed on custom-designed customer serving tables. These tables

work as electronic display boards as well as electronic point-of-sale (EPOS) terminals. The tables incorporate a waterproof touch panel operated by Bluetooth wireless technology. Each table is equipped with a high-quality projector and a computer that steers the interactive AR applications and also communicates with the central server system. The central server incorporates various tools including business logic, which define the restaurant operational aspects. Furthermore, the central server drives the printers in the bar and kitchen.

To get a better understanding of the customers' perspective on the usage of AR in hospitality and tourism industry, we interviewed a few customers of the Inamo restaurant in London. After asking a couple of semi-structured interview questions, we observed some interesting opinion from those customers regarding AR.

According to the respondent 1: "The hospitality industry marketers in London mostly retain a set level of technological standard that actually makes their consumers to become capable to use a new technology".

Respondent 2 reported: "Augmented reality draws the line that tends to exist between the real and the digital by using an appropriate technology".

Respondent 3 viewed AR as entertaining and commented: "Gastronomy is mostly about experiences where AR technology is seemingly also very interesting with the involvement of entertaining features".

According to respondent 4: "In a technology-induced hospitality business market, there are many websites, blogs or online media allowing customers to get involved, to get attached and to express new ideas. The customers in Inamo have competitive operational knowledge of a technology. This customer group normally reads online reviews of early customers in Inamo. Also, they follow videos and reviews on popular online streaming media such as YouTube and many others".

Kuoni Travel: This is a tourism company that collaborates with Aurasma as an AR specialist and makes AR available for its customers. Kuoni Travel customers can view AR-enabled services or products offered by the company on their Smartphone or tablets. The AR technology makes online displays and advertisements of Kuoni Travel artistic and lively.

5 CONCLUSIONS

Innovative technologies have been consistently making significant improvements in tourism and hospitality business services. Augmented reality (AR) is a blooming innovative technology that has helped the e-Marketers in tourism and hospitality industry to enhance their service quality and create value to their consumers. The usage of AR in hospitality and tourism industry has exceeded consumer expectation and satisfaction by creating a memorable experience. Since AR is a new technology and a limited research has been done so far, especially in the context of tourism and hospitality industry, future research and innovation in AR technology have the

potential to make a huge impact in this industry and generate tremendous revenues.

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